OFFICIAL PUBLICATIONS OF CORNELL UNIVERSITY

VOLUME 1 NUMBER A

COLLEGE OF ARTS AND SCIENCES
COURSES OF INSTRUCTION
1910-1911

ITHACA, NEW YORK

MAY, 1910

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INDEX

STUDY CARDS

must be filed at the office of the Dean, 143 Goldwin Smith Hall, not later than 5 p.m. on the following days

For first term, 1910–11,
sophomores, juniors, and seniors, Tuesday, May 31, 1910,
freshmen and other new students, Monday, October 3, 1910.

For second term, 1910–11,
all students, Thursday, January 12, 1911.

Underclassmen in filling out their study cards should conform to paragraph eight, upperclassmen to paragraph nine, of the Requirements for the Degree of Bachelor of Arts, printed on pages i-iii; and freshmen should observe the list of courses open to them, as there printed. The original card of each upperclassman must bear the endorsement of his group adviser.

No student in the College will be recognized by any department as a member of any of its classes until his registration has been made at the Dean's office.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ARTS

TERMS AND HOURS

1. The requirements for the degree of Bachelor of Arts are residence for eight terms*, and in addition to the prescribed work in the Departments of Physical Culture and Military Science and Tactics, the completion of one hundred and twenty hours of work under the rules governing the choice of studies.

2. In case a student has received surplus entrance credit, there will be deducted from the one hundred and twenty hours required for graduation, so many hours as the amount of his surplus entrance credit may warrant, and a student of whom not more than one hundred and eight hours are thus required for graduation will be considered as having completed one term of residence.

3. A student who has satisfied the entrance requirements of this College, and has afterwards completed in two or more summer sessions of Cornell University at least twelve hours of work in courses approved by the departments concerned, may be regarded as having thus satisfied one term of residence. Under no circumstances shall work done in summer sessions be accepted as the equivalent of more than one term. Subject to the same restrictions as apply to courses pursued in the Cornell Summer Session, courses pursued in summer schools elsewhere, by a student regularly registered in this College or in a college of like standing, may be credited towards his A.B. degree, if recommended by the appropriate department of this College, and if the institution where such summer courses were pursued shall certify that those courses, if pursued by a student regularly registered there, would be credited towards the corresponding degree in that college.

4. A student admitted to the College of Arts and Sciences from another college of Cornell University or from any other institution of collegiate rank shall be regarded as having completed the number of terms and of hours to which his records entitle him, and will receive all the privileges of students who have completed the same number of terms and hours by residence in the College. In order, however, to obtain the degree of Bachelor of Arts he must have been in residence at least two terms in the College of Arts and Sciences, and in that College only.

5. A student must register for at least twelve hours each term. A student registering for the first time may register and receive credit for a maximum of eighteen hours for the term. A student whose marks average 85 or more in any term may register and receive credit for a maximum of twenty hours for the following term. A student whose marks average between 85 and 65 in any term may register and receive credit for a maximum of eighteen hours for the following term. A student whose marks average 65 or less in any term may register and receive credit for a maximum of sixteen hours for the following term.

6. Students desiring to elect courses outside the College of Arts and Sciences must first obtain the approval of the Faculty. But any student who, while registered in the College of Arts and Sciences only, is per-

*The academic year is divided into two terms.

mittted to pursue a course or courses in another College, shall have the number of hours that he may take in any other college under the provisions of paragraph 7 correspondingly reduced, and under no circumstances will he be allowed to take more than thirty hours under the provisions of this paragraph.

7. A student who has satisfied at least six terms of residence, no one of them under the provisions of paragraph 2 or 3, and who has a credit of at least ninety hours, may, with the permission of the faculties concerned, be registered both in the College of Arts and Sciences and also in any other college of Cornell University.

CHOICE OF STUDIES

8. Students registering in the College of Arts and Sciences for the first time must hand in their study-cards with list of courses for the term at the Dean's office on or before the third day of instruction.

9. Two weeks before the end of each term students must hand in their study-cards with list of courses for the next term at the Dean's office.

10. Students may make changes in their list of courses only during the first ten days of instruction and with the approval of the Dean. Students required by paragraph 5 to reduce their registration must during the first ten days of instruction notify the Dean which course they wish to discontinue.

11. After the first ten days of the term no student shall have the right to withdraw from any course in which he is registered, unless he shall previously obtain the authorization of the Dean to withdraw from the course on the ground of ill-health or for other reason beyond the student's control.

12. Before a student may be registered as a junior he must have completed sixty hours of work which shall include in English and history six hours, in one or more languages other than English six hours, in philosophy and mathematics six hours, and in science (physics, chemistry, geology, physical geography, and the biologic sciences) six hours, of which hours the student is required to take at least twelve, and advised to take more, in his freshman year. Each six hours may be entirely in one division (for example, philosophy six hours), or partly in one and partly in another (for example, philosophy three hours and mathematics three hours). Surplus entrance credit may not be applied in satisfaction of any of these required groups of six hours.

13. Each student shall choose at the beginning of his junior year one of the following groups :

1. Ancient Languages.
2. Modern Languages.
3. English and Oratory.
4. Philosophy and Education
5. History and Political Science.
6. Mathematics and Astronomy.
7. Physics.
8. Chemistry.
9. Botany.
10. Zoology and Entomology.
11. Physiology, Histology, and Embryology.
12. Geology and Physical Geography.

In the group thus chosen he must complete during his junior and senior years at least twenty hours of work. In selecting these twenty hours the student must obtain the advice and approval of some one professor or assistant professor within the group, who shall be chosen by the student himself. But a senior in this college who is registered also in some other college of Cornell University is excusedro fm ten seof thetwenty hours.

(For the present, however, a student specializing in chemistry and taking the four years' course outlined by the Department of Chemistry may be exempted from paragraph 12 of the above requirements.

A student intending to follow the five year course leading to the degree of C.E., of which an outline will be given under the College of Civil Engineering, or that leading to the degree of M.E., of which an outline will be given under Sibley College, should register in his freshman and sophomore years, and may receive credit, for all courses specified in the outline which he elects to follow ; but he may not register or receive credit, during those years, for any other courses in mathematics, physics, or chemistry, or any other courses outside the College of Arts and Sciences, than those there specified ; nor may he register, during his freshman or sophomore year, for any course in the College of Arts and Sciences which is specified for a later year of the outline which he is following. A student following the special course in chemistry, of which an outline is given under the Department of Chemistry on page 48, may register, in each term, and may receive credit, for the courses outside the College which are specified in that outline.)

Courses open to freshmen without special permission of the administrative board in charge of freshmen and sophomores

Greek, 1, 3, 5, 6 ; Latin, 1, 3, 4 ; Germanic Languages, 1, 2, 3, 4, 5, 6, 7, 8 ; Romance Languages, 1, 2, 3, 12, 30, 32, 40, 42 ; English, 1 ; Music 1 ; History, 1, 21 ; Bibliography, 1, 1a ; Mathematics, 1, 2a, 2b, 3, 4, 6, 7 ; Physics, 1, 5, 6, 10 ; Chemistry, 1, 6, 7 ; General Biology, 1 ; Botany, 1, 2 ; Entomology, etc., 2, 4, 5 ; Vertebrate Zoology and Neurology, 2, 5 ; Geology, 1, 2a, 2b, 2c.

Theses

Any senior in the College of Arts and Sciences may arrange with the department in which he is taking his principal work to write a thesis, which must be a scholarly dissertation on some subject coming within the province of that department, and which, if accepted, shall entitle him to not more than three hours of credit a term, in the discretion of the department. The subject must receive the written approval of the professor in charge of the study to which it relates, and a memorandum of such approval and of the title of the thesis must be left with the Registrar not later than the fifteenth day of October. A bound copy of the thesis, type-written on one side of paper 8x10½ inches in size, and double-spaced, must be deposited with the Registrar, for presentation to the Faculty, not later than the fifteenth day of May. The copy thus presented shall become the property of the University.

Vocational courses

Students preparing themselves to be teachers should follow the directions given by the School of Education on page 27.

Students who intend to follow chemistry as a profession, either by teaching it or by entering commercial practice, should pursue the special course in chemistry outlined on page 48.

Students preparing for other vocations, such as journalism, banking, business, philanthropy, or the various forms of civil service, are advised to plan their studies with the assistance of the professors most intimately concerned.

COURSES OF INSTRUCTION

SEMITIC LANGUAGES AND LITERATURES

1. HEBREW. Throughout the year, credit three hours a term. Professor SCHMIDT. M W Th, 2, Goldwin Smith 127.
Grammar (Harper, Gesenius—Kautzsch). Genesis. Ruth and Esther at sight. Exercises in composition. Open only to juniors, seniors, and graduates.

[2a. ARABIC. Credit two hours a term. Professor SCHMIDT.
Grammar (Socin, Wright, Caspari—Müller). Selections from prose writers, poets, and the Qurân.]
Not given in 1910–11.

2b. ADVANCED ARABIC. Throughout the year, credit two hours a term. Prerequisite course 2a. Professor SCHMIDT. T Th, 9, Goldwin Smith 127.
Grammar (Wright–DeGoeje). A group of early suras in the Qurân. Selections from the Prolegomena of Ibn Khaldun.
Primarily for graduates.

3. ETHIOPIC. Throughout the year, credit two hours a term. Prerequisite courses 1, 2. Professor SCHMIDT. T Th, 3, Goldwin Smith 127.
Grammar (Dillmann-Bezold). Liber Baruch in Dillmann's Chrestomathia Aethiopica, and The Book of Enoch, xxxvii-lxxi (ed. Charles). Study of Ethiopic manuscripts. Open only to students who have had Arabic.
Primarily for graduates.

[4a. ASSYRIAN. Throughout the year, credit two hours a term. Prerequisite courses 1, 2. Professor SCHMIDT.
Grammar (Lyon, Delitzsch). Selections from Meissner's Chrestomatie, Delitzsch's Lesestücke, and Rawlinson's Cuneiform Inscriptions of Western Asia. Open only to graduates.]
Not given in 1910–11.

4b. ARAMAIC. Throughout the year, credit two hours a term. Professor SCHMIDT. T Th, 4, Goldwin Smith 127.
Grammar (Nestle, Nöldeke, Duval). The Gospel of Matthew in the Sinaitic Syriac, the Curetonian Fragments, the Peshita, and the Evangeliarium Hierosolymitanum Inscriptions in the Corpus Inscriptionum Semiticarum, and the Elephantine Papyri.

5a. EGYPTIAN. Throughout the year, credit two hours a term. Prerequisite courses 1, 2. Professor SCHMIDT. W, 4–6, Goldwin Smith 127.
Grammar (Erman). Hieroglyphic texts. Study of squeezes in the Eisenlohr collection.
Primarily for graduates.

[5b. COPTIC. Throughout the year, credit two hours a term. Prerequisite course 5a. Professor SCHMIDT.
Grammar (Steindorff). Selections from the Gospels and from Pistis Sophia]. Primarily for graduates.
Not given in 1910–11.

6. SEMITIC LITERATURE. Throughout the year, credit two hours a term. Professor SCHMIDT. M W, 3, Goldwin Smith 120.
General introduction to the Bible, including Apocrypha and Pseudepigrapha, and special introduction to each book. Designed to give in brief

compass the results of scientific inquiry concerning the origin, date, composition, and character of the Jewish and Christian Scriptures. Preparation of papers, discussion of special topics, and examinations. Open to juniors, seniors, and graduates. No knowledge is required of Semitic languages or of Greek.

7. SEMITIC SEMINARY. Throughout the year, credit two hours a term. Prerequisite courses 2a, 2b. Professor SCHMIDT. M, 4–6, Goldwin Smith 127.

Study of Arabic inscriptions in Berchem's Corpus Inscriptionum Arabicarum, or Exodus in the Hebrew text and the ancient versions.

8. COMPARATIVE SEMITIC PHILOLOGY. Throughout the year, credit one hour a term. Prerequisite courses 1, 2, 4b. Professor SCHMIDT. F, 3, Goldwin Smith 127.

Study of certain morphological and syntactical peculiarities of the Aramaic dialects. Interpretation, for purposes of comparison, of texts in Mandaic, Babylonian Talmudic, ancient and modern Syriac, Galilaean, Samaritan and Judaean Aramaic, Palmyrene, and Nabataean.

For graduates.

[9a. ORIENTAL HISTORY. Throughout the year, credit two hours a term. Professor SCHMIDT.

Introduction to the history of Asia. Designed like course 9b, to acquaint the student in a general way with the civilizations of the Orient; sources, methods of study, and present problems; the great epochs, the leading personalities, and the chief institutions. The history of Asia Minor, Syria, Arabia, Irak, Iran, India, China, Japan, Central Asia, and Asiatic Russia will be presented in outline. The illustrative material of the department will be used. Preparation of papers, and frequent examinations.]

Not given in 1910–11.

9b. ORIENTAL HISTORY. Throughout the year, credit two hours a term. Professor SCHMIDT. T Th, 10, Goldwin Smith 127.

Introduction to the history of Africa. This course, like the one given in alternate years on Asia, is designed to acquaint the student in a general way with the civilization of the Orient; sources, methods of study, and present problems; the great epochs, the leading personalities, and the chief institutions. The history of Egypt, Libya and the Cyrenaica, Carthage, Mauretania, Nubia, Ethiopia, and the various Egyptian and Maghrebite caliphates in outline, and the growth of European influence in Modern Africa. The illustrative material of the department will be used. Preparation of papers, and frequent examinations.

Open to juniors, seniors, and graduates.

GREEK

1. ELEMENTARY GREEK. The essentials of the grammar; simple exercises in composition; reading of Xenophon's Anabasis, books I–IV. Throughout the year, credit twelve hours for the year. Assistant Professor JONES. M T W Th F S, 9, Goldwin Smith 134.

This course is designed for and may be elected by all students that wish to acquire, by extraordinary effort in one year, the ability to read Attic prose. This course is continuous through the year. No credit will be allowed for the first term alone.

3. XENOPHON'S HELLENICA, HOMER'S ODYSSEY. Throughout the year, credit three hours a term. Prerequisite course 1. Assistant Professor JONES. M W F, 10, Goldwin Smith 134.

Open to freshmen who have presented Greek at entrance and to those who have passed in course 1.

5. LYSIAS. First term, credit two hours. Open to those who have taken or are taking course 3, with which it affords an opportunity for freshmen to take five hours of Greek. Assistant Professor JONES. T Th, 10, Goldwin Smith 134.

Selected speeches of Lysias illustrative of normal Attic prose and of the simple style in oratory.

6. HERODOTUS. Second term, credit two hours. Open to those who have taken or are taking course 3, with which it affords an opportunity for freshmen to take five hours of Greek. Professor BRISTOL. T Th, 10, Goldwin Smith 134.

The story of the Persian Wars will be read.

7. GREEK COMPOSITION. Throughout the year, credit one hour a term. Prerequisite course 3. Assistant Professor JONES. S, 11, Goldwin Smith 137.

This course is based on a systematic and practical study of Greek grammar, and leads to course 35

10. EURIPIDES, THE IPHIGENIA IN TAURIS AND THE MEDEA First term, credit three hours. Prerequisite course 3 or the equivalent. Professor STERRETT. M W F, 11, Goldwin Smith 134.

11. SOPHOCLES, THE OEDIPUS TYRANNUS AND THE ANTIGONE. Second term, credit three hours. Prerequisite courses 3 and 10 or the equivalent. Professor STERRETT. M W F, 11, Goldwin Smith 134.

15 ILIAD, selections (about nine books). First term, credit two hours. Prerequisite courses 3, 10, 11. Professor STERRETT. T Th, 12, Goldwin Smith 134

16. PLATO, REPUBLIC, OR DEMOSTHENES, ORATION ON THE CROWN. Second term, credit two hours. Prerequisite courses 3, 10, 11. Professor STERRETT. T Th, 11, Goldwin Smith 134.

20. THEOCRITUS, BION, AND MOSCHUS. First term, credit two hours. Professor STERRETT. T Th, 9, Goldwin Smith 134.

Open to seniors and graduates.

21. ARISTOPHANES, THE BIRDS AND THE CLOUDS. Second term, credit two hours. Professor STERRETT. T Th, 9, Goldwin Smith 137.

Open to seniors and graduates.

24. PAUSANIAS. Throughout the year, credit two hours a term. Mr. ANDREWS. Hours to be arranged after consultation, Goldwin Smith 35.

A reading course in the sources of knowledge of Greek topography with special reference to Athens, supplemented by illustrated lectures and by readings from Thucydides and Herodotus.

26. NEW TESTAMENT GREEK, St. Luke's Gospel and the Acts of the Apostles, (Westcott & Hort's edition). Throughout the year, credit two hours a term. Dr. WHITE. W F, 8, Barnes Hall Library.

28. MODERN GREEK. Throughout the year, credit two hours a term. Mr. ANDREWS. Days and hours to be arranged after consultation. Goldwin Smith 35.

The literary language and the colloquial idiom. Athenian newspapers and novels in the vernacular will be read.

30. GREEK EPIGRAPHY. Throughout the year, credit two hours a term. Mr. ANDREWS. Days and hours to be arranged after consultation, Goldwin Smith 35.

A study of Greek alphabets and inscriptions, chiefly from the large collection of squeezes owned by the department.

For graduates and qualified undergraduates.

[33. GREEK LIFE. Throughout the year, credit two hours a term. Professor STERRETT.
The land and the people ; home life and private antiquities ; public life and social institutions. A study of the private life of the Greeks with illustrations by lantern views, photographs, etc., from ancient monuments and remains.]
Not given in 1910-11.

35. ADVANCED GREEK COMPOSITION. Throughout the year, credit one hour a term. Assistant Professor JONES. S, 12, Goldwin Smith 137.
Open by special permission to properly qualified students.

40. THE TRAGEDIES OF SOPHOCLES. Special attention is given to the rhythmical and metrical structure and to the practical reading of the choral odes. Lectures on the antiquities of the stage. W F, 12, Professor STERRETT.
This course is devoted to the study of the entire works of some one author or of a particular field of literature, and will be varied from year to year. Exclusively for graduates.

43. THE AGAMEMNON OF AESCHYLUS. First term. T Th, 11. Professor STERRETT. Textual criticism and literary interpretation.
Exclusively for graduates.

44. PINDAR. The Olympian and Pythian Odes. Second term. T Th, 11. Professor STERRETT. The fluent rhythmical reading of the odes is insisted upon.
Exclusively for graduates.

50. GREEK SEMINARY. Homeric questions from the archaeological point of view. Papers and discussions. W, 2-4. Professor STERRETT.
Exclusively for graduates.

GREEK ART AND ANTIQUITIES

The courses in this department do not require any knowledge of Greek or Latin and are open to all students except freshmen.

1. HISTORY OF GREEK SCULPTURE. First term, credit three hours. Mr. ANDREWS. M W F, 9, Goldwin Smith Museum.
Lectures in the Museum of Casts. Intended to be supplemented by course 4 but may be taken separately.

2. HISTORY OF GREEK SCULPTURE. Throughout the year, credit two hours a term. Mr. ANDREWS. T Th, 10, Goldwin Smith Museum.
Lectures in the Museum of Casts.

3. HISTORY OF GREEK SCULPTURE. Throughout the year, credit three hours a term. Mr. ANDREWS. M W F, 11, Goldwin Smith Museum.
Lectures in the Museum of Casts.

4. GREEK ARCHAEOLOGY. Second term, credit three hours. Mr. ANDREWS. M W F, 9, Goldwin Smith 35.
Lectures on pre-Greek art and civilization, Greek architecture, terra-cottas, coins, bronzes, gems, and vases. The terra-cottas, coins, and vases in the Museum of Casts will be used as material for study. Intended to be taken with course 1, but may be taken separately.

5. GREEK ARCHAEOLOGY. Throughout the year, credit two hours a term. Mr. ANDREWS. M W, 10, Goldwin Smith 35.
Similar to course 4.

GENERAL PHILOLOGY

[1. INTRODUCTION TO THE STUDY OF LANGUAGE. First term, credit three hours. Professor BRISTOL.

Language as speech; the elements of phonetics; the analysis of sounds in English, Greek, and Latin; the life and growth of language; changes in form and meaning, the languages of the Indo-European family; their classification and relations to one another, with special reference to Greek, Latin, German, and English; the origin and early history of the alphabet. Outline history of linguistic science and of the comparative method in language study.

Designed for students of either ancient or modern languages who wish to know something of the general principles of the science of language and of the history of that science; further for students of history who may be interested in questions on the border line of history and linguistics. Open to graduates and to properly qualified seniors].

Not given in 1910-11.

During the second term of 1910-11, Professor Bristol will be ready to assist students who wish to study questions dealing with the use of linguistic evidence in the determination of questions of race and culture, and of problems of prehistory in Europe. The reading of Tacitus' Germania will be made the centre for this study.

LATIN

1. LIVY; CICERO, DE SENECTUTE; HORACE, ODES AND EPODES; LATIN WRITING. Throughout the year, credit three hours a term.

Sec. 1, M W F, 9, Goldwin Smith 124. Professor ELMER.
Sec. 2, M W F, 11, Goldwin Smith 128. Professor DURHAM.
Sec. 3, M W F, 12, Goldwin Smith 128. Professor DURHAM.

[2. SIGHT TRANSLATION: GELLIUS, SELECTIONS; OVID, METAMORPHOSES. Throughout the year, credit one hour a term.]

Not given in 1910-11.

3. SIGHT TRANSLATION: CAESAR'S CIVIL WAR; PHAEDRUS; MARTIAL. Throughout the year, credit one hour a term.

Sec. 1, T, 11, Goldwin Smith 124. Professor ELMER.
Sec. 2, S, 10, Goldwin Smith 124. Professor ELMER.

Especially recommended as collateral work for those who are taking course 1, but open to all students.

Courses 2 and 3 are given in alternate years.

4 VIRGIL'S AENEID, BOOKS I-VI. Second term, credit three hours. Professor ELMER. T Th S, 12, Goldwin Smith 124.

7. LATIN CONVERSATION AND ORAL COMPOSITION. Throughout the year, credit one hour a term. Professor DURHAM. M, 2, Goldwin Smith 128.

Open to students in the second year of their Latin work.

8. TERENCE, PHORMIO AND ADELPHI; HORACE, SATIRES AND EPISTLES; TACITUS, GERMANIA AND AGRICOLA; LATIN WRITING. Throughout the year, credit three hours a term. Prerequisite course 1. Professor BENNETT. M W F, 9, Goldwin Smith 120.

Courses 8 and 10 are given in alternate years.

[9. SIGHT TRANSLATION FOR SOPHOMORES. Throughout the year, credit one hour a term. Professor DURHAM.

Open to students in the second year of their Latin work.]

Not given in 1910-11.

[10. CATULLUS; VIRGIL'S GEORGICS; OVID'S AMORES; MARTIAL; LATIN WRITING. Throughout the year, credit three hours a term. Prerequisite course 1. Professor DURHAM.] Not given in 1910–11.

Courses 8 and 10 are given in alternate years.

11. SELECTIONS FROM CICERO'S LETTERS; CICERO, DE ORATORE, BOOK I. Throughout the year, credit two hours a term. Prerequisite course 1. Professor ELMER. W F, 11, Goldwin Smith 124.

[12. SELECTIONS FROM CICERO'S DE OFFICIIS; CICERO'S SECOND PHILIPPIC. Throughout the year, credit two hours a term. Prerequisite course 1. Professor ELMER.]

Courses 11 and 12 are given in alternate years.

Not given in 1910–11.

16. SELECTIONS FROM THE REPUBLICAN LITERATURE: PLAUTUS, THE CAPTIVES AND MOSTELLARIA; LUCRETIUS; LECTURES ON THE HISTORY OF ROMAN LITERATURE. Throughout the year, credit three hours a term. Prerequisite course 8, 10, 11, or 12. Professor BENNETT. T Th S, 9, Goldwin Smith 120.

[17. LITERATURE AND HISTORY OF THE EARLY EMPIRE: SUETONIUS, LIVES OF THE CAESARS; PLINY'S LETTERS, TACITUS' ANNALS. Throughout the year. Prerequisite course 8, 10, 11, or 12. Professor BENNETT.]

Courses 16 and 17 are given in alternate years.

Not given in 1910–11.

21. INTERMEDIATE COURSE IN LATIN WRITING. Throughout the year, credit one hour a term. Prerequisite course 8, 10, 11, or 12. Professor ELMER. M, 11, Goldwin Smith 124.

26. TEACHERS TRAINING COURSE. Throughout the year, credit three hours a term. Open, upon personal application to the professor, to students who have had course 8, 10, 11, or 12, and have taken or are taking course 16 or 17. Professor BENNETT. M W F, 12, Goldwin Smith 120.

Study of the evidences for the pronunciation of Latin; hidden quantities; peculiarities of orthography; theoretical consideration of Latin syntax; lectures on problems connected with the teaching of Latin in secondary schools. Special study of some Latin author read in the schools, with reference to all the points that should be emphasized in elementary instruction.

[27. ROMAN ANTIQUITIES. Throughout the year, credit two hours a term. Open to students of the sophomore, junior, and senior years. Professor BENNETT.

First term and until Easter recess: topography and architectural remains of the city of Rome. A systematic consideration of the constitution of the Roman family, status of women, marriage, children, education, slavery, the Roman house and its furniture, food, dress, baths, games and amusements, books, trade, travel, religion, death, burial, etc. Lectures illustrated by lantern views, photographs, and material in the Museum of Casts. Easter recess until end of second term: the political and legal antiquities of the Romans].

Not given in 1910–11.

34. CICERO, IN VERREM, FOURTH ORATION OF THE ACTIO SECUNDA. Throughout the year, credit one hour a term. Prerequisite course 8, 10, 11, or 12, or the equivalent. Professor ELMER, Th, 11, Goldwin Smith 124.

This course requires no prepared translation for the class-room work. The professor in charge will himself translate the work with full comments on subject-matter, style, difficulties, etc. The members of the class will endeavor merely to read the original Latin as Cicero himself would have read it. Designed to develop in students the ability to understand and to appreciate the Latin without translating.

[35. VIRGIL, AENEID VII–XII. Throughout the year, credit one hour a term. Prerequisite course 8, 10, 11, or 12, or the equivalent. Professor ELMER. This course alternates with 34 and has a similar aim].
Not given in 1910–11.

41. LATIN SEMINARY. Throughout the year. Professor BENNETT. T, 2, and S, 10. Library, Greek and Latin Seminary Room.
The work of the seminary for 1910–11 will consist of the textual and exegetical study of Horace, combined with a reading of all of Horace's works.
The object of the seminary is to familiarize its members with the methods and habits of independent investigation. The work therefore, as far as possible, is thrown into the hands of the students themselves.
Exclusively for graduates.

42. HISTORY, AIM, AND SCOPE OF LATIN STUDIES. Throughout the year. Professor BENNETT. W, 11, Goldwin Smith 120.
This course will present the history of Latin study since the Renaissance, will outline the various fields of investigation, stating the present state of knowledge in each, along with the chief problems still awaiting solution, and will give a very full bibliography.
Exclusively for graduates.

[43. HISTORICAL LATIN SYNTAX. Throughout the year. Professor BENNETT.
Lectures on the moods and tenses of the Latin verb, with special reference to the subjunctive,—its primitive meaning and its development in subordinate clauses.
Exclusively for graduates.]
Not given 1910-11.

44. HISTORICAL GRAMMAR OF THE LATIN LANGUAGE. Throughout the year. Professor BENNETT. T Th, 10–11:15, Goldwin Smith 120.
Lectures and exercises on the sounds and inflections of the Latin language from the historical point of view.
Exclusively for graduates.

45. LATIN WRITING, ADVANCED COURSE. Throughout the year. Professor ELMER. T, 11, Goldwin Smith 124.
Exclusively for graduates.

[46. HISTORY AND DEVELOPMENT OF ROMAN EPIC POETRY. Throughout the year. Professor ELMER.
Exclusively for graduates.]
Not given in 1910–11.

47. VULGAR LATIN. First term, credit three hours. Open to graduates and to qualified undergraduates. Professor DURHAM. Goldwin Smith 128.
A study of the extension of the Latin language to the Roman provinces, and an investigation of the phonology, the flexions, and the syntax of vulgar Latin. Consentius, de metaplasmis et barbarismis, Silviae vel potius Aetheriae peregrinatio ad loca sancta (ed. Heraeus). A reading knowledge of French and German is required.

48. TACITUS, AGRICOLA. Second term, credit two hours. Open to graduates and qualified undergraduates. Professor DURHAM. Goldwin Smith 128.
A literary and historical study. A reading knowledge of French and German is required.

49. ENNIUS, FRAGMENTS OF THE ANNALES. Second term, credit one hour. Open to graduates and qualified undergraduates. Professor DURHAM. Goldwin Smith 128.

[50. LATIN EPIGRAPHY. Throughout the year, credit two hours a term. Open to graduates and qualified undergraduates. Professor DURHAM.

The interpretation of selected inscriptions. Special topics in the administrative history of the Roman Empire will be assigned for investigation. A reading knowledge of French and German is required.]
Not given in 1910-11.

[51. CARMINA LATINA EPIGRAPHICA (Ed. Bücheler). Credit one hour a term. Professor DURHAM.]
Not given in 1910-11.

ROMAN HISTORY.
See Ancient History.

LATIN PALEOGRAPHY.
See History, course 43.

GERMAN

Course 1 is for beginners in German, and for those who have not already passed the entrance examination in elementary German.

Course 2 is open to those who have had the equivalent of course 1, or those who have passed the entrance examination in elementary German. Course 2 cannot be taken for credit by those who have entrance credit in advanced German.

Courses 1–8 are open to freshmen; of these, courses 1, 2, 3, 4, 6, and 8 may be begun in the second term.

1. ELEMENTARY GERMAN. Repeated in second term, credit six hours a term.
First term.
Sec. 1, daily, 9, Goldwin Smith 183. Assistant Professor POPE.
Sec. 2, daily, 11, Goldwin Smith 177. Mr. ZINNECKER.
Second term.
Sec. 1, daily, 10, Goldwin Smith 177. Mr. ZINNECKER.
Sec. 2, daily, 11, Goldwin Smith 177. Dr. ANDREWS.
Textbooks: Vos's Essentials of German; Hewett's German Reader. If taken in the first term, this course may be followed by German 2 in the second term.

2. SECOND GERMAN COURSE. Repeated in second term, credit five hours a term. Prerequisite course 1.
First term.
Sec. 1, M T W Th F, 9, Goldwin Smith 177. Mr. ZINNECKER.
Sec. 2, M T W Th F, 10, Goldwin Smith 177. Dr. ANDREWS.
Sec. 3, M T W Th F, 11, Goldwin Smith 225. Dr. ANDREWS.
Second term.
Sec. 1, M T W Th F, 8, Goldwin Smith 183. Dr. ANDREWS.
Sec. 2, M T W Th F, 9, Goldwin Smith 183. Assistant Professor BOESCHE.
Sec. 3, M T W Th F, 11, Goldwin Smith 225. Mr. ZINNECKER.
Textbooks: Thomas's Practical German Grammar; Schiller's Wilhelm Tell; Lessing's Minna von Barnhelm; Sudermann's Frau Sorge. Courses 1 and 2 together, are the equivalent of the entrance requirements, elementary and advanced, in German.

3. ELEMENTARY GERMAN COMPOSITION AND CONVERSATION. Throughout the year, credit three hours a term. Open to those who are taking or have taken course 2.
Sec. 1, M W F, 12, Goldwin Smith 190. Assistant Professor FLUEGEL.
Sec. 2, T Th S, 12, Goldwin Smith 183. Assistant Professor FLUEGEL.
Sec. 3, T Th S, 12, Goldwin Smith 190. Assistant Professor BOESCHE, (first term); Assistant Professor POPE, (second term).
Textbooks: Thomas's Practical German Grammar; Pope's German Com-

position. Illustrative maps, charts, and pictures. Exercises conducted in German. It is advisable to combine course 3 with another German course, e. g., courses 5–6, or 7–8.

4. ADVANCED GERMAN COMPOSITION AND CONVERSATION. Throughout the year, credit three hours a term. Prerequisite courses 1, 2, and two terms of 3, or the equivalent.

Sec. 1, M W F, 10, Goldwin Smith 183. Assistant Professor DAVIDSEN.
Sec. 2, T Th S, 10, Goldwin Smith 183. Assistant Professor DAVIDSEN.
Sec. 3, M W F, 12, Goldwin Smith 183. Assistant Professor BOESCHE.

Exercises conducted entirely in German. Theme-writing. This course is essential for the pursuit of advanced work in the department, and must be completed by students that desire to be recommended as teachers of German.

5. INTERMEDIATE GERMAN COURSE. First term, credit three hours. Prerequisite courses 1 and 2, or the equivalent.

Sec. 1, M W F, 10, Goldwin Smith 190. Professor FAUST.
Sec. 2, M W F, 10, Goldwin Smith 227. Assistant Professor FLUEGEL.
Sec. 3, T Th S, 10, Goldwin Smith 190. Assistant Professor BOESCHE.
Sec. 4, T Th S, 10, Goldwin Smith 225. Mr. ZINNECKER.

German grammar treated topically. The German language will be used as far as practicable. Texts: Heine's Prose (Macmillan Co.), Schiller's historical essays: Die Belagerung von Antwerpen, and Des Grafen Egmont Leben und Tod.

6. INTERMEDIATE GERMAN COURSE. Second term, credit three hours. Prerequisite courses 1 and 2, or the equivalent.

Sec. 1, M W F, 10, Goldwin Smith 190. Assistant Professor POPE.
Sec. 2, M W F, 10, Goldwin Smith 227. Assistant Professor FLUEGEL.
Sec. 3, T Th S, 10, Goldwin Smith 190. Assistant Professor BOESCHE.
Sec. 4, T Th S, 10, Goldwin Smith 225. Professor FAUST.

Continuation of course 5. Texts: Meyer's Der Heilige; Scheffel's Der Trompeter von Säkkingen.

7. READING COURSE. First term, credit two hours. Prerequisite courses 1–3, 5, and 6, or the equivalent. Assistant Professor FLUEGEL. T Th, 11, Goldwin Smith 183.

The interpretation of difficult literary prose. Text: Nichols's Modern German Prose.

8. RAPID READING COURSE. Second term, credit two hours. Prerequisite courses 1–3, 5, and 6, or the equivalent. Assistant Professor FLUEGEL. T Th, 11, Goldwin Smith 183.

A large number of texts of ordinary difficulty selected from the works of modern German authors will be read and discussed in German.

9. SCHILLER'S LIFE AND EARLY DRAMAS: Die Räuber; Kabale und Liebe; Don Karlos. First term, credit three hours. Prerequisite courses 1–3, 5, and 6, or the equivalent. Professor FAUST. M W F, 9, Goldwin Smith 190.

10. SCHILLER: WALLENSTEIN (three parts); Geschichte des dreissigjährigen Kriegs. Second term, credit three hours. Prerequisite courses 1–3, 5, and 6, or the equivalent. Professor FAUST. M W F, 9, Goldwin Smith 190.

11. GOETHE. First term, credit three hours. Prerequisite courses 1–6, or the equivalent. Professor FAUST. T Th S, 9, Goldwin Smith 190.

Goethe's life as portrayed in his letters (edition Ernst Hartung, 2 vols.); his poems, illustrating his artistic and philosophical principles.

12. GOETHE'S FAUST, part I and selected portions of part II. Second term,

credit three hours. Prerequisite courses, 1–6, or the equivalent. Professor FAUST. T Th S, 9, Goldwin Smith 190.

A survey of the genesis and development of the drama, an examination of its historical and legendary elements, and a study of its criticism of life.

[13. HISTORY OF GERMAN LITERATURE. First term, credit three hours. Prerequisite courses 1-3, 5, and 6, or the equivalent. Professor FAUST.

An outline lecture course beginning with the Old High German period and extending through the seventeenth century. Lectures, recitations, and collateral readings.]

Not given in 1910–11.

[14. HISTORY OF GERMAN LITERATURE. Second term, credit three hours. Prerequisite courses 1-3, 5, and 6, or the equivalent. Professor FAUST.

An outline lecture course beginning with the eighteenth century and extending to the present time. Lectures, recitations, and collateral readings.]

Not given in 1910-11.

[15. GERMAN LITERATURE IN THE NINETEENTH CENTURY, 1800–1850. First term, credit three hours. Prerequisite courses 1-6, or the equivalent. Assistant Professor DAVIDSEN.

Lectures in German and collateral readings.]

Not given in 1910–11.

[16. GERMAN LITERATURE IN THE NINETEENTH CENTURY, 1850–1900. Second term, credit three hours. Prerequisite courses 1-6, or the equivalent. Assistant Professor DAVIDSEN.

Lectures in German and collateral readings.]

Not given in 1910–11.

17. THE LITERATURE OF THE REFORMATION. First term, credit three hours. Prerequisite courses 1–6, or the equivalent. Assistant Professor DAVIDSEN. M W F, 11. Goldwin Smith 190.

Lectures in German, illustrative readings from the works of Martin Luther, Ulrich von Hutten, Hans Sachs, Thomas Murner, and Johann Fischart; also from the Volksbücher and folk-songs of the sixteenth century.

18. LESSING, HIS LIFE, WORKS, AND PERIOD. Second term, credit three hours. Prerequisite courses 1–6, or the equivalent. Assistant Professor DAVIDSEN. M W F, 11. Goldwin Smith 190.

Lectures in German and collateral readings from Lessing's dramas and prose writings.

19. THE ROMANTIC MOVEMENT IN GERMANY. First term, credit three hours. Prerequisite courses 1-3, 5, and 6, or the equivalent. Assistant Professor BOESCHE. M W F, 10, Goldwin Smith 181.

The underlying principles of the Romantic movement, its expression in literature, and influence on the national life and ideals

Readings from Novalis, Tieck, Arnim and Brentano (Des Knaben Wunderhorn), Uhland, Chamisso, Eichendorff, with introductory and connecting lectures.

20. BISMARCK, THE MAN AND HIS TIME. Second term, credit three hours. Prerequisite courses 1–3, 5, and 6, or the equivalent. Assistant Professor BOESCHE. M W F, 10, Goldwin Smith 181.

Lectures and collateral readings. Selections from Bismarck's speeches and correspondence. A study of his personality and of the forces that contributed to the making of modern Germany.

21. FRIEDRICH HEBBEL; his dramatic works and theory of the drama. First term, credit two hours. Prerequisite courses 1-6, and at least six hours advanced work in literature. Assistant Professor DAVIDSEN. T Th, 11, Goldwin Smith 190.

22. HENRIK IBSEN. Second term, credit two hours. Prerequisite courses 1-6, and at least six hours advanced work in literature. Assistant Professor DAVIDSEN. T Th, 11, Goldwin Smith 190.

A study of Ibsen's representative dramas (in the German translation), and of his influence on modern German literature.

23. RICHARD WAGNER, HIS LIFE AND WORKS. Second term, credit three hours. Prerequisite courses 1-3, 5, and 6, otherwise only by special permission. Assistant Professor POPE. T Th S, 10, Goldwin Smith 128.

Lectures on Wagner's theory of the music drama, the sources of his operas, his place in German literature, and his influence on modern culture. The texts of the principal operas will be read in class, and certain hours will be arranged for illustrative recitals.

[24. LECTURES IN GERMAN ON GERMANY AND GERMAN INSTITUTIONS. Second term, credit one hour. Assistant Professor DAVIDSEN.]

Not given in 1910–11.

25. LECTURES IN GERMAN ON GERMAN ART. Second term, credit one hour. Assistant Professor DAVIDSEN. S, 11, Goldwin Smith 190.

German churches and castles; Dürer and Holbein; German painters of the nineteenth century. The lectures will be illustrated by lantern views.

[26. THE HISTORY OF THE GERMAN ELEMENT IN THE UNITED STATES. Throughout the year, credit one hour each term. Professor FAUST.

The characteristics of the German immigrations of the seventeenth, eighteenth, and nineteenth centuries; their arrival, location, and activities. The relative importance of the German as a formative element in the building of the nation, with special reference to political, social, and educational influences.]

Not given in 1910–11.

27. SCIENTIFIC GERMAN. First term, credit three hours. Prerequisite courses 1 and 2, or three years of German in high school. Assistant Professor FLUEGEL. M W F, 11, Goldwin Smith 183.

Wallentin, Grundzüge der Naturlehre, followed by scientific monographs selected to meet the needs of the class.

28. SCIENTIFIC GERMAN. Second term, credit three hours. Prerequisite courses 1 and 2, or three years of German in high school. Assistant Professor FLUEGEL. M W F, 11, Goldwin Smith 183.

Readings selected chiefly to meet the needs of engineers. Fluegel's Graded Technical Reader, followed by readings from Die Welt der Technik (engineering journal, organ of the Polytechnic Society of Berlin).

[29. ELEMENTARY PHONETICS AND ITS APPLICATION TO THE STUDY OF MODERN LANGUAGES. First term, credit one hour. Assistant Professor DAVIDSEN.]

Not given in 1910–11.

30. PRINCIPLES OF WORD-FORMATION. First term, credit one hour. Assistant Professor DAVIDSEN. S, 11, Goldwin Smith 190.

Composition and derivation of words and similar phenomena. A course supplementing the study of German grammar and affording a deeper insight into the structure of the German language.

[31. TOPICS IN HISTORICAL GERMAN SYNTAX. Second term, credit three hours. Assistant Professor BOESCHE.

An examination and explanation of difficult or peculiar modern German constructions in the light of the past stages of the language and of analogous developments in other languages. Lectures and reports on assigned works of reference. This course is especially adapted to the needs of teachers.]

Not given in 1910–11.

32. ELEMENTARY MIDDLE HIGH GERMAN. First term, credit three hours. Prerequisite courses 1–6, and at least six hours advanced work in literature. Assistant Professor POPE. M W F, 12, Goldwin Smith 177.

Grammar; reading of the popular epics, Nibelungenlied and Kudrun; German prose of the twelfth and thirteenth centuries. Paul's Mittelhochdeutsche Grammatik; Bachmann's Mittelhochdeutsches Lesebuch.

33. MODERN SCANDINAVIAN. First term, credit three hours. Dr. ANDREWS. T Th S, 12, Goldwin Smith 177.

A brief study of the principles of Danish grammar, followed by readings from standard Danish authors.

34. MODERN SCANDINAVIAN. Second term, credit three hours. Dr. ANDREWS. T Th S, 12, Goldwin Smith 177.

Readings from standard Norwegian authors with a brief outline of the history of the Dano-Norwegian language and literature.

35. TEACHERS COURSE. Second term, credit two hours. Prerequisite courses 1–6, and twelve hours advanced work in German literature or philology. Professor FAUST, assisted by other members of the German department. F, 2–4, Goldwin Smith 181.

Methods of teaching modern languages; examination and criticism of textbooks available for the study of German; requirements for teachers' examinations, etc.

36. ADVANCED MIDDLE HIGH GERMAN. Second term, credit three hours. Prerequisite course 32. Assistant Professor POPE. M W F, 12, Library, German Seminary Room.

Detailed study of Middle High German grammar. Special study of Gottfried von Strassburg, and Walther von der Vogelweide.

Primarily for graduates.

37. GOTHIC. First term, credit three hours. Assistant Professor POPE. T Th S, 10, Library, German Seminary Room.

Streitberg's Gotisches Elementarbuch; Die Gotische Bibel, hrg. von Streitberg. This course will serve as a general introduction to Germanic philology.

Primarily for graduates.

38. OLD HIGH GERMAN. Second term, credit three hours. Prerequisite course 32. Assistant Professor POPE. M W F, 9, Goldwin Smith 177.

Continuation of course 37. Braune's Althochdeutsche Grammatik; Braune's Althochdeutsches Lesebuch.

Primarily for graduates.

[39. OLD ICELANDIC. Throughout the year, credit three hours. Dr. ANDREWS.

A study of the elements of Old Norse grammar and the relation of Old Norse to the other Germanic dialects. Reading from the Saga-literature and the Eddic poems with some attention to Old Norse life and antiquities.

Primarily for graduates.]

Not given in 1910–11.

40. HISTORY OF MODERN HIGH GERMAN. Second term, credit two hours. Prerequisite course 32. Dr. ANDREWS. M W, 12, Goldwin Smith 177.

The origins and development of the present German literary language will be studied with critical consideration of the sources.

Primarily for graduates.

41. GERMAN SEMINARY. First term, credit two hours. Professor FAUST. F, 2–4, Goldwin Smith 181.

The classical German drama. Reports and independent investigation by members of the seminary.

42. GERMAN SEMINARY. Second term, credit two hours. Professor FAUST. T, 2–4, Goldwin Smith 181.
The young Goethe. Reports and independent investigation by members of the seminary.

[43. PHILOLOGICAL SEMINARY. Throughout the year, credit two hours a term. Assistant Professor POPE.
Discussion of special topics in the field of Germanic philology. Subject for 1911-12: Old Saxon literary monuments].
Not given in 1910–11.

[44. INTRODUCTION TO THE STUDY OF LANGUAGE. First term, credit three hours. Professor BRISTOL.
See course I in General Philology.]
Not given in 1910–11.

DEUTSCHER VEREIN

The Deutscher Verein, a club consisting of faculty members and students interested in the study of German literature and institutions, meets twice a month for social intercourse, lectures and discussions, and practice in speaking German. Musical and dramatical entertainments alternate with literary programs as regular features of the Verein's activities. In 1909–10 lectures in German were given on the following subjects: The German dirigible airship; personal reminiscences of barracks and camp in the German army; the Leipzig Messe; the German participation in the defense and advance of the American frontier; German historians; Franz Liszt; Theodor Fontane; and German ballads.

ROMANCE LANGUAGES

Except by special permission, only the following courses are open to freshmen: French 1, 2, 3, 12; Spanish 40, 42; Italian 30, 32.

1. FIRST YEAR FRENCH. Repeated in second term, credit six hours.
First term,
Sec. 1, daily, 12, Goldwin Smith 281. Mr. MASON.
Sec. 2, daily, 11, Goldwin Smith 290. Assistant Professor GORDON.
Sec. 3, daily, 9, Goldwin Smith 277. Dr. PUMPELLY.
Sec. 4, daily, 8, Goldwin Smith 290. Dr. PUMPELLY.
Second term,
Sec. 1, daily, 12, Goldwin Smith 281. Mr. MASON.
A course for beginners, with special reference to composition.

2. SECOND YEAR FRENCH. Repeated in second term, credit five hours. Prerequisite course 1, or the equivalent.
First term,
Sec. 1, M T W Th F, 9, Goldwin Smith 281. Mr. MASON.
Sec. 2, M T W Th F, 10, Goldwin Smith 290. Assistant Professor LIVINGSTON.
Sec. 3, M T W Th F, 12, Goldwin Smith 290. Dr. PUMPELLY.
Second term,
Sec. 1, M T W Th F, 11, Goldwin Smith 290. Assistant Professor GORDON.
Sec. 2, M T W Th F, 10, Goldwin Smith 290. Dr. PUMPELLY.
Sec. 3, M T W Th F, 12, Goldwin Smith 290. Dr. PUMPELLY.
Composition and reading of modern texts.

3. THIRD YEAR FRENCH. Repeated in second term, credit three hours. First term,

Sec. 1, M W F, 11, Goldwin Smith 281. Professor COMFORT.
Sec. 2, T Th S, 11, Goldwin Smith 281. Mr. MASON.
Sec. 3, T Th S, 12, Goldwin Smith 277. Mr. ———.

Second term,

Sec. 1, T Th S, 9, Goldwin Smith 281. Mr. MASON.

Designed primarily for freshmen who have passed the advanced entrance examination. It is prerequisite for all the following courses in French, except 12 which may be profitably taken in connection with it. Emphasis is laid upon the accurate translation in class of difficult texts, with the necessary grammatical explanations.

4. HISTORY OF FRENCH LITERATURE. Second term, credit three hours. Prerequisite course 3.

Sec. 1, M W F, 11, Goldwin Smith 281. Professor COMFORT.
Sec. 2, T Th S, 9, Goldwin Smith 290. Assistant Professor GUERLAC.

Lectures on French literature since the Middle Ages, with outside reading and reports. Section 1 is conducted in English; section 2, in French. Prerequisite for all the following courses in French literature, but not for courses 12 and 14.

5. FRENCH LITERATURE OF THE SEVENTEENTH CENTURY. Throughout the year, credit three hours a term. Prerequisite course 3. Professor COMFORT. M W F, 9, Goldwin Smith 290.

Reading of classic texts: Corneille, Molière, Racine, Boileau, Descartes, Pascal, Bossuet, Lafontaine, La Bruyère, and Mme. de Sévigné. Outside reading.

[6. FRENCH LITERATURE OF THE EIGHTEENTH CENTURY. Throughout the year, credit three hours a term. Prerequisite course 3. Professor OLMSTED.]

Not given in 1910–11.

7. FRENCH LITERATURE OF THE NINETEENTH CENTURY. Throughout the year, credit three hours a term. Prerequisite course 3. Mr. MASON. T Th S, 10, Goldwin Smith 281.

The main currents of French literature since Chateaubriand and Mme. de Staël are treated in lectures. Outside reading and reports.

8. FRENCH DRAMATIC LITERATURE. Throughout the year, credit three hours a term. Prerequisite course 3. Professor OLMSTED. M W F, 11, Goldwin Smith 283.

Study of the French drama since 1550. The classical period will be studied during the first term, and the drama since 1830 during the second term.

9. THE FRENCH PHILOSOPHERS, MORALISTS, AND HISTORIANS FROM DESCARTES TO TAINE. First term, credit three hours. Prerequisite course 3. Assistant Professor GUERLAC. M W F, 12, Goldwin Smith 277.

Lectures, outside reading, and reports.

10. HISTORY OF FRENCH LITERARY CRITICISM SINCE THE SEVENTEENTH CENTURY. Second term, credit three hours. Prerequisite course 3. Assistant Professor GUERLAC. M W F, 12, Goldwin Smith 277.

Lectures, outside reading, and reports.

12. ELEMENTARY FRENCH CONVERSATION AND COMPOSITION. Throughout the year, credit three hours a term. Prerequisite course 2 or the equivalent.

Sec. 1, M W F, 11, Goldwin Smith 277. Assistant Professor GUERLAC.
Sec. 2, T Th S, 10, Goldwin Smith 277. Assistant Professor GUERLAC.

Intended for students who have had at least two years of French. The course is carried on entirely in French. The work consists of drill in com-

position and conversation, frequent themes, short talks by the students on French literature, and a rapid course in French history and institutions. Recommended in connection with courses 3 and 4.

14. ADVANCED FRENCH CONVERSATION AND COMPOSITION. Throughout the year, credit three hours a term. Prerequisite course 12. Assistant Professor GUERLAC. T Th S, 11, Goldwin Smith 277.

Open only to those who in the judgment of the instructor are capable of pursuing the course with profit.

18. FRENCH LYRIC POETRY. Throughout the year, credit one hour a term. Prerequisite course 3. Professor OLMSTED. T, 10, Goldwin Smith 283.

Lectures on the versification, form, and the general development of lyric poetry in France since the fifteenth century.

22. FRENCH LITERATURE OF THE SIXTEENTH CENTURY. First term, credit three hours. Prerequisite course 3. Assistant Professor GORDON. T Th S, 12, Goldwin Smith 283.

Readings from Montaigne, Rabelais, Calvin, and the poets of the Pléiade. Lectures on the literature of the Renaissance in France.

23. FRENCH PHILOLOGY. Throughout the year, credit three hours a term. The first term's work consists of a study of vulgar Latin in a course offered by the Department of Latin (Latin 47, Professor DURHAM, Goldwin Smith 128). The second term is devoted to lectures on old French forms and syntax, followed by a study of the oldest texts. Assistant Professor GORDON. T Th S, 12, Goldwin Smith 283.

This course must be taken during the first year of graduate study, if not before, as it is required of candidates for the Master's degree who present French as their major subject.

[24. MEDIEVAL FRENCH LITERATURE. Throughout the year, credit one hour a term. Professor COMFORT.]

Not given in 1910–11.

26. TEACHERS COURSE. First term, credit two hours. W, 2.30, Goldwin Smith 277.

Intended for those who are preparing to teach. This course will be conducted by the various members of the department. Methods of instruction in phonetics, grammar, and literature will be considered in relation to the needs of the teacher.

28. OLD FRENCH TEXTS. Throughout the year, credit two hours a term. Prerequisite course 23. Professor COMFORT. T, 2.30, Library, French Seminary.

A linguistic and literary study of old French texts. In 1910–11 the texts studied will be la vie de S. Alexis (ed. G. Paris) and the romances of Chrétien de Troyes (ed. Förster).

Primarily for graduates.

30. FIRST YEAR ITALIAN. Throughout the year, credit three hours a term. Assistant Professor LIVINGSTON. M W F, 9, Goldwin Smith 283.

Pronunciation, grammar, composition, and reading. This course may not be taken in the same year with course 40.

32. SECOND YEAR ITALIAN. Throughout the year, credit three hours a term. Prerequisite course 30. Assistant Professor LIVINGSTON. T Th S, 9, Goldwin Smith 283.

Reading and composition. Lectures on nineteenth century prose and poetry. Outside reading.

33. PETRARCH AND MODERN POETRY. Throughout the year, credit two hours a term. Prerequisite course 32. Assistant Professor LIVINGSTON. Hours to be arranged.

Lectures on Petrarch. Readings from Petrarch, Lorenzo il Magnifico, Poliziano, Sannazaro, Pontano, Bembo, Vittoria Colonna, Michael Angelo, and the court poets of the Renaissance.

[34. BOCCACCIO AND MODERN PROSE. Throughout the year, credit two hours a term. Prerequisite course 32. Assistant Professor LIVINGSTON.]

Not given in 1910–11.

[35. DANTE AND THE MIDDLE AGE. Throughout the year, credit two hours a term. Prerequisite course 32. Assistant Professor LIVINGSTON.]

Not given in 1910–11.

36. OLD ITALIAN. Throughout the year, credit two hours a term. Assistant Professor LIVINGSTON. Hours to be arranged.

Lectures on the history of the Italian language and the development of the literary tongue. Outline of the dialect phonology and morphology. Readings from old Italian texts.

Primarily for graduates.

40. FIRST YEAR SPANISH. Throughout the year, credit three hours a term.

Sec. 1, M W F, 10, Goldwin Smith 283. Professor OLMSTED.

Sec. 2, M W F, 12, Goldwin Smith 283. Assistant Professor GORDON.

Sec. 3, T Th S, 8, Goldwin Smith 283. Assistant Professor GORDON.

Grammar, composition, and reading. This course may not be taken in the same year with course 30.

42. SECOND YEAR SPANISH. Throughout the year, credit three hours a term. Prerequisite course 40 or the equivalent. Professor COMFORT. M W F, 10, Goldwin Smith 281.

Rapid reading in class of modern Spanish authors: Alarcón, Galdós, Valdés, and Echegaray. Outside reading.

46. SPANISH CLASSICAL LITERATURE. Throughout the year, credit two hours a term. Prerequisite course 42 or the equivalent. Professor OLMSTED. T Th, 11, Goldwin Smith 278.

Cervantes: Don Quixote and Novelas Ejemplares; dramas of Calderon and Lope de Vega.

47. OLD SPANISH. Throughout the year, credit two hours a term. Prerequisite course 46. Professor OLMSTED. Hours to be arranged.

A study of old Spanish grammar and of the development of the language. Reading of early texts.

Primarily for graduates.

48. SPANISH SEMINARY. Throughout the year, credit two hours a term. Professor OLMSTED. Hours to be arranged.

The Spanish mystics.

[50. PORTUGUESE GRAMMAR AND READING. Throughout the year. Professor OLMSTED. Primarily for graduates.]

Not given in 1910–11.

60. OLD PROVENÇAL. Throughout the year, credit one hour a term. Assistant Professor LIVINGSTON. Hours to be arranged.

Lectures on the literature of Provence; Provençal influence upon Italian literature in the thirteenth century; the linguistic relations of Provence and the Catalan districts. Readings from old texts. Primarily for graduates.

ENGLISH

1. INTRODUCTORY COURSE. Throughout the year, credit four hours a term. Open to students who have satisfied the entrance requirement in English. Professor STRUNK, Assistant Professors PRESCOTT and ADAMS, Drs. MONROE, COX, BAILEY, and BROUGHTON, Messrs. KIRK, SMITH, and PRALL. Seventeen sections, at the following hours: M W F S, 8, 9, 11, 12; M T Th F, 10, 11, 12; T W Th F, 10, 11. Rooms to be announced.

A study of representative works in English literature, including three plays of Shakespeare, five modern novels, and selected lyrics and essays. Practice in composition in connection with the reading, with incidental study of the principles of writing. This course will hereafter be required for admission to all other courses offered by the department. The course is in charge of Professor STRUNK.

Students who elect English 1 must apply at Goldwin Smith 159 on Tuesday, Wednesday, or Thursday of registration week for assignment to sections.

2. NINETEENTH CENTURY PROSE; COMPOSITION. Throughout the year, credit three hours a term. Prerequisite course 1.

Sec. 1, T Th S, 12, Goldwin Smith 164. Assistant Professor PRESCOTT.
Sec. 2, M W F, 9, Goldwin Smith 162. Mr. KIRK.

Reading of English prose with especial reference to style; practice in composition, with conferences.

5. ADVANCED COMPOSITION. Throughout the year, credit three hours a term. Prerequisite course 2 or 22. Mr. ———. M W F, 10, Goldwin Smith 163.

Essays, short stories, and other exercises. Intended especially for students that look forward to writing as a profession.

6a. ARGUMENTATIVE COMPOSITION. First term, credit three hours. Prerequisite course 1. Dr. MONROE. T Th S, 12, Goldwin Smith 160.

A study of the principles of argumentative writing, with practice in composition.

[7a. THE NOVEL. First term, credit three hours.

A literary and rhetorical study of representative novels; the general principles and special forms of the novel; written exercises.]

Not given in 1910–11.

[7b. THE SHORT STORY. Second term, credit three hours.

The principles of short story writing; study of selected specimens; frequent exercises in story writing.]

Not given in 1910–11.

[8. PRINCIPLES OF RHETORIC. Throughout the year, credit three hours a term. Prerequisite course 2 or 22. Dr. COX.

A study of the fundamental principles underlying rhetoric as set forth by Aristotle, with references to modern exposition of the subject. Theories of prose style; detailed examination of the styles of Swift, DeQuincey, and Carlyle; papers and discussions].

Not given in 1910–11.

9b. TEACHERS COURSE. Second term, credit one hour. Professor SAMPSON and Dr. BAILEY. T, 3, Goldwin Smith 160.

Lectures and conferences on the teaching of English in the secondary schools. Open to seniors and graduates who intend to teach English.

10. PLAY WRITING. Throughout the year, credit two hours a term. Professor SAMPSON. T Th, 10, Goldwin Smith 163.

Open to upperclassmen who have distinguished themselves in composition, or who show some special aptitude for the proposed work.

11. OLD ENGLISH. Throughout the year, credit three hours a term. Prerequisite course 1. Dr. MONROE. M W F, 11, Goldwin Smith 163.
Reading of selections from the Old English Chronicle, King Alfred, Ælfric, and other representative prose texts, and of the simpler poetry. Some attention is given to one or two important Middle English texts. Supplementary lectures on the growth of the language.
No student will be recommended for a high school teachership in English unless he has had this course or its equivalent.

12. MIDDLE ENGLISH. Throughout the year, credit two hours a term. Prerequisite course 11. Professor STRUNK. T Th, 9, Goldwin Smith 160.
A study of the language and of representative authors from the twelfth to the fifteenth centuries, including Chaucer.

[18a. LINGUISTICS. First term. Dr. MONROE.
A survey of the principles of the life and growth of language. An elementary course of lectures and assigned reading, the illustrative material being chosen mainly from English as a living speech].
Not given in 1910–11.

22. NINETEENTH CENTURY POETRY. Throughout the year, credit three hours a term. Prerequisite course 1.
Sec. 1, M W F, 11, Goldwin Smith 156. Professor SAMPSON.
Sec. 2, T Th S, 9, Goldwin Smith 162. Assistant Professor COOPER.
Sec. 3, T Th S, 10, Goldwin Smith 164. Professor STRUNK.
Wordsworth, Coleridge, Byron, Shelley, and Keats, and assigned readings in prose.

24. ENGLISH TRANSLATIONS OF GREEK AND LATIN CLASSICS. Throughout the year, credit three hours a term. Prerequisite course 2 or 22. Assistant Professor COOPER. T, 3, Th 3-5, Goldwin Smith 163.
Rapid reading in the best accessible translations, with emphasis upon Greek masterpieces; for example, the Iliad and the Odyssey, selected plays of Sophocles, and selected dialogues of Plato. Translations from the Latin will be chosen for the bearing of the originals on modern literature.

25b. OLD ENGLISH READINGS. Second term, credit two hours. Prerequisite, first term of 11. Dr. MONROE. M W, 3, or hours to be arranged, Goldwin Smith 164.
Reading of selected Old English works, including portions of Beowulf.

[31. SEVENTEENTH CENTURY POETRY AND PROSE. Throughout the year, credit three hours. Prerequisite course 2 or 22. Dr. BAILEY.
Non-dramatic literature from the beginning of the century to the Restoration. The poems of Milton and the lyrists, the Bible; the prose of Milton, Browne, and Bunyan].
Not given in 1910-11.

32. ENGLISH AND SCOTTISH BALLADS. Throughout the year, credit three hours a term. Prerequisite course 2 or 22. Dr. COX. M W F, 12, Goldwin Smith 160.
Study of the ballad as a form of literature; the theories of its origin and development; its relations to other forms of early narrative poetry and to the modern literary ballad; comparison with kindred ballads of other nations.

[33. EIGHTEENTH CENTURY PROSE. Throughout the year.
The essays, political satires, novels, and orations of the period].
Not given in 1910-11.

37. SHAKESPEARE. Throughout the year, credit three hours a term. Prerequisite course 2 or 22. Professor STRUNK. M W F, 10, Goldwin Smith 164.

A study of representative plays, together with a survey of the Elizabethan period and its literature.

38b. EIGHTEENTH CENTURY POETRY. Second term, credit three hours. Prerequisite course 2 or 22. Dr. MONROE. T Th S, 12, Goldwin Smith 160.

A study of Pope, Thomson, Gray, Goldsmith, and Burns; readings from the lesser poets.

41. THE ENGLISH DRAMA TO 1642. Throughout the year, credit three hours a term. Prerequisite course 2 or 22. Assistant Professor ADAMS. T Th S, 11, Goldwin Smith 163.

First term: a study of the origin of the drama, miracles, moralities, interludes, and the first regular comedies and tragedies. Second term: a study of Elizabethan society and playhouses, characteristic plays of Lyly, Peele, Kyd, Greene, Marlowe, Jonson, and Beaumont and Fletcher; assigned readings in other representative dramatists.

48. AMERICAN LITERATURE. Throughout the year, credit three hours a term. Prerequisite course 2 or 22. Assistant Professor PRESCOTT. M W F, 12, Goldwin Smith 164.

First term: the growth of American literature; Irving, Bryant, Cooper, and Poe. Second term: Emerson, Longfellow, Hawthorne, and Whitman.

51. DANTE IN ENGLISH. Throughout the year, credit two hours a term. Prerequisite course 2 or 22. Assistant Professor COOPER. M, 3-5, Goldwin Smith 163.

A certain amount of reading for the sake of literary and historical perspective followed by a study in detail of selections from the Divine Comedy and the New Life.

Open to seniors and graduates.

52. VICTORIAN POETRY. Throughout the year, credit three hours a term. Prerequisite course 2 or 22. Dr. BAILEY. M W F, 9, Goldwin Smith 163.

A study of the leading works of Tennyson, Browning, Matthew Arnold, Clough, William Morris, Swinburne, and the Rossettis, and of the characteristics of the Victorian era.

[54. METHODS AND MATERIALS IN THE STUDY OF ENGLISH. Throughout the year, credit three hours a term. Assistant Professor COOPER.

Reading of important treatises on the method of scholarship; a study of the relations between English and similar disciplines; an introduction to the bibliography of English. Applicants must be prepared to read French and German.]

Not given in 1910–11.

[56. THE ARTHURIAN LEGENDS. Throughout the year, credit two hours a term. Prerequisite courses 11, 22. Assistant Professor NORTHUP.

Studies in the origin and growth of the Arthurian legends contained in the chronicles and the romances, with some attention to the use of the legends by modern European poets.]

Not given in 1910–11.

58b. AMERICAN LITERATURE. Second term, credit two hours. Prerequisite course 48, or other adequate preparation. Assistant Professor PRESCOTT. T Th, 11, Goldwin Smith 164.

A study of the literary relations between England and America.

59. DRAMATIC STRUCTURE. Throughout the year, credit three hours a term. Prerequisite course 37 or 41. Professor SAMPSON. M W F, 12, Goldwin Smith 163.

A study of the principles of dramatic construction, based mainly upon English drama of the seventeenth and nineteenth centuries, but with frequent illustration from classical and modern continental drama.

61. SEMINARY IN THE ELIZABETHAN DRAMA. Throughout the year, credit two hours a term. Assistant Professor ADAMS. Th, 3-5, Library, English Seminary Room.

Designed to familiarize the student with the apparatus necessary for research in the drama from its beginnings to the Restoration.

Primarily for graduates.

62. THE ROMANTIC AND EPIC MATERIAL OF THE MEDIEVAL IRISH. Throughout the year. Dr. COX.

The Ossianic cycle of romances and their relation to Macpherson's Ossian ; the Epic of the Tain, its form and content.

63. LAYAMON'S BRUT. Throughout the year. Dr. MONROE.

Textual and historical study of the poem with special reference to its connection with the Arthurian legend.

Primarily for graduates.

65. THE PRINCIPLES OF LITERARY CRITICISM. Throughout the year, credit two hours a term. Prerequisite course 2 or 22. Assistant Professor COOPER. W, 3-5, Goldwin Smith.

Primarily designed for those who intend to teach English. Candidates must satisfy the instructor concerning the extent of their previous reading. A study, in part historical, of the most important theories of poetry.

[66. THE EPIC AND THE ROMANCE. Throughout the year, credit two hours a term. Prerequisite courses 11, 22. Assistant Professor NORTHUP.

A study of the forms of classic and medieval narrative, and especially of selected Middle English romances and their relations to continental literature.]

Not given in 1910-11.

67. THE PHONOLOGY, INFLECTIONS, AND METRE OF OLD ENGLISH. Throughout the year. Professor STRUNK.

The relation of Old English to Modern English and to German. Readings in Elene or Beowulf.

68. AMERICAN LITERATURE. Throughout the year. Assistant Professor PRESCOTT.

Primarily for graduates.

69. ELIZABETHAN DRAMATIC STRUCTURE. Throughout the year. Professor SAMPSON.

Primarily for graduates.

PRIZES

For the Guilford, Shakespeare, Browning, and Morrison prizes, see the University pamphlet on prizes : Regulations and Conditions Governing Prize Competitions. Copies may be obtained from the Registrar.

The subjects for the Corson Browning Prize competition in 1910-11 are : Browning's treatment of external nature ; Browning's alterations in the material of the Ring and the Book ; Browning as a dramatist ; Browning's villains.

The subjects for the Barnes Shakespeare Prize competition are not prescribed, being subject only to the restriction that they must be taken from the writings of Shakespeare. The following subjects are offered as suggestions : the dramatic value of the alterations made by Shakespeare in the story of Romeo and Juliet ; Shakespeare's songs ; a comparison between Shakespeare's Richard II and Marlowe's Edward II ; a critical study of Cymbeline ; Shakespeare's conception of the English monarchy.

ORATORY

1a. PUBLIC SPEAKING. Repeated in second term, credit three hours. First term :

Sec. 1, M W F, 9, Goldwin Smith 24. Mr. BLANTON.
Sec. 2, M W F, 10, Goldwin Smith 24. Assistant Professor EVERETT.
Sec. 3, M W F, 12, Goldwin Smith 24. Assistant Professor WINANS.

Second term : T Th S, 11, Goldwin Smith 21. Mr. ———.

Designed to give the student the fundamentals of speech preparation and to help him to acquire a simple, direct manner of speaking. Original speeches and interpretation of selections. Individual instruction will be given by appointment.

Students who elect this course should apply at Goldwin Smith 25, on Wednesday or Thursday of registration week for assignment to sections.

The '86 Memorial Prize in declamation is awarded annually in connection with the courses in public speaking. See special pamphlet on prizes.

1b. PUBLIC SPEAKING. Second term, credit three hours. Prerequisite course 1a.

Sec. 1, M W F, 9, Goldwin Smith 24. Mr. BLANTON.
Sec. 2, M W F, 10, Goldwin Smith 24. Assistant Professor EVERETT.
Sec. 3, M W F, 12, Goldwin Smith 24. Assistant Professor WINANS.

A continuation of course 1a.

1c. SPECIAL COURSE FOR WOMEN. Throughout the year, credit three hours a term. Mr. BLANTON. T Th S, 10, Goldwin Smith 21.

Reading, speaking, and voice training. Satisfactory completion of this course admits to courses 2, 5, 6, 7, and 8.

2. PUBLIC SPEAKING. Repeated in second term, credit one hour. Prerequisite courses 1a and 1b.

Delivery of speeches before the sections of courses 1a and 1b; individual instruction and criticism.

3. PUBLIC SPEAKING FOR ENGINEERS. Repeated in second term, credit two hours. M W, 12, Goldwin Smith 21.

Engineering students whose work permits are advised to take courses 1a and 1b. Those who take this course in the first term may for the second term continue in course 1b (three hours) or course 3 (two hours). Satisfactory completion of 3 will be considered preparation for 5, 6a, 8, and in exceptional cases for 7a.

4. VOICE TRAINING. Throughout the year, one hour a term. Mr. BLANTON. M W F, 8.30-9, Goldwin Smith 21.

For the development and improvement of normal voices, and for removal of special defects. Training in action. Individual instruction by appointment.

[5. READING. Throughout the year, credit two hours a term. Mr. BLANTON.

Oral interpretation of prose, poetry, and dramatic literature. Open, with consent of the instructor, to those who have completed or are taking any one of the foregoing courses in this department].

Not given in 1910–11.

6a. BRIEF MAKING AND DEBATE. First term, credit two or three hours. Assistant Professor WINANS. S, 11–1 and by appoinment, Goldwin Smith 21.

Study of the principles of argumentation and the forms of brief-writing; textbook, discussions, and conferences. Oral arguments based upon written briefs. As soon as announced, the intercollegiate debate question will receive attention. Designed to give training in fair-minded discussion, the use of authorities, and the weighing of evidence.

6b. DEBATE. Second term, two or three hours. Prerequisite courses 1a or 3, and 6a or English 6a. Assistant Professor WINANS. S, 11–1 and by appointment, Goldwin Smith 21.

6c. DEBATE. Either term, credit one hour. Prerequisite course 6b. S, 11–1.

By registering in this course students may continue the work of either 6a or 6b.

In the field of extemporaneous debate the University offers the '94 Memorial Prize. See special pamphlet on prizes.

7a. EXTEMPORANEOUS SPEAKING. First term, credit two or three hours. Assistant Professor EVERETT. M, 3–5 and by appointment, Goldwin Smith 21.

Weekly addresses based upon prepared outlines; topics assigned in the fields of American history, politics, and current events; stories and descriptions. One carefully prepared written speech. Woodford orations may be worked out in connection with this course.

Open by special permission to upperclassmen who have done satisfactory work in course 1b.

7b. EXTEMPORANEOUS SPEAKING. Second term, credit two or three hours. Prerequisite course 7a. Assistant Professor EVERETT. M, 3–5 and by appointment, Goldwin Smith 21.

[8. THE WRITTEN SPEECH. First term, credit two or three hours. Prerequisite course 1, and sufficient preparation in composition. Assistant Professor WINANS.

Study of the principles of oratory; the writing of speeches with careful attention to both matter and form; practice in delivery.]

Not given in 1910–11.

[9. MASTERS AND MASTERPIECES. Second term, credit two hours. Open to upperclassmen. Assistant Professor WINANS.

In connection with a given oration there will be considered the orator, the subject-matter and its treatment, the events out of which the oration grew, and its influence. Different fields will be covered in different years, for instance, general survey of the history of oratory, great debates, political and legal, British and American oratory.]

Not given in 1910–11.

PHILOSOPHY

1. INTRODUCTION TO PHILOSOPHY. First term, credit three hours. Professor THILLY. M W F, 11, Goldwin Smith 225.

Lectures, discussions, and prescribed reading.

The fundamental problems of philosophy, together with a critical study of the most important solutions that are offered to them by thinkers to-day. The nature and scope of philosophy; its relation to the physical and mental sciences and religion; materialism; idealism; dualism; the double-aspect theory; the mechanical theory of the world; the teleological theory; the theory of evolution; the belief in God; rationalism, empiricism, and criticism; realism and idealism.

2. ELEMENTARY PSYCHOLOGY. First term, credit three hours. Assistant Professor BENTLEY, Drs. GEISSLER and SCHAUB and Mr. JONES. Lectures T Th, 11, class room work S, 11, Goldwin Smith C.

Intended as an introduction to psychology. A general account of the human mind and of the scientific methods used in the study of mental phenomena.

3. LOGIC. Second term, credit three hours. T Th S, 11, Goldwin Smith C. Acting Assistant Professor SABINE and Mr. JONES; T Th S, 9, Goldwin Smith 225. Dr. SCHAUB.

The general character of the thinking process, its laws of development, and the methods by which thought actually proceeds to solve the problems presented to it; the analysis of logical arguments and the detection of fallacies, in both the deductive and the inductive processes of reasoning. Creighton's Introductory Logic will be used as a text-book.

4. THE FINE ARTS: THEIR PHILOSOPHY AND HISTORY IN OUTLINE. First term, credit three hours. Professor HAMMOND. T Th S, 10, Goldwin Smith 227.

An elementary course on aesthetics. Lectures, assigned readings, and examinations. An historical survey of the more important branches of art and the psychology of the appreciative feelings and the aesthetic judgment.

5. ETHICS. First term, credit three hours. Professor THILLY. M W F, 9, Goldwin Smith 225.

Lectures and discussions.

The moral consciousness and the fundamental conceptions of morality. The nature and methods of ethics; theories of conscience; analysis of conscience; the ultimate ground of moral distinctions; the teleological conception; hedonism; energism; critique of hedonism; the highest good; optimism and pessimism; free will and determinism. Thilly's Introduction to Ethics will be used as a text-book.

6. MORAL IDEAS AND PRACTICE. Second term, credit three hours. Professor THILLY. M W F, 9, Goldwin Smith B.

Lectures, discussions, and prescribed reading.

The development of moral ideas and practices from primitive times to the present, with an examination of the fundamental virtues and duties. The morals of savagery and barbarism; the moral practices and ideals of the Hebrews, Greeks, and Romans; primitive Christianity; the medieval ideal, the modern ideal; the virtues and duties pertaining to bodily, economic, and mental life; self-control; the love of honor; justice; charity; veracity.

7. THE PHILOSOPHY AND CULTURE OF THE RENAISSANCE. Second term, credit two hours. Professor HAMMOND. T Th, 10, Goldwin Smith 227.

Lectures and assigned readings. The lectures will deal with the philosophy of humanism from 1300 to 1600 A. D., and will include an outline history of literature, the fine arts, and science during that period.

8. THE RELATIONS BETWEEN PHILOSOPHY AND LITERATURE DURING THE NINETEENTH CENTURY. Second term, credit one hour. Professor ALBEE. S, 10, Goldwin Smith 221.

The general influence of philosophical conceptions, and particularly of German idealism, upon certain British and American writers of the nineteenth century. The opening lectures will discuss the general relations between philosophy and literature, and outline and contrast the leading philosophical conceptions of eighteenth and nineteenth century thought. Coleridge, Wordsworth, Shelley, Browning, Carlyle, Emerson, and Whitman will then be considered from the point of view of their philosophical significance.

9. EXPERIMENTAL PSYCHOLOGY. Throughout the year, credit, first term, three hours; second term, one to three hours. Prerequisite course 2. Assistant Professor BENTLEY, Dr. GEISSLER and Mr. ———. M W F, 3, Morrill, Psychological Laboratory.

This course may be entered either in the first or in the second term. Qualitative experiments upon sensation, affection, attention and action, perception and idea, and the association of ideas. Text-book, Titchener's Experimental Psychology, pt. i. Quantitative: verification of Weber's Law

in the various departments of sense, determination of stimulus limens, the psychophysics of selective and volitional action (compound reaction experiments), etc. Text-book, Titchener's Experimental Psychology, pt. ii. Experiments in comparative psychology may, at the discretion of the department, be pursued during one term.

10. HISTORY OF PHILOSOPHY. Throughout the year, credit three hours a term. Acting Assistant Professor SABINE. T Th S, 9, Goldwin Smith 225.

Intended primarily for the general student that wishes to know something of the history of thought and of the influence that philosophical ideas have exerted in the development of civilization. A general account of the history of philosophical speculation from its origin among the Greeks to the present time; the various philosophical systems in their relation to the science and general civilization of the ages to which they belong, and their application to social, political, and educational problems; a study of the speculative problems of the present century, and especially an examination of the philosophical meaning and importance of the notion of evolution or development. Reading will be assigned from time to time, but there will be no class text-book.

An elementary course, but not open to students below the junior year.

11. PLATONISM. Second term, credit two hours. Professor HAMMOND. T Th, 11, Goldwin Smith 227.

Reading of the dialogues in English translation, discussions and lectures on Plato's philosophy. The dialogues to be read in 1910–11 are the Apology, Crito, Phaedo, Meno, Lysis, Protagoras, Phaedrus, and Republic.

12. THE THEORY OF EVOLUTION: ITS HISTORY AND SIGNIFICANCE. Throughout the year, credit one hour a term. Mr. JONES. F, 12, Goldwin Smith 227.

The history of the theory of evolution from the first appearance of the concept among the Greeks to its formulation in modern times by Darwin; the recent modifications of the theory, and the application of the evolutionary method to the various sciences, special attention being directed to its bearing on ethics, sociology, and religion; an estimate of the significance of the evolutionary point of view for a theory of the world as a whole.

Intended primarily for undergraduates. No acquaintance with the history or special terminology of philosophy is presupposed.

13. ORIGIN AND DEVELOPMENT OF RELIGIOUS IDEAS. First term, credit two hours. Dr. SCHAUB. T Th, Goldwin Smith 231.

The origin of religious belief and the conditions of its development, with a brief examination of various forms of primitive religion; the history and significance of the more highly developed religions, such as Buddhism, Judaism, Mohammedanism, and Christianity.

14. PROBLEMS OF THE PHILOSOPHY OF RELIGION. Second term, credit two hours. Dr. SCHAUB. T Th, 12, Goldwin Smith 231.

Certain of the chief problems of the psychology and philosophy of religion in the light of historical facts. Especial consideration will be given to the philosophical basis of theism.

15. READING OF GERMAN PSYCHOLOGY. Throughout the year, credit one hour a term. Dr. GEISSLER. S, 9, Morrill Hall, Psychological Laboratory Lecture Room.

Translation of Ebbinghaus, Abriss der Psychologie, (2nd edition, 1909). The primary aim of this course is to assist toward the accurate rendering of German psychological literature. Some emphasis will be laid upon the interconnection of the various part-problems of the science in order to gain a general view of the whole system of psychological facts.

16. RAPID READING OF GERMAN PHILOSOPHY. Throughout the year, credit one hour a term. Professor HAMMOND. T, 2, Goldwin Smith 220

The primary aim of this course is to aid students in acquiring a knowledeg of German philosophical terminology and facility in the translation of philosophical prose. The texts for 1910-1911 will be Windelband's Platon and Nietzsche's Morgenröte.

17. HISTORY OF ANCIENT AND MEDIEVAL PHILOSOPHY. First term, credit three hours. Professor HAMMOND. T Th S, 11, Goldwin Smith 227.
Lectures and assigned readings. The history of the philosophical ideas in Greece, Rome, the Middle Ages, and the early Renaissance will be discussed in connection with the civilization of these periods.

18. TYPES OF METAPHYSICAL THEORY. First term, credit two hours. Prerequisite course 13 or the equivalent. Acting Assistant Professor SABINE. T Th, 12, Goldwin Smith 221.
Lectures and informal discussions. The leading types of philosophical theory such as materialism, idealism, and pluralism, with a study of some of the fundamental metaphysical problems, and an indication of the nature of the method and principles that modern philosophy employs in their solution.
Courses 18 and 19 are given in alternate years.

[19. PHILOSOPHICAL APPLICATIONS AND RESULTS. First term, credit three hours. Professor CREIGHTON.
Courses 18 and 19 are given in alternate years.]
Not given 1910-11.

20. HISTORY OF ETHICS: ANCIENT, MEDIEVAL, AND RENAISSANCE. First term, credit two hours. Professor HAMMOND. M W, 11, Goldwin Smith 220.
Lectures and assigned readings. A history of moral ideals and reflection in antiquity, the Middle Ages, and the Renaissance, treated in connection with social and political institutions.

21. HISTORY OF MODERN ETHICS. Second term, credit two hours. Professor ALBEE M W, 11, Goldwin Smith 220.
The history of modern ethics with special reference to the development of the commonly recognized methods of ethics. The history of British ethics will receive particular attention, as illustrating the gradual differentiation of ethics as an independent science or philosophical discipline.

22. GENERAL PSYCHOLOGY. Throughout the year, credit three hours a term. Prerequisite course 2. Assistant Professor BENTLEY and Dr. SCHAUB. M W F, 12, Goldwin Smith.
An intermediate course in human psychology which aims to derive from historical and current writings a coherent account of mind and to explain the relations which psychology sustains to the biological and social sciences.

23. PSYCHOLOGY OF SPECIAL ACTIONS. First term, credit two hours. Dr. GEISSLER. T Th, 9, Morrill, Psychological Laboratory Lecture Room.
A brief review of the reaction experiments; the mental processes involved in such special actions as speaking, singing, reading, writing, musical performance, and games of skill; the analysis and description of mental work, and the consideration of practice, fatigue, rest, and recovery.

24. PSYCHOLOGY OF THE INTELLECTUAL FUNCTIONS. Second term, credit two hours. Dr. GEISSLER. T Th, 9. Morrill, Psychological Laboratory Lecture Room.
A theoretical and experimental examination of the higher intellectual functions, memory, association, imagination, and thought; demonstrations and short practical exercises designed to show the general significance of these mental functions in human experience.

25. ADVANCED PSYCHOLOGICAL LABORATORY. Throughout the year, credit one to five hours a term. Prerequisite courses 2 and 9. Assistant

Professor BENTLEY, Dr. GEISSLER, and Mr. ———. Morrill, Psychological Laboratory.

The repetition of certain classical experiments carried out in greater detail and with more accuracy than is possible in course 9, or the original investigation of simple problems suggested by the experiments of course 9.

26. ADVANCED ETHICS. Throughout the year, credit two hours a term. Professor THILLY. W F, 10, Goldwin Smith 220.

Lectures, reading, discussion, and essays. The study and criticism of the ethical theories of J. S. Mill, Spencer, Sidgwick, Kant, and Schopenhauer.

Primarily for graduates.

27. THE REPUBLIC OF PLATO. Throughout the year, credit three hours a term. Professor HAMMOND. M W F, 9, Goldwin Smith 220.

Reading of the Greek text. This course is intended for students of Greek literature as well as of Greek philosophy.

28. ARISTOTLE'S ETHICS. Throughout the year, credit two hours a term. Professor HAMMOND. M W, 12, Goldwin Smith 231.

Reading of the Greek text. The Nicomachean Ethics will be read and interpreted in connection with Aristotle's political theory.

Primarily for graduates.

29. THOMAS AQUINAS. Throughout the year, credit two hours a term. Professor HAMMOND. T Th, 12, Goldwin Smith 220.

Selections from the Summa Theologica, with a general survey of the system of Thomas Aquinas and the culmination of scholasticism.

Primarily for graduates.

30. EMPIRICISM AND RATIONALISM. First term, credit three hours. Professor ALBEE. T Th S, 11, Goldwin Smith 220.

Lectures, discussions, and essays. The empirical movement as represented by Locke, Berkeley, and Hume, and the rationalistic movement as represented especially by Descartes, Spinoza, and Leibniz, with reference to their distinctive methods Locke's Essay, (Bohn edition, 2 vols.) Hume's Treatise of Human Nature, (Clarendon Press), and Leibniz's Philosophical Works (Duncan's translation, Tuttle, Morehouse, & Taylor, New Haven).

Primarily for graduates.

31. THE CRITICAL PHILOSOPHY OF KANT. Second term, credit three hours. Professor ALBEE. T Th S, 11, Goldwin Smith 220.

Lectures, discussions, and essays. A study of the Critique of Pure Reason (Müller's translation), with frequent references to standard commentaries and to the more recent literature on the subject; the relation in which the three Critiques of Kant stand to each other.

Primarily for graduates.

32. EARLY RATIONALISM: SPINOZA AND LEIBNIZ. First term, credit three hours. Professor ALBEE. M W F, 12, Goldwin Smith 220.

Lectures, discussions, and essays. A critical study of early rationalism, with special reference to the divergent tendencies represented by Spinoza and Leibniz. The principal works of both philosophers will be read, and the influence of both upon later speculation will be considered.

Primarily for graduates.

[33. GERMAN PESSIMISM WITH SPECIAL REFERENCE TO SCHOPENHAUER. First term, credit three hours. Professor ALBEE.

Lectures, discussions, and essays.

Primarily for graduates.]

Not given in 1910–11.

34. PROBLEMS AND METHODS IN RECENT PHILOSOPHY. Throughout the year, credit two hours a term. Professor ALBEE. T Th, 12, Goldwin Smith 220.

Lectures. A detailed examination of the problems and methods involved in current philosophical investigation as a basis for a positive treatment of some of the fundamental problems of the present day.
Primarily for graduates.

[35. LOGICAL THEORY. Throughout the year. Professor ALBEE.
Lectures, reading of prescribed authors, and discussions.
Primarily for graduates.]
Not given in 1910-11.

36. SEMINARY IN LOGIC AND METAPHYSICS. Throughout the year. Acting Assistant Professor SABINE. F, 10-12, Goldwin Smith 231.

37. SEMINARY IN ETHICS. Throughout the year, credit two hours a term. Professor THILLY. M, 3-5, Goldwin Smith 220.
The subject for 1910-11 will be idealistic theories of ethics.

38. SEMINARY IN ANCIENT AND MEDIEVAL PHILOSOPHY. Throughout the year, credit two hours a term. Professor HAMMOND. W, 3-5, (or hours to be arranged), Goldwin Smith 220.
The work in 1910-11 will be devoted to the reading and discussion of selected dialogues of Plato and the Politics of Aristotle in English translations.

39. SEMINARY IN PSYCHOLOGY. Throughout the year, credit two hours a term. Assistant Professor BENTLEY and Dr. HOLLANDS. Hours to be arranged.
Problems in psychological theory. Essays and reports. Advanced work upon experimental problems may also be included.

EDUCATIONAL PSYCHOLOGY AND MENTAL DEVELOPMENT. See School of Education, courses 4 and 8.

THE SCHOOL OF EDUCATION

The School of Education was established in 1907 by the Board of Trustees for the purpose of providing professional training, both theoretical and practical, to all persons who are looking forward to teaching, or who are actually engaged in the work.

The School offers courses of instruction for three classes of students:

A. Graduate students. For these are intended courses described as primarily for graduates. These are planned to meet the needs of college graduates that are preparing themselves for positions of leadership in education, as professors of education, superintendents of school systems, and directors or supervisors of special phases of schoolwork. By completing a satisfactory amount of work in education and in such other departments of instruction as each case may demand, these students may receive the degree of Master of Arts or of Doctor of Philosophy.

B. Undergraduates. The distinctive work offered in the School of Education for prospective teachers in secondary schools consists of the courses on the history of education, principles of education, educational psychology, educational administration, and special methods in teaching the subjects in which the student chooses to specialize. By far the largest share of preparation for high school teaching consists of the regular studies of a four years' course in Arts and Sciences. It is expected therefore that the student will give the major portion of his time to the studies in the department or departments that he elects. Further, certain subjects are of such importance for the general culture of all teachers that they are necessary parts of every one's course. Such subjects are physiology, psychology, logic, elementary economics, and at least one foreign language. Beyond all in importance is the ability to speak and write English with accuracy and facility. Students registered in the College of Arts and

Sciences have the opportunity of taking work amounting in all to one year's study in any of the other colleges of the University. This arrangement permits any student to prepare himself for teaching one or more of the so-called special subjects to which so much attention is now paid, such as drawing, manual training, industrial and agricultural education, music, and nature study.

C. Special students. Persons of mature age that either cannot or will not qualify as candidates for a regular university degree, may be admitted to study whatever subjects they wish to pursue. Special courses will be laid out for them, and upon the satisfactory completion of these they will receive certificates indicating what they have done.

At the present time there is a great demand for teachers in the following two fields :

Industrial Education. The School of Education offers training to prepare secondary teachers for this work. For the present year, students that desire such preparation should consult the Director of the School and Professor D. S. Kimball in planning their work for the year. In 1911–1912 a regular course of study will be laid down for these students.

Agriculture. There is now an important movement looking to the introduction of the science of agriculture as a part of the high school system of the state.

Students that wish to qualify in this field should confer with the Director of the School of Education and Director L. H. Bailey in arranging their work for the year 1910–1911. In 1911–1912 a regular course will be laid down for these students.

NEW YORK STATE TEACHERS CERTIFICATES

The New York State Education Department grants two kinds of certificates to college graduates.

1. The College Graduate Limited Certificate. This will be given at graduation. It is a license to teach in any school in the state except the primary and grammar grades of city schools and is good for two years. It will then be renewed if the holder shall pass state examinations in psychology, history of education, principles of education, and methods of teaching.

2. The College Graduate Professional Provisional Certificate. This is granted at graduation to students that have completed in the School of Education courses approved by the State Department. It is a license to teach for three years in any grade of any school in New York State, and may then be made permanent upon presentation of a certificate of three years' successful teaching.

The following studies are prescribed by the State Department for students that wish the professional certificate : psychology, general and educational, ninety hours ; history and principles of education, ninety hours ; methods in teaching, sixty hours ; observation, twenty hours.

This requirement may be met at present by completing the following courses : Philosophy 2 (psychology), Education 1, 2, 3, 4, 5.

1. PRINCIPLES OF EDUCATION. Second term, credit four hours Prerequisite courses Philosophy 2, Education 4. Professor DEGARMO. M T W Th, 2, Goldwin Smith 234.

An introduction to the general theory of education, in both its individual and its social aspects. Social and individual bases of modern education ; basis for selection of studies ; fundamental differences between the sciences and the humanities ; function and worth of the various studies ; their organization into curricula ; vocational courses ; principles underlying scientific methodology, such as the acquisition of facts at first and at second hand, the use of problem, hypothesis, and analogy, explanation in the form of cause, classification or generalization, the inductive approach, the deductive approach, application, etc. Text-book, DeGarmo's Principles of Secondary Education, volumes I and II.

2. PRESENT PROBLEMS IN EDUCATION. Second term, credit one hour. F, 2, Goldwin Smith 234.

A course of lectures on important problems in education. They will be given partly by members of the Cornell University faculty and partly by invited guests.

3. HISTORY OF EDUCATION. First term, credit four hours. Prerequisite courses Philosophy 2, Education 4. Professor DEGARMO. M T W Th, 2, Goldwin Smith 234.

A general survey of the history of education. It will follow in the main the topics and readings prescribed in the syllabus of the New York State Education Department for the guidance of college graduates. Special emphasis is laid upon the following topics: the education of the Greek people; the rise and development of humanism; the rise and development of science and scientific methods in education; the doctrines of educational reformers; the development of modern systems of education. Monroe's Text-book in the History of Education.

4. EDUCATIONAL PSYCHOLOGY. Second term, credit four hours. Prerequisite course Philosophy 2. Assistant Professor WHIPPLE. M T W Th, 2, Goldwin Smith 256.

A complete system of functional psychology as applied to education, covering the relation of mental to nervous activity, and the large groups of psychophysical functions, volition, cognition, and emotion. Particular reference is given to such topics as nervous plasticity, habit, the nature of educational training and discipline, the psychology of temperament, attention and interest, association, apperception, perception, observation, memory, imagination, conception, judgment, and reasoning. Where feasible, psychological experiments that apply to the work in hand are described or performed. Whipple's Questions in General and Educational Psychology will be used.

5. SCHOOL HYGIENE. Second term, credit two hours. Assistant Professor WHIPPLE. M W, 3, Goldwin Smith 256.

Lectures, prescribed reading, and demonstrations.

Construction of school buildings, situation, heating, ventilation, sanitation, followed by the hygiene of instruction, fatigue, school diseases, defects of sight and hearing, medical inspection, hygiene of reading, writing and other studies. Occasional demonstrations of an experimental type. Whipple's Questions in School Hygiene will be used.

NOTE.—Students that are particularly interested in this phase of the work and are competent for experimental investigation may register for systematic work in course 14. For this work students should have taken or be taking course 4, and should afterward take course 6.

6. THE EDUCATION OF DEFECTIVES AND THE FEEBLE-MINDED. First term, credit one hour. Prerequisite course 4. Assistant Professor WHIPPLE. Th, 2, (or hour to be arranged), Goldwin Smith 251.

Lectures, prescribed reading, and papers. An historical, statistical, and critical survey of the methods employed in the education of the blind, the deaf and dumb, the feeble-minded, and of abnormal and backward children generally.

Students will find it desirable also to take Education 5 and History and Political Science 57.

Given in alternate years.

7. ELEMENTARY EDUCATION. First term, credit two hours. Professor DEGARMO. W, 3-5, Goldwin Smith 251.

Designed for prospective principals, superintendents, and training-teachers in elementary education. Readings, reports, and round-table discussions on elementary studies and methods.

8. MENTAL DEVELOPMENT. First term, credit four hours. Prerequisite course 4, and preferably also 1 and 3. Assistant Professor WHIPPLE. M T W Th, 3, Goldwin Smith 227.

Lectures, readings, and essays. The genetic phases of mental life with special reference to their application to educational problems. The evolution of mind in the animal kingdom; childhood and the general results of child-study; and more fully, the period of adolescence. Heredity and environment, the nature and utilization of instinctive tendencies, the doctrine of recapitulation, the theory of culture of epochs, physical and mental changes of adolescence, the development of the sex instinct, the hygiene of sex, social organizations, the teaching of science in the high school, the problems of co-education, etc. The course is designed to be of assistance to high-school teachers.

9. THE TEACHING OF LANGUAGE. Second term, credit two hours. Professor BRISTOL. T Th, 12, Goldwin Smith 137.

An introduction to the study of language as speech, especially with reference to the description of foreign and native sounds. Consideration of the problems of teaching a foreign language; linguistic and literary aims in school work; principles of translating and of composition; the aims of foreign language study in secondary schools; discussions and practice exercises. For all seniors that are planning to teach foreign languages.

10. SCHOOL ADMINISTRATION. Second term, credit two hours. Professor DEGARMO. W, 3-5, Goldwin Smith 251.

Readings, discussions, and reports. The comparative study of school administration in American cities and in foreign countries, especially Germany and England.

Primarily for graduates.

11. PHILOSOPHY OF EDUCATION. Throughout the year, credit two hours a term. Professor DEGARMO. Th, 3-5, Goldwin Smith 251.

A course in advanced educational theory. It follows in the main Professor MacVannel's outline in the Philosophy of Education, and embraces such topics as the following: evolution and idealism as bases of education; personality and environment; the individual and society; moral institutions; democracy and education; the course of personal development; the school as a social institution; the course of study.

Primarily for graduates.

12. EXPERIMENTAL STUDY OF SCHOOL CHILDREN. First term, credit three hours. Prerequisite courses Philosophy 9, Education 4. Assistant Professor WHIPPLE. M T W, 2, Goldwin Smith 248.

A survey of the literature of physical and mental tests, particularly of tests of school children, with reference to purpose, methods, and results. Demonstrations of the more important tests and practice in their administration. The work is based upon Whipple's Manual of Physical and Mental Tests. Students that wish to undertake experimental problems may register in course 14.

Primarily for graduates.

13. ETHICAL TRAINING IN SECONDARY SCHOOLS. First term, credit two hours. Professor DEGARMO. F, 2-4, Goldwin Smith 251.

Readings, discussions, and reports. Regulative principles of conduct under static and under dynamic social conditions, the adolescent in modern society, moral habits, the function of interest in the moral life, the moral value of school studies, ethical training through athletics, etc.

Primarily for graduates.

14. SEMINARY FOR EXPERIMENTAL INVESTIGATION. Hours to be arranged. Prerequisite course 5 or 12. Assistant Professor WHIPPLE. Goldwin Smith 248.

Solution of minor problems in school hygiene or educational psychology, or of larger problems set as theses for advanced degrees.

Primarily for graduates.

15. SEMINARY FOR THE SCIENCE AND ART OF EDUCATION. Throughout the year, one hour a term. Prerequisite courses 1 or 3, and 4. Professor DEGARMO and Assistant Professor WHIPPLE. T, 7.30-9.30 p. m., Goldwin Smith 251.

Discussions, reports, and theses upon current educational problems, partly of a social and partly of a psychological nature. These reports and theses will involve study from original sources. Special theme for the first term, place and function of the several high school studies; for the second term, the psychology of learning. At each meeting a portion of the time will be given to reviews of important new books and of the current periodical literature, including especially The Educational Review, The School Review, The Pedagogical Seminary, The Teachers College Record, The Elementary School Teacher, and the more important European educational magazines.

HISTORY AND POLITICAL SCIENCE

ANCIENT HISTORY

1. ANCIENT HISTORY. First term, credit five hours for underclassmen, four hours for upperclassmen. Professor SILL. M T W Th F, 11, Goldwin Smith C.

Lectures, text-books, collateral reading, quizzes, and examinations. The history of the Mediterranean world from the beginnings of Greek civilization to the dissolution of the Roman Empire in the West.

2. ROMAN HISTORY: THE REVOLUTIONARY PERIOD. First term, credit three hours. Professor SILL. M W F, 9, Goldwin Smith 128.

Lectures, quizzes, reports, and examinations. The causes of the revolution; the democratic reformers; the senate and the capitalists; the collapse of the constitution; Julius Caesar; the triumvirate; the victory of Augustus; Roman life and literature during the revolutionary period.

3. THE ROMAN EMPIRE FROM AUGUSTUS TO JUSTINIAN. Second term, credit three hours. Professor SILL. M W, F, 9, Goldwin Smith 128.

Lectures, quizzes, reports, and examinations.

A history of the civilized world under the rule of Roman emperors. The foundation of the principate by Augustus; its development into a monarchy; organization and condition of the provinces; development of Roman law; early history of the Christian Church; disintegration of the Empire and decadence of ancient civilization.

4. GREEK POLITICS. Second term, credit three hours. Professor SILL. M W F, 11, Goldwin Smith 242.

Lectures, discussions, and reports. Greek public life and the political theories of Plato and Aristotle.

Not open to underclassmen.

5. SEMINARY IN GREEK AND ROMAN HISTORY. Throughout the year, credit two hours a term. Professor SILL. T, 4, or as may be arranged, Library, Greek and Latin Seminary Room.

The political career of Cicero, studied from the sources.

Open to graduates and to qualified undergraduates.

ORIENTAL HISTORY. See Semitics, courses 9a and 9b.

MEDIEVAL HISTORY

11. THE MIDDLE AGES. First term, credit five hours. Professor BURR. M T W Th F, 3, Goldwin Smith 245.

A general survey of the history of Christendom from the eve of the Middle Ages to the dawn of the Renaissance (300-1300 A.D.), with especial attention to the life of society and the progress of civilization. Lectures and examinations.

12. RENAISSANCE AND REFORMATION. Second term, credit five hours. Prerequisite course 11 or the equivalent. Professor BURR. M T W Th F, 3, Goldwin Smith 245.

A study of the political, social, and religious history of Christendom during this age of transition (1300–1600 A. D.), with especial attention to the beginnings of modern life and thought. Lectures and examinations.

13. THE RISE OF TOLERANCE. Throughout the year, credit two hours a term. Prerequisite course 11 or the equivalent. Professor BURR. T Th, 12, Goldwin Smith 245.

A study of the history of intellectual and religious liberty in Christendom.

14. MEDIEVAL LIFE. First term, credit one hour. Prerequisite course 11. Professor BURR. S, 11, Library, European History Seminary Room.

The reading of some medieval historian, with a view to acquaintance with medieval life and facility in the use of historical Latin. In 1910–11 the subject of study will be the chronicle of John of Winterthur (Vitoduranus), 1273–1348. Not open to underclassmen. The course presupposes some knowledge of Latin—as much, for instance, as is needed to read Caesar or Livy.

15. SEMINARY IN MEDIEVAL HISTORY. Second term, credit one hour. Prerequisite course 11. Professor BURR. S, 11, Library, European History Seminary Room.

A research class for the critical study of some period, event, or phase of medieval history. In 1910–11 the topic will be: Church and State in the early fourteenth century. Open only to seniors and graduates. A reading knowledge of Latin is presupposed.

[16. CANON LAW. First term, credit two hours. Prerequisite courses 11, 12. Professor BURR.

The constitutional history of the Christian Church and the elements of ecclesiastical law.

Primarily for graduates].

Not given in 1910–11.

The attention of students especially interested in this period of history is also called to the courses in the early history of the modern languages and literatures and to the courses on the history of philosophy, morality, and ethics, especially to that on Thomas Aquinas (p. 26) and to that on the philosophy and culture of the Renaissance (p. 23).

MODERN EUROPEAN HISTORY

21. ENGLISH HISTORY. Second term, credit five hours for underclassmen, four hours for upperclassmen. Professor CATTERALL. M T W Th F, 11, Goldwin Smith C.

Lectures, text-books, collateral reading, quizzes, and examinations on the national development and the European relations of England, Scotland, and Ireland.

22. MODERN EUROPEAN HISTORY, 1600–1815. Throughout the year, credit three hours a term. Professor CATTERALL. M W F, 12, Goldwin Smith 242.

Lectures, with syllabus; quizzes, reports, and examinations.

Open only to upperclassmen.

23. ENGLISH CONSTITUTIONAL HISTORY. Throughout the year, credit three hours a term. Professor CATTERALL. M W F, 9, Goldwin Smith 242.

Lectures, text-books, quizzes, reports, and examinations. This course will cover the entire period of English history, beginning with Anglo-Saxon institutions. The political history will be given only in so far as its understanding is necessary to the study of political events.

25. History of Italy in the Nineteenth Century. First term, credit three hours. Professor Catterall. M W F, 11, Goldwin Smith 242.

Lectures, quizzes, reports, and examinations. The course will begin with the settlement of Italy at the Congress of Vienna, and will take up the principal events by which Italy became a united nation.

Open to graduates and, by permission, to qualified seniors.

26. Seminary in European History. Throughout the year, credit two hours a term. Professor Catterall. M, 4–6, Library, European History Seminary Room.

Open to graduates and, by permission, to qualified seniors.

AMERICAN HISTORY

32. American History from 1750 to 1815. First term, credit three hours. Professor Hull. M W F, 10, Goldwin Smith C.

The revolutionary period and the establishment of independence: the decline of European influence in the affairs of the time. Reference readings, text-books, and lectures.

33. American History from 1815 to 1892. Second term, credit three hours. Professor Bretz. M W F, 10, Goldwin Smith C.

The period of national expansion: the rise and solution of sectional questions, and recent developments. Reference readings, text-books, and lectures.

34. Economic History of the Colonies, 1600 to 1788. First term, credit two hours. Professor Hull. T Th, 9, Goldwin Smith 234.

Colonization and settlement as business enterprizes, the agricultural conquest of the coast; the competition between slave, indentured, and free labor; the commerce of the British Empire and its relation to the American Revolution. Text-book, readings, reports, and lectures.

35. Economic History of the United States, 1789–1890. Second term, credit two hours. Professor Hull. T Th, 9, Goldwin Smith 234.

Commerce during the European wars; the introduction of manufactures; the westward movement; industrial differentiation of the sections; agriculture for export; the amalgamation of railways and the combination of industries. Text-books, readings, reports, and lectures.

36. Constitutional History of the United States, 1860–1877. First term, credit three hours. Prerequisite courses 32 and 33 or the equivalent. Professor Bretz. M W F, 9, Goldwin Smith 234.

Readings, discussions, and reports.

37. Constitutional History of the United States since 1877. Second term, credit three hours. Prerequisite courses 32 and 33 or the equivalent. Professor Bretz. M W F, 9, Goldwin Smith 234.

Readings, discussions, and reports.

38. The Jeffersonian System. Second term, credit three hours. Prerequisite courses 32 and 33, or the equivalent. Professor Hull. M W F, 10, Goldwin Smith 236.

A more detailed study of the period from 1800 to 1815. Henry Adams's History of the United States will be critically read by the class and illustrated by collateral readings, reports, and lectures.

39. American Social History: the Settlement of the Middle West. First term, credit three hours. Professor Bretz. M W F, 10, Goldwin Smith 236.

The early settlers in the Ohio Valley, the growth of states, the disposal of the public lands, and the development of commerce and industry.

Primarily for graduates. Open by permission to qualified upperclassmen.

40. SEMINARY. Throughout the year, credit two hours a term. Professors HULL and BRETZ. First meeting, Thursday, October 6, 4 p.m., Library, American History Seminary Room.

HISTORY IN GENERAL

[41. THE SCIENCES AUXILIARY TO HISTORY. First term, credit two hours. Professor BURR.

A glance at the aims, the methods, the literature, and the use to history of the more important auxiliary sciences—anthropology, ethnology, archaeology, philology, epigraphy, paleography, diplomatics, sphragistics, numismatics, heraldry, genealogy, chronology, geography. Not open to underclassmen.]

Not given in 1910–11.

42. HISTORICAL GEOGRAPHY. Throughout the year, credit one hour a term. Professor BURR. S, 10, Library, European History Seminary Room.

A thorough study, with map and text, of the geography of history. Not open to underclassmen, and intended for those who have given much attention to history. As the order of topics is not of moment, the course may be begun with either the first or the second term.

43. PALEOGRAPHY AND DIPLOMATICS. Throughout the year, credit one hour a term. Professor BURR. S, 12, Library, European History Seminary Room.

The reading of manuscripts and the interpretation of documents. Attention is devoted chiefly to the paleography of Latin and of the languages using the Latin alphabet (e. g., English, French, German, Italian). The course is an actual study of the manuscripts and facsimiles in which the University is rich.

44. INTRODUCTION TO THE LITERATURE OF HISTORY. Throughout the year, credit one hour a term. Professors SILL, SCHMIDT, BURR, CATTERALL, HULL. F, 3, or other hour to be arranged. First meeting, Friday, Oct. 7, Library, European History Seminary Room.

A general survey, period by period, of the sources and literature of history. For graduates only.

45. HISTORICAL METHOD. First term, credit two hours. Professor BURR. W, 4–6, Library, European History Seminary Room.

History: its nature, its scope, its materials, its methods. Open only to seniors and graduates, and intended especially for those who are looking forward to the teaching of history or to historical research.

COURSE FOR TEACHERS

46. THE TEACHING OF HISTORY. Second term, credit two hours. Professor BURR with aid from his colleagues. W, 4-6, Library, European History Seminary Room.

Open only to seniors and graduates who are specializing in history.

POLITICAL SCIENCE

51. ELEMENTARY ECONOMICS. Throughout the year, credit three hours a term. Professor WILLCOX and Messrs. LAGERQUIST, TURNER, SABY, and ———. Lecture M, 11, Sibley Dome; class room work in fifteen sections at following hours: W F, 10, 11, 12; T Th, 8, 10, 11, 12.

For those who wish a general introduction to economics or a preparation for pursuing further studies in any department of political science. One lecture each week and two hours of class-room discussion of text-books and assigned questions or supplementary reading. For section assignments and other information apply at Goldwin Smith 260.

53a. POLITICAL INSTITUTIONS. First term, credit three hours. Acting Professor GLASSON and Mr. SMITH. Lectures, text-book, and discussions, M W, 10, Goldwin Smith 256; library and text book work to be arranged.

The principles of politics; nature and historical development of political institutions; outline of the constitutional and administrative laws of the United States and of Great Britain with special reference to their practical working.

53b. COMPARATIVE POLITICS. Second term, credit three hours. Acting Professor GLASSON and Mr SMITH. Lectures, text-book, and discussions, M W, 10, Goldwin Smith 256; library and text book work two hours a week to be arranged.

Sketch of the constitutional and administrative laws and of the political institutions of the leading nations of continental Europe, with special reference to their relations to present political problems in the United States. A continuation of course 53a, and preferably to be taken after that, though it may be elected independently.

[55. ELEMENTARY SOCIAL SCIENCE. Throughout the year, credit three hours a term. Course 37 should precede or be taken with this. Professor WILLCOX.

An introductory course on the non economic aspects of certain social problems, such as the family, race relations, immigration, labor questions, and crime.]

Not given in 1910-11.

57. METHODS OF MODERN PHILANTHROPY; CRIMINOLOGY AND SOCIAL PROGRESS. Throughout the year, credit three hours a term. Professor FETTER. Lectures, T Th, 11, and laboratory S, by appointment, Goldwin Smith 264.

First term, problems of charities: the pauper, the feeble-minded, the insane, and dependent children, and the best methods of dealing with them. Second term, problems of crime: the criminal, jails, prisons, reformatories, and preventive and educational measures now developing for the betterment of social conditions. Visits to institutions in the neighborhood.

(Seniors may take one or two additional hours by registering in course 98).

58. CORPORATION ECONOMICS. Throughout the year, credit two hours a term. Prerequisite course 51. Acting Professor GLASSON. M W, 12, Goldwin Smith 256.

(1). The principles of modern business organization. Evolution of the corporation; its advantages and disadvantages from the economic and legal points of view; methods of promotion and organization; corporate stock, bonds, and other securities; the sale and underwriting of securities; systems of corporation management; dissolution of corporations, insolvency, receiverships, and reorganization of corporations.

(2). Corporate combinations and consolidations. The promotion, financing, and organization of combinations; advantages and disadvantages of combination; the influence of combinations upon wages and labor conditions; the influence of combinations upon prices; the relations of combinations to their security holders; other social effects of combinations; the public regulation and control of combinations.

[60. MODERN QUESTIONS IN INTERNATIONAL POLITICS. Throughout the year, credit two hours a term. Professor JENKS.

A study of leading questions of the day in the field of international politics. The purpose of the course is not only to give general information but also to show the practical application to the study of current events of the principles of international law and politics.]

Not given in 1910-11.

61. VOCATIONAL TRAINING AND PRACTICE. Throughout the year, credit two hours a term. Open to students that have had course 51 and to others by special permission. Dr. GERTRUDE MARTIN. T Th, 10, Goldwin Smith 256.

A discussion of the development and essential nature of business, the personal qualities required for the various trades and professions, and the training needed to fit the student for his chosen life work. Emphasis will be laid upon the personal attitude to be taken in choosing a vocation, and especially upon the new vocations suitable for women.

[62. PRINCIPLES OF BUSINESS MANAGEMENT. Throughout the year, credit two hours a term. Professor JENKS.

A discussion of the methods employed in organizing and financing modern business institutions and especially of the general methods of management,—cost-keeping, price making, advertising, selling, buying, correspondence, shipping, relations with laborers, with the stock market, with the public, and similar topics as viewed from the standpoint of the business managers of large enterprises. The main purpose of the course is to note the way in which the general principles of economics are seen and applied in actual business life.]

Not given in 1910–11.

64. MONEY, CREDIT, AND BANKING. Throughout the year, credit four hours; without laboratory work, three hours a term. Prerequisite course 51. Course 68 is recommended, though not required, as a preliminary course. Professor KEMMERER. T Th S, 10, and two laboratory hours to be arranged, Goldwin Smith 264.

The work of this course will be divided into three parts: (a) a study of the principles of money, credit, and banking; (b) a study of the exemplification of those principles in the monetary and banking history of certain countries; (c) a study of present day currency and banking problems in the United States. Lectures, discussions, and laboratory work.

66a. LABOR'S PROBLEMS AND PROGRESS. First term, credit three hours. Prerequisite course 51. Professor FETTER. M W F, 11, Goldwin Smith 264.

Progress of the workers in Europe and America, conditions, wages, hours, methods of remuneration, plans for the betterment of factories and homes, influence of labor unions on wages, on industry, and on national life. Not open to underclassmen.

66b. SOCIAL REFORMS AND PROJECTS. Second term, credit three hours. Prerequisite course 51. Professor FETTER. M W F, 11, Goldwin Smith 264.

History and growth of the more radical modern plans for changing industrial conditions; program and spirit of the socialistic parties in Europe and America.

67. ECONOMIC HISTORY OF ENGLAND SINCE 1750. Throughout the year, credit three hours a term. Prerequisite course 51. DR. USHER. M W F, 12, Goldwin Smith 264.

The industrial and agrarian revolutions beginning in 1750; earlier development of agriculture; the great inventions; rise of the factory system; poor relief; growth of English trade; governmental interference and socialistic legislation; Germany vs. England; the future of England's industrial supremacy.

68. FINANCIAL HISTORY OF THE UNITED STATES. Second term, credit three hours. Prerequisite course 51. Professor KEMMERER. M W F, 9, Goldwin Smith 269.

An historical study of public revenues and expenditures, of public debts, and of currency and banking in the United States, during the national period. This course is preliminary to courses 64 and 70 and is recommended to all students that intend to take either of these courses.

70. PUBLIC FINANCE. Throughout the year, credit two hours a term. Prerequisite course 51. Course 68 is recommended, though not required, as a preliminary course. Professor KEMMERER. T Th, 11, Goldwin Smith 269.

A study of the principles of government revenue, government expenditure, and government debt, with particular reference to present day problems of taxation in the United States.

[71. RAILWAY TRANSPORTATION. First term, credit three hours. Prerequisite course 51. Dr. BAUER.

The history of railway development in the United States; description of railway service and its organization; the nature of railway competition; principles of rate making; discrimination, combination, and consolidation; railway legislation and the question of government control.]

Not given in 1910-11.

72. SCIENCE OF ACCOUNTS. First term, credit three hours. Prerequisite course 51. Dr. BAUER. T Th S, 9, Goldwin Smith 264.

The principles of double-entry book-keeping; the nature of capital, expense, and depreciation and income accounts; the balance sheet, with principles underlying the valuation of the several items; stocks and bonds, with basis of their issue, and treatment in the accounts; earnings and dividends, how determined, and how treated in the accounts; cost accounting, its principles, and its importance in modern business; legal regulation of accounting practice.

73. INSURANCE. Second term, credit two hours. Prerequisite course 51. Dr. BAUER. T Th, 9, Goldwin Smith 264.

(a) Life insurance; its purpose, importance, and history; the construction of mortality tables; the calculation of net premiums; the reserve; loading; policies and policy conditions; organization of the business; investments; taxation and legal regulation. (b) Fire insurance; its purpose and importance in modern business; fire hazards; the principles and difficulties of fire rating; rate-discriminations; the business organization; current fire insurance problems. (c) Three or four general lectures on marine and industrial insurance.

73b. INVESTMENTS. Second term, credit two hours. Prerequisite course 51. Mr. LAGERQUIST. W F, 10, Goldwin Smith.

Lectures, readings, and special assignments. The nature, principles, and methods of investment; the relation of speculation to investment; the relative merits, as investments, of stocks and bonds (industrial, railway, and mining), of farm mortgages, of municipal bonds, and of street railway, gas, and water securities.

74a. MUNICIPAL GOVERNMENT IN EUROPE. First term, credit two hours. Mr. SMITH. T Th, 8, Goldwin Smith 256.

Lectures, discussions, and assigned readings on the governmental, financial, and social problems presented by the modern city. Students will be required to investigate and report on municipal conditions in special states of Europe.

74b. MUNICIPAL GOVERNMENT IN THE UNITED STATES. Second term, credit two hours. Mr. SMITH. T Th, 8, Goldwin Smith 256.

Lectures, discussions, and assigned readings on the governmental, financial, and social problems presented by the modern city. Students will be required to investigate and report on municipal conditions in specified cities of this country.

75. INTERNATIONAL LAW. Throughout the year, credit two hours a term. Mr. SABY. T Th, 12, Goldwin Smith 256.

The nature and development of international law. The rights and obligations of nations in time of peace, with special reference to independence,

jurisdiction, and diplomacy. The laws of war and neutrality. America's contributions to international law. The arbitration movement. Text book, cases, assigned readings, and reports.

76a. DEMOGRAPHY OR POPULATION STATISTICS. First term, credit three hours. Professor WILLCOX and Mr. ———. Lectures M W F, 9, Goldwin Smith 256 ; laboratory W, 2–4 (or other hours to be arranged).

An introduction to census statistics and vital statistics with practical work in investigation, tabulation, and interpretation. The course presents statistics as a scientific basis for public health and preventive medicine and also as a method applicable far more widely than this, its oldest and best developed field.

76b. ECONOMIC STATISTICS. Second term, credit three hours. Professor WILLCOX and Mr. ———. Lectures M W F, 9, Goldwin Smith 256 ; laboratory W, 2–4 (or other hours to be arranged).

A continuation of course 76a and dealing mainly with the agricultural and industrial statistics of the United States. Mature students that have not already had course 76a or its equivalent may be admitted by special permission. The course is an introduction to statistics in its application to more difficult fields, such as production, wages, prices, and index numbers.

77. ADVANCED STATISTICS. Throughout the year, credit three hours a term. Prerequisite courses 51, 76a, 76b, or the equivalent. Professor WILLCOX. T Th S, 9, Goldwin Smith 259.

The course will present the main results of Professor von Mayr's Statistik und Gesellschaftslehre as far as the work has been published, namely, volumes 1, 2, and part 1 of volume 3, and will consider their significance for the United States. Some knowledge of German is presupposed and some practice in reading German will be secured.

Primarily for graduates.

79. COMMERCE AND COMMERCIAL POLICIES. Throughout the year, credit two hours a term. Mr. LAGERQUIST. T Th, 10, Goldwin Smith 256. The history of commerce ; the theory of international trade, medieval and modern, with the economic background of each ; relation of money and credit to exchange ; commercial policies, protection and free trade, tariff history, commercial treaties and reciprocity, customs administration ; legal aspects of the regulation of commerce in the United States ; commercial institutions, public and private, the consular service, the use of government statistics and reports. Lectures and discussions.

80. THE MODERN THEORY OF DISTRIBUTION. Throughout the year, credit two hours a term. Professor FETTER. M W, 8, Goldwin Smith 264.

A study of the most notable recent writings and contributions in systematic economics and of the methods of the modern critical school, to secure a deeper insight into the practical reformative measures of the day. Special subject for 1910–11 : the law of diminishing returns.

Primarily for graduates. Open also to qualified seniors.

[82. THE PRINCIPLES OF POLITICS. Throughout the year, credit two hours a term. Professor JENKS.

An advanced course in the fundamental principles of politics. In this course a few fundamental questions will be studied covering the nature of society and its principles of organization and especially the nature of the state, its functions, and the principles of its practical organization.

Primarily for graduates]

Not given in 1910–11.

85. PROBLEMS OF RACE AND INDUSTRY IN THE SOUTH. Throughout the year, credit two hours a term. Acting Professor GLASSON. T, 4–6.

The political, economic, and general social problems arising out of the presence of the negro race in the South ; a study of some of the problems of agricultural and manufacturing industry in the South.

Open to graduates and qualified undergraduates.

89. CURRENCY AND BANKING REFORM IN THE UNITED STATES. Throughout the year. Prerequisite courses 51 and 64 or the equivalent. Professor KEMMERER. Hours to be arranged, Library, Political Science Seminary.

This course in 1910 and 1911 will be devoted to a study of proposals for a central bank in the United States. Special attention will be paid to the lessons afforded by European experience.

Primarily for graduates.

90. RESEARCH IN LABOR PROBLEMS. Throughout the year, one to three hours a term. Professor FETTER. At hours to be determined. Goldwin Smith, 269.

Advanced research work in connection with the laboratory exercises of course 66a.

92. RESEARCH IN FINANCE. Throughout the year, credit two or three hours a term. Prerequisite courses 51 and either 64 or 70 or other advanced work in finance. Professor KEMMERER. Hours and place to be arranged.

94. RESEARCH IN POLITICS AND IN THE ECONOMIC HISTORY OF THE UNITED STATES. Throughout the year, credit one to three hours a term. Acting Professor GLASSON. Hours to be arranged.

A few specially prepared students, primarily graduates, may undertake studies involving original investigation in the fields mentioned.

98. RESEARCH IN PHILANTHROPY. Throughout the year, one to three hours a term. Professor FETTER. Hours to be arranged, Goldwin Smith 269.

For students that are doing special work in vocational philanthropy. Studies in the history and statistics of charities and criminology in connection with the laboratory exercises of course 57.

99. GENERAL SEMINARY. Throughout the year, credit two hours a term. Professors WILLCOX, FETTER, KEMMERER, and GLASSON. M, 2.30–4.30, Goldwin Smith 236.

For research work in the field of political science. Open only to graduate students.

ECONOMICS OF AGRICULTURE. Professor LAUMAN. M W F, 9.
See College of Agriculture, Rural Economy, course 4.
CONSERVATION. Professor LAUMAN. M W F, 11.
See College of Agriculture, Rural Economy, course 7.

BIBLIOGRAPHY

1. INTRODUCTION TO THE USE OF BOOKS. First term, credit one hour. Assistant Librarian AUSTEN. T, 4, Library Lecture Room.

A systematic study of bibliographies, indexes, dictionaries, cyclopedias, etc., including the principles of classification, cataloguing, indexing, and preparing manuscript for printing. Lectures and exercises.

1a LABORATORY WORK. Second term, credit one hour. Assistant Librarian AUSTEN. T, 4, Library Lecture Room.

Laboratory work covering the subjects of course 1, and intended for students that wish more of the practical work.

2. GENERAL BIBLIOGRAPHY. Second term, credit two hours. Librarian HARRIS. T Th, 12, Library Lecture Room.

The materials and form of books in ancient times; books in the Middle Ages, block books, early printed books, illustrated by examples of manuscript and incunabula; book illustration, book-bindings; form-notation; systems of classification and cataloguing; general bibliographical aids. Lectures and reference readings.

MUSIC

The several courses offered by the Department of Music are designed to afford to all students having sufficient native ability, the opportunity to study music as a part of or in addition to the regular college course. The aim is to make musical training contribute to liberal culture. Consequently, attention is mainly directed to practical courses, or courses in so called applied music. All instruction is given in classes.

For students entering college without musical training, the department offers elementary instruction in ear training, sight-reading, musical notation and terminology, harmony and composition, and elements of musical form, which, for performer and for listener, constitute a necessary basis for the proper understanding of the musical literature to be studied.

The department also provides a weekly organ recital, a musical program for the vesper service at Sage Chapel on Sunday afternoons, a course of lectures, a series of chamber concerts, and an elaborate Music Festival, which is given annually about the first of May.

All courses continue through both terms and students are not admitted at the beginning of the second term, with the exception of those who, at entrance, pass the required work of the first term.

1. ELEMENTARY. Open to all students showing sufficient aptitude to pursue the subject with profit.

Throughout the year, credit two hours a term. Professor DANN. T, 7.15 p. m., Th, 4.45, Sage Chapel.

A thorough course in sight-reading, ear and vocal training, and elementary theory, including a practical knowledge of the major and minor scales. Attendance is required at the morning service at Sage Chapel, for which service the members of this class form a part of the choir.

3. INTERMEDIATE. Open to students who have completed course 1 or who meet the requirements prescribed in course 1. Throughout the year, credit two hours a term. Professor DANN. W, 4.45; Th, 7.15 p. m., Sage Chapel.

Ear and vocal training, theory, including the study of intervals, triads, music notation and terminology, and the elements of musical form; more advanced sight reading and the study of standard sacred and secular music; the study through the aid of the piano player and the phonograph, of prescribed works selected from the larger compositions. Attendance is required at the morning service at Sage Chapel, for which service the members of the class constitute the regular choir.

4. CHORAL. Open to students possessing singing voices of sufficient volume and satisfactory quality, and the ability to read or learn their part in the more difficult choral works. Throughout the year, credit one hour a term. Professor DANN. Until December 1, M, 4.45, Sage Chapel; thereafter, 7.30 p. m., Stimson Hall.

Advanced sight reading and vocal training, preparatory for and including the study and performance of the larger choral masterpieces. Members of this class form a part of the Festival Chorus.

5. ADVANCED CHORAL. Throughout the year, credit two hours a term. Professor DANN, M, 7.15; T, 4.45, Sage Chapel.

Preparation and public presentation of the best choral works, sacred and secular. This course is offered as advanced work to students possessing good singing voices and the ability to read at sight music of moderate difficulty. The class is limited to one hundred, distributed approximately as follows: thirty sopranos, twenty-two contraltos, twenty tenors, and twenty-eight basses. All vacancies are filled by competition at the beginning of the first term. Students who have completed course 3 are admitted without examination.

Members of this class constitute the choir at the Sunday Vesper Service at Sage Chapel. They also form a part of the Festival Chorus, studying the larger choral works to be performed at the Annual Music Festival.

6. ORCHESTRA. Only a limited number can be admitted. Vacancies will be filled by competition. Throughout the year, credit two hours a term. Mr. COLEMAN. T Th S, Barnes Hall.

Ensemble study of standard works, including compositions for chorus and orchestra. This course is offered as advanced training for students who play some orchestral instrument sufficiently well to participate creditably in the study and performance of the works to be studied. The orchestra will give several concerts during the year, accompany the advanced choir at the Sunday Vesper Service at Sage Chapel, and participate in the performance of complete works given by the choir during the year.

7. HARMONY. Open to all students who have completed course 2 or who have done the work prescribed in course 2. Throughout the year, credit two hours a term. Mr. JOHNSTON. T Th, Sage Chapel.

The subject is approached through a course in melody writing. The work requires a thorough knowledge of the major and minor scales and involves the study of intervals, the construction, relation, and progression of chords, and the harmonization of melodies.

8. ADVANCED HARMONY AND COMPOSITION. Open to students who have completed course 6, and to others equally qualified. Throughout the year, credit two hours a term. Mr. JOHNSTON. M W, 3.30, Sage Chapel.

This course is concerned with the analysis of form and with counterpoint in three or more parts.

Individual examinations for admission to all courses, for new students and others not previously classified, will be held as follows:

Vocal Music. Courses 1, 2, 4, and 5, Wednesday, September 28; Thursday, September 29; Friday, September 30, and Saturday, October 1 from 3 to 5, Sage Chapel.

Orchestra. Course 6, Thursday, September 29, and Friday, September 30, from 5 to 6, Barnes Hall (West Dome).

Harmony. Courses 7 and 8, Thursday, September 29, and Friday, September 30, from 5 to 6, Sage Chapel.

MATHEMATICS

1. ANALYTIC GEOMETRY AND CALCULUS. Twenty-four sections, daily except S, first term; daily, second term.

1a. Analytic Geometry. Credit four hours first term.

1b. Differential Calculus. Credit one hour first term, two hours second term

1c. Integral Calculus. Credit four hours second term.

2a. ANALYTIC GEOMETRY AND DIFFERENTIAL CALCULUS. Second term, credit six hours.

Sec. 1. Daily 9, White 10. Professor MCMAHON.

Sec. 2. Daily 11, White 21. Assistant Professor CARVER.

2b. INTEGRAL CALCULUS. First term, credit three hours. Prerequisite courses 1a and 1b, or the equivalent. Professor HUTCHINSON. M W F, 8, White 25.

This course covers substantially the work of course 1c.

3. ANALYTIC GEOMETRY AND CALCULUS. Throughout the year, credit five hours a term.

3a. Analytic Geometry. Credit, four hours first term.

3b. Differential Calculus. Credit, one hour first term, two hours second term.

3c. Integral Calculus. Credit, three hours second term.

Sec. 1. Daily except S, 10, White 24. Professor TANNER.
Sec. 2. Daily except S, 8, White 6. Professor SNYDER.
Recommended for students intending to specialize in physics or chemistry.

4. ADVANCED ALGEBRA. Repeated in second term, credit five hours.
Sec. 1. Daily except S, 9, White 24. Professor TANNER.
Sec. 2. Daily except S, 10, White 6. Professor SNYDER.
Open to all students, but designed especially for those who have entered with the minor requirements in mathematics and are preparing: (1) to teach mathematics in the secondary schools; (2) to take up engineering work later in the course; (3) to specialize in chemistry or physics.

6. SOLID GEOMETRY. Repeated in second term, credit three hours.
First term.
Sec. 1, M W F, 9, Mr. SILVERMAN.
Sec. 2, T Th S, 10, Mr. MILES.
Second term, T Th S, 9, Dr. OWENS.
Open to all students, but designed especially for those mentioned under course 4.

7. PLANE AND SPHERICAL TRIGONOMETRY. Repeated in second term, credit three hours.
First term.
Sec. 1, T Th S, 9, White 1. Dr. CRAIG.
Sec. 2. M W F, 10, White. Dr. OWENS.
Second term, M W F, 9, Mr. SILVERMAN.
Open to all students, but designed especially for those mentioned under course 4.

[10. TEACHERS COURSE. Throughout the year, credit three hours a term. Professor TANNER and Dr. OWENS.
First term, algebra and trigonometry. Selected topics considered historically and critically.
Second term, geometry. An analysis of the fundamental basis of logical geometry together with a critical review of the whole subject.
Designed primarily for those students who are preparing to teach mathematics in the secondary schools.] Not given in 1910–11.

11. DIFFERENTIAL EQUATIONS. Throughout the year, credit two hours a term. Prerequisite course 3 or the equivalent. Dr. OWENS. M W, 9, White.
An elementary course including the solution of the simpler types of ordinary and partial differential equations. The statement of physical problems in the form of differential equations and the applications of boundary conditions to the solutions found.

12. APPLIED MATHEMATICS. Throughout the year, credit two hours a term. Prerequisite course 1 and some knowledge of mechanics and differential equations. Dr. CRAIG. White 1.
An elementary study of some of the more important functions connected with the differential equations of mathematical physics, including graphical representation and processes of numerical approximation.

13. DESCRIPTIVE AND PROJECTIVE GEOMETRY. Throughout the year, credit three hours a term. Professor SNYDER. T Th S, 9, White 6.
Designed to familiarize the student with reasoning about geometric forms. Ordinary problems of descriptive geometry and their application to synthetic and general projective geometry.

14. THEORY OF PROBABILITIES. Throughout the year, credit two hours a term. Professor MCMAHON. White 10.
Theory of probabilities with applications to insurance and sociology. Fitting of approximation curves to statistical data and investment rates.

15. ADVANCED ANALYTIC GEOMETRY. Throughout the year, credit three hours a term. Prerequisite course 1. Dr. MCKELVEY. White.

An introduction to the theory of algebraic curves and surfaces. Systems of coordinates, elementary transformations, polar systems, a summary of unicursal curves and of the theory of quadric surfaces.

16. THEORY OF EQUATIONS. Throughout the year, credit two hours a term. Professor TANNER. White 24.

Symmetric functions, transformations and general properties of equations; numerical algebraic and transcendental equations; general theory of elimination; determinants.

17. ADVANCED CALCULUS. Throughout the year, credit three hours a term. Prerequisite course 1. Assistant Professor CARVER. White 21.

The usual topics, and a study of the essential nature of the problems of the differential and integral calculus and of the limitations within which the processes may be applied.

[18. INFINITE SERIES AND PRODUCTS].

Not given in 1910–11.

[19. ALGEBRAIC CURVES. Throughout the year, credit three hours a term. Prerequisite courses 1, 13, 15. Professor SNYDER. White].

Not given in 1910–11.

19b. BIRATIONAL TRANSFORMATIONS. First term, credit two hours. Prerequisite course 19. Professor SNYDER. White 6.

A general introduction to Riemann transformations of algebraic curves from the Brill-Noether standpoint.

Primarily for graduates.

21. PARTIAL DIFFERENTIAL EQUATIONS. Throughout the year, credit two hours a term. Mr. MILES. White.

A general discussion of the theory; various applications to geometry and to mathematical physics.

22. THEORY OF GROUPS. Throughout the year, credit two hours a term. Assistant Professor RANUM. White 9.

The fundamental principles of the theory of abstract groups of finite order; permutation and linear groups; the Galois theory of algebraic equations.

[23. THEORY OF NUMBERS].

Not given in 1910–11.

24. DIFFERENTIAL GEOMETRY. First term, credit three hours. Dr. GILLESPIE. White 5.

An elementary course in the applications of the calculus to the geometry of surfaces. Applicability and systems of curves on surfaces, in particular, asymptotic lines, lines of curvature, geodesics, and isothermals.

25. THEORY OF FUNCTIONS OF A COMPLEX VARIABLE. Throughout the year, credit three hours a term. Professor HUTCHINSON. White 25.

A general course in the theory of functions with especial attention to uniform and algebraic functions, and conformal representation; some of the elementary properties of functions of several variables will also be considered.

27. ALGEBRA OF LOGIC. First term, credit three hours. Mr. SILVERMAN. White.

Boole's Laws of Thought; recent developments of Veun, Schröder, and Peano; Russell's Principles of Mathematics. No previous technical knowledge of mathematics presupposed. Open to students of mathematics or of philosophy.

28. CALCULUS OF VARIATIONS. Throughout the year, credit two hours a term. Mr. HURWITZ. White.

The treatment of the case in which the integrand contains one unknown function, and its first derivative, and one independent variable. An introduction to mechanics from the standpoint of the calculus of variations.

29. ELEMENTARY MECHANICS. Throughout the year, credit two hours a term. Assistant Professor SHARPE. White 27.

A simple exposition of the fundamental principles of the subject. Designed for students that do not intend to specialize in mathematics or in physics.

30. VECTOR ANALYSIS. Throughout the year, credit two hours a term. Professor MCMAHON. White 10.

Classification of vector fields; illustrations and properties of the principal fields; applications to electric fields.

[42. ADVANCED MATHEMATICAL PHYSICS.]
Not given in 1910–1911.

ASTRONOMY

1. GENERAL ASTRONOMY. First term, credit three hours. No prerequisite, but a knowledge of elementary physics is desirable. Lectures and recitations illustrated with lantern slides and the observatory equipment. Assistant Professor LELAND. M W F, 12, Rockefeller C.

A fundamental course in descriptive astronomy including a comprehensive study of the structure of the universe and the heavenly bodies, their motions, relations, and evolutions; methods of investigation; instruments and apparatus.

2. OBSERVATIONS. Second term, credit one hour. Prerequisite course 1. Assistant Professor LELAND. One evening a week to be arranged. Fuertes Observatory.

A general study of the constellations, the sun and the planets, double and multiple stars, and nebulae. Star-maps and catalogues, field glasses, and the equatorial telescope.

PHYSICS

1. INTRODUCTORY EXPERIMENTAL PHYSICS. Repeated in second term, credit four hours. Professors NICHOLS, MERRITT, and SHEARER. M T W Th, First term 9 or 12, second term 12, Rockefeller A.

Entrance physics is not accepted as an equivalent for this course.

5. INTRODUCTORY PHYSICS. Class room work. Repeated in second term, credit two hours. Messrs. GIBBS, HOWE, MURDOCK, FORMAN, and ZELLER. M W, or T Th, Rockefeller, to be assigned.

6. INTRODUCTORY PHYSICS. Class room work. Repeated in second term, credit four hours. Messrs. GIBBS, SOMERVILLE, MURDOCK, and FORMAN. M T W Th, Rockefeller, as assigned.

Examinations for those who were unavoidably absent from either term examination in courses 1, 5, or 6, and for those who have conditions to make up, will be held on registration day, September 29, 1910, at 2 p. m.

8. GENERAL PHYSICS. Theory. Repeated in second term, credit two hours. Prerequisite courses 1 and 5 and Mathematics 1. Messrs. FISHER, GALAJIKIAN, MOLBY, RICHTMYER, RODGERS, TAYLOR, GOLDBERG, HARRINGTON, and WING. Two days as assigned, Rockefeller, as assigned.

Text-book work in statics, dynamics, properties of matter, and heat, including thermometry, expansion, calorimetry, radiation and conduction. Two hours of course 14 must be taken in connection with course 8.

9. GENERAL PHYSICS. Theory. Repeated in second term, credit two hours. Prerequisite courses 8 and the first term of 14. Instructing staff as in course 8. Two days as assigned, Rockefeller as assigned.

Text-book work. A continuation of course 8. Magnetism and electricity, properties of vapors, and an introduction to the kinetic theory of gases and thermodynamics.

Two hours of course 14 must be taken in connection with course 9.

10. INTRODUCTORY PHYSICAL EXPERIMENTS. Either term or throughout the year, credit one to four hours a term. Especially for students taking 1 and 6, but open to those who are taking or have completed 1, 1 and 5, 6, or the equivalent. Assistant Professor BLAKER and Messrs. DORSEY, RODGERS, AND MAYER. M W S, 8-10.30, M T W Th F, 2-4.30. Rockefeller 220-232.

A shorter course of two hours covering properties of matter, heat, light, sound, magnetism, and electricity may be taken for one term, the student electing two laboratory periods a week, or the course may be extended over a year, one period a week being taken. A longer course of three or four hours may be elected covering the same ground as the two hour course but more in detail, the work being done in one term or distributed over two terms.

14. PHYSICAL EXPERIMENTS. Either term or throughout the year, credit one to eight hours a term. Prerequisite courses 1 and 6, or 1 and the two hour course in 10, or the equivalent. May be taken by students that are taking courses 8 and 9. Assistant Professor BLAKER, and Messrs. RICHTMYER, FISHER, DORSEY, GALAJIKIAN, MOLBY, RODGERS, TAYLOR, GOLDBERG, HARRINGTON, AND WING. M T Th, 9-12, W S, 8-11, M T W Th F, 2-5. Rockefeller 250-257.

Physical measurements, properties of matter, mechanics, heat, light, sound, magnetism, and electricity; the adjustment and use of instruments of precision. Results and errors are carefully discussed. Students that are specializing in chemistry are required to take four hours. Other students may elect the desired number of hours.

15. PHOTOMETRY. Either term or throughout the year, credit one to four hours a term. Prerequisite courses 1, 6 or 10, and 14. Mr. RICHTMYER. Hours to be arranged, Rockefeller.

A study of candle power and distribution of various sources of artificial light. Various forms of photometers will be investigated and calibrations made. Tests will be made of the distribution of light within a room under various conditions.

It is recommended that course 43 should be taken along with this course.

18. THEORY AND PRACTICE OF PHOTOGRAPHY. Repeated in second term, credit two hours. Prerequisite, the knowledge of chemistry and physics, that in general is possessed by those who have completed Chemistry 1 and Physics 1. Assistant Professor MOLER and Mr. SOMERVILLE. Lecture, Th, 3.30 and one three-hour laboratory period weekly; M T F, 2-5, or W Th, 9-12, Rockefeller Hall, Lectures in A.

19. ADVANCED PHOTOGRAPHY, with special reference to its application to research. Repeated in second term, credit two hours. Prerequisite courses 1, 10 or 14, and 18, or the equivalent. Assistant Professor MOLER. Rockefeller Hall, Photographical Laboratory.

An attendance equal to six hours per week is required in this course.

[20. HEAT. First term, credit three hours. Assistant Professor BLAKER. Courses 20–23 and 25 are intended for those who desire a more detailed study of the work indicated and who are preparing to teach or to take the advanced courses in theoretical physics which follow. Advanced mathematics is not required but if the calculus has not been taken it is advisable to take it at the same time. Physics 14 and 25 should be taken with 20–23.]

Not given in 1910–11.

21. LIGHT. Second term, credit three hours. Prerequisite courses 1 and 6. Assistant Professor BLAKER. T Th S, 9, Rockefeller, Lecture Room C.

[22. ELECTRICITY AND MAGNETISM. Second term, credit three hours. Prerequisite courses 1 and 6. Assistant Professor BLAKER.]
Not given in 1910–11.

23. PROPERTIES OF MATTER. First term, credit three hours. Prerequisite courses 1 and 6. Assistant Professor BLAKER. T Th S, 9, Rockefeller, Lecture Room C.

25. ADVANCED LABORATORY PRACTICE. Either term or throughout the year. Credit two to eight hours a term. Prerequisite courses 1, 6 or 10, and at least four hours of 14. Assistant Professor BLAKER. Rockefeller, various rooms.
A laboratory course in general physics for students who desire to teach experimental physics or who desire to prepare themselves for the advanced laboratory courses in general physics which follow The experiments will be selected to meet the requirements of the individual student.

33. ALTERNATING CURRENTS. First term, credit two hours. Prerequisite courses 1, 6 or 10, and 14. Professor BEDELL. T Th, 10, Rockefeller.
A study of the underlying principles of alternating electric currents; the development of graphical methods of analysis as a basis for testing and for the solution of practical problems.

34. ELECTRICAL LABORATORY PRACTICE. Either term or throughout the year, credit three hours a term. Prerequisite courses 1, 6 or 10, and 14. Professor BEDELL and Mr. PIERCE. Daily 9–1, Rockefeller.
General dynamo laboratory practice and the testing of direct and alternating current apparatus and their application.

35. ADVANCED COURSE IN ELECTRICAL LABORATORY. Either term or throughout the year, credit two to eight hours a term. Prerequisite courses 1, 6 or 10, and 14. Professor BEDELL and Mr. PIERCE. Daily 9–1.
Similar to course 34 but of wider scope, the character of the work will be arranged to meet individual needs.
Primarily for graduates.

37. THESES IN APPLIED ELECTRICITY. Throughout the year or second term, credit two to eight hours a term. Prerequisite courses 1, 6 or 10, and 14. Professor BEDELL and Mr. PIERCE. To be arranged, Rockefeller.

39. DESIGN AND CONSTRUCTION OF APPARATUS FOR RESEARCH. First term, credit two hours. Assistant Professor MOLER. Rockefeller Hall.
Lectures and laboratory at hours to be arranged.
Primarily for graduates.

40. RECENT ADVANCES IN EXPERIMENTAL PHYSICS. Throughout the year, credit one hour a term. Professor MERRITT. F, 12, Rockefeller B.
Lectures, illustrated by experiments whenever the nature of the subject permits, devoted to some of the important recent discoveries in physics. In 1910-11 about half this time will be given to the subject of electric waves.

[41. THE ELECTRIC TRANSMISSION OF INTELLIGENCE. Credit one hour. Prerequisite courses 1, 6 or 10, and 14. Professor NICHOLS.]
Not given in 1910–1911.

42. PRIMARY AND SECONDARY BATTERIES. Second term, credit one hour. Prerequisite courses 1, 6 or 10, and 14. Professor NICHOLS. S, 12, Rockefeller B.
A lecture course on the theory of voltaic cells and storage batteries.

43. PHOTOMETRY AND THE PHYSICS OF ILLUMINATION. First term, credit two hours. Prerequisite courses 1, 6 or 10, and 14. Professor NICHOLS. Hours to be arranged, Rockefeller B.

Lectures on the theory of artificial illumination and on methods of determining the temperature, efficiency, and quality of sources of light.

[44. THE MEASUREMENT OF CURRENT, ELECTROMOTIVE FORCE, AND RESISTANCE. Credit one hour. Prerequisite courses 1, 6 or 10, and 14. Professor NICHOLS.]

Not given in 1910–11.

45. ADVANCED LABORATORY WORK IN GENERAL PHYSICS. Throughout the year or either term. Prerequisite courses 1, 5, 8, 9, 4 hours of 14, and 25; 1, 6, 4 hours of 14, and 25; or 1, 2 hours of 10, 4 hours of 14, and 25. Professor NICHOLS, MERRITT, and SHEARER, Assistant Professor BLAKER, and Mr. DORSEY. Daily, Rockefeller.

[46. LIGHT. Throughout the year, credit four hours a term. Prerequisite courses 1, 6 or 10, and 14. Professor SHEARER.

Primarily for graduates.]

Not given in 1910–11.

47. HEAT. Throughout the year, credit four hours a term. Prerequisite courses 1, 6 or 10, and 14. Professor SHEARER. Hours to be arranged, Rockefeller B.

Production of high and low temperatures with methods of measurement; heat transfer; theory of heat and molecular physics; kinetic theory of matter.

Primarily for graduates.

48. READING COURSE ON THE ELECTRO-MAGNETIC THEORY OF LIGHT. Throughout the year. Prerequisite courses 1, 6 or 10, 14, and 46. Professor SHEARER. Hours to be arranged, Rockefeller.

The reading in this course is chiefly of French and German treatises.

Primarily for graduates.

[49. THE APPLICATION OF MATHEMATICS TO PHYSICS. Throughout the year, credit two hours a term. Prerequisite courses 1, 6 or 10, and 14. Professor SHEARER. Primarily for graduates.]

Not given in 1910–11.

50. PHYSICS SEMINARY. Throughout the year, credit two hours a term. Professor NICHOLS. Hours to be arranged, Rockefeller B.

A colloquium in which all members of the teaching staff in physics and all graduate students take part.

[51. THEORETICAL PHYSICS. Mechanics and thermodynamics. Throughout the year, credit four hours a term. Professor MERRITT.

Primarily for graduates.]

Not given in 1910–11.

52. THEORETICAL PHYSICS. Electricity and magnetism. Throughout the year credit four hours a term. Professor MERRITT. Probably M T W Th, 8, Rockefeller B.

Primarily for graduates.

53. ELECTRICITY AND MAGNETISM. Throughout the year. Prerequisite course 52 or its equivalent. Professor MERRITT. Hour to be arranged.

The character of this course and the method of conducting it will be determined by the needs of the students that elect it. At present the treatise of Abraham and Foeffe is used as a basis for the work.

Primarily for graduates.

54. THERMODYNAMICS. Throughout the year, credit two or three hours a term. Prerequisite courses 1, 6 or 10, and 14, and Mathematics 1. Physics 20 is advised, though not required, as a preliminary course. Professor TREVOR. Hours to be arranged.

CHEMISTRY

SPECIAL COURSE IN CHEMISTRY

The four year course in chemistry and allied subjects that is outlined below is offered for students who plan to follow chemistry as a profession, and serves to prepare them either for teaching or for commercial work.

Those who intend to pursue this course are strongly advised to defer the study of chemistry until after they have entered the University, and to take before entrance solid geometry, advanced algebra, plane and spherical trigonometry, three years of preparatory German, three years of preparatory French, and four years of preparatory English instead of three. Failure to comply with this recommendation will necessitate the completion of the unfinished work after the student has entered the University, and may result in the prolongation of his course beyond the usual four years.

This special course is open to all students registered in the College of Arts and Sciences.

Students who are registered in the special course in chemistry will be excused from the requirement mentioned in paragraph 12, page ii, but will not be permitted to deviate from the course outlined below without the approval of Professor Dennis.

First Year.	No. Course.	First Term.	Second Term.
Introductory Inorganic Chemistry	1	6	—
Qualitative Analysis	7	—	6
Mathematics: Analytic Geometry, Differential Calculus, Integral Calculus	3	5	5
Physics	1	4	—
Physics	6	—	4
Physics	10	—	2
Drawing (Sibley College) D.	3	3	—

Second Year.	No. Course.	First Term.	Second Term.
Organic Chemistry	30	6	6
Quantitative Analysis	12	6	—
Spectroscopic Chemical Analysis	17	—	2
Mechanics of Engineering (Civil Engineering)	20	5	5
Physics	14	1	3

Third Year.	No. Course.	First Term.	Second Term.
Introductory Physical Chemistry	50	3	3
Physical Chemistry Laboratory	51	3	3
Microchemical Methods	65	—	2
Gas Analysis	19–20	3	—
Mineralogy	11	3	3
Advanced Quantitative Analysis	14	—	4
Quantitative Analysis—Lectures	15	2	—
Mechanical Laboratory (Sibley College) E. X.	11	3	3

Fourth Year.	No. Course.	First Term.	Second Term.
Electrochemistry	56a	3	—
Electrochemistry	56c	4	—
Assaying	18	3	—
General Economic Geology	32	3	3
Electrical Engineering Laboratory (Sibley College)	E. 13	—	3
Potable Water	75	—	2
Water Analysis	76	—	3
Research	96	At least 4 hrs. per term.	

Seminary, once every other week throughout the year.

In filling out the remainder of his time the student may elect advanced courses either in chemistry, or in other departments of the College of Arts and Sciences, or, under the regular restrictions, in Sibley College.

INTRODUCTORY INORGANIC CHEMISTRY

1. INTRODUCTORY INORGANIC CHEMISTRY. Lectures, recitations, and laboratory. Repeated in second term, credit six hours.

1a. Lectures. First term, T Th S, 11, Professor DENNIS and Mr. SUTHERLAND; M W F, 11, Professor BROWNE and Mr. SUTHERLAND. Second term, M W F, 11. Morse 1.

1b. Recitations (one hour a week to be arranged), and laboratory (two 2½ hour periods a week to be arranged). Professors DENNIS and BROWNE, Mr. WELSH, and Messrs. HOLMES, HOULEHAN, GAUB, FINK, HOLLINGSHEAD, and NUNEZ.

Entrance credit in chemistry does not carry with it University credit in course 1. If a student entering the University from a preparatory school desires credit in course 1, he must pass an examination set by the department of chemistry. This examination (for details see University Register, 1909-10, page 57) is held both in New York City and in Ithaca on the same day in September as the entrance examination. University credit in course 1 that is obtained by passing this examination does not carry with it entrance credit in chemistry.

Examinations for those who were unavoidably absent from the term examination in course 1, and for those who have conditions to remove in this course, will be held at 2 p.m. on the day before instruction begins in the fall, and also in the month of May at a date to be announced. No special examinations will be given at other times.

ANALYTICAL CHEMISTRY

6. QUALITATIVE AND QUANTITATIVE ANALYSIS. Repeated in second term, credit five hours. Prerequisite course 1. Dr. LUNDELL, Mr. LEMON, and Messrs. MILLER, RIEGGER, DILLON, WALKER, RHODES, and UHLRICH. Lectures, T Th, 12, Morse L. R. 1.

Laboratory sections: M W F, 2-5; T Th S, 8-11; T Th S, 9-12.

Qualitative work: the properties and reactions of the common elements and acids and their detection in various liquid and solid mixtures.

Quantitative work: the preparation and use of volumetric solutions and work in elementary gravimetric analysis.

7. QUALITATIVE ANALYSIS. Second term, credit six hours. Prerequisite course 1. Dr. LUNDELL, Mr. LEMON, and Mr. ———. Lectures T Th, 9, Morse L. R. 3.

Laboratory, M F, 11-1; T Th, 2-5.

The properties and reactions of the common elements, and of the inorganic and organic acids, also the qualitative analysis of a number of solutions and solid mixtures.

Students in science are advised and those who are specializing in chemistry are required to take this course instead of course 6.

12. QUANTITATIVE ANALYSIS, ELEMENTARY COURSE. First term, credit six hours. Prerequisite 6, or preferably 7. Dr. LUNDELL and Messrs. COTHRAN and MARSH. Lectures, T Th, 9.

Laboratory sections: T W Th, 2-5.30; W Th, 2-5.30 and S, 9-12.30.

The preparation and standardization of various volumetric solutions and their use in analyzing a variety of substances; gravimetric methods.

Students in science are advised and those who are specializing in chemistry are required to take this course instead of the quantitative analysis of course 6.

14. QUANTITATIVE ANALYSIS, ADVANCED COURSE. Repeated in second term. Credit one to four hours. Prerequisite course 6, or 7 and 12. Dr. LUNDELL, and Messrs. COTHRAN and MARSH.

Laboratory sections: 1st. term, M T W Th, 2-5.30; T S, 9-12.30; 2nd. term, M T W Th F, 2-5; T Th S, 9-12.30.

Gravimetric, volumetric, and electrolytic methods of analysis, and methods of combustion analysis; analysis of iron ores, iron and steel, slags, paints, lubricants, coal and coke, cements and cement materials, alloys, ores of copper, lead, zinc, mercury, manganese, tin, etc.

Designed for students that are specializing in chemistry, and as an elective for mechanical and civil engineering students.

15. QUANTITATIVE ANALYSIS, ADVANCED LECTURES. First term, credit two hours. Prerequisite course 6, or 7 and 12. Dr. LUNDELL. M W, 11, Morse, L. R. 3.

Selected topics in advanced quantitative analysis.

Designed for students that are specializing in chemistry.

17. SPECTROSCOPIC CHEMICAL ANALYSIS AND COLORIMETRY. Second term, credit two hours. Prerequisite courses 6, or 7 and 12; Physics 1 and 6. Mr. SHETTERLY, and Messrs. WILSON and ———. Lecture, W, 11, Morse, L. R. 3.

Laboratory practice, (three actual hours) at hours to be arranged.

The lectures are devoted to a description of the instruments used in the laboratory and to a detailed discussion of spectroscopic methods.

The laboratory instruction includes the following work: the observation and mapping of emission spectra of various elements in the Bunsen flame, the electric arc, and the electric spark; the qualitative analysis of mixtures and minerals by the use of the Krüss spectroscope and the direct vision spectroscope; the observation and mapping of absorption spectra; the examination and identification of rare earths and of organic dyes in solution by means of their absorption spectra; the calibration of spectroscopes; spectrum photography; and practice in the use of colorimeters, polariscopes, and refractometers of various types.

18. ASSAYING. First term, credit three hours. Prerequisite course 6, or 7 and 12, and if possible a course in mineralogy. Dr. LUNDELL and Mr. COTHRAN. Lecture, F, 10, Morse 2.

Laboratory sections: M W, 2-5; W F, 2-5; M F, 2-5.

Lectures on the theory and practice of the scorification and crucible assay, and on the metallurgy of copper, lead, zinc, silver, and gold. In the laboratory, practice is given in assay of zinc, lead, copper, gold, and silver ores, mattes, and bullion.

Designed for students that are specializing in chemistry, and as an elective for students in mechanical and civil engineering.

19. QUALITATIVE AND QUANTITATIVE GAS ANALYSIS. Lectures. First term, credit one hour. Prerequisite courses 6, or 7 and 12; Physics 1 and 6. Professor BROWNE and Mr. SHETTERLY. T, 9, Morse L. R. 3.

A detailed discussion of many representative types of apparatus employed by the gas analyst, and of the various methods of analysis involved in their use. Numerous simple problems are assigned which afford practice in the calculation and interpretation of the results obtained in gas analysis work.

20. TECHNICAL GAS ANALYSIS. First term, credit two hours. Prerequisite courses 6, or 7 and 12; Physics 1 and 6. Open to those who are taking course 19. Mr. SHETTERLY, and Messrs. WILSON and ———. Laboratory practice at hours to be arranged.

The analysis of gas mixture with the apparatus of Honigmann, Bunte, Orsat, Lunge, and Hempel; the complete analysis of flue gas, illuminating gas, generator gas, acetylene, and air; the determination of the heating power of gaseous, liquid, and solid fuels, and the analysis of various substances by gas analysis methods involving the use of the different types of gas evolution apparatus such as the nitrometers of Hempel, Lunge, and Bodländer. Within certain limits the work may be selected to suit the requirements of the individual student.

21. GAS ANALYSIS. Advanced Course. Repeated in second term, credit one to four hours. Prerequisite courses 1, 6 (or 7 and 12), 19, and 20; Physics 1, and 5 or 6. Professor BROWNE and Mr. SHETTERLY. Hours to be arranged, Morse.

Special topics in the field of either scientific or industrial gas chemistry. The course may be elected by seniors and graduate students in chemistry, and is open to seniors or graduates in mechanical engineering that are specializing in gas power work.

ORGANIC CHEMISTRY

30. ORGANIC CHEMISTRY. Throughout the year, credit six hours a term. Prerequisite courses 7 and 12. Professor ORNDORFF, Mr. NICHOLS, and Messrs. HITCH and CONKLIN. Lectures and written reviews, M W F, 9, Morse L. R. 3.

Laboratory sections: M T, 1–5.30; F, 1–5.30 and S, 8–1. Morse 9.

The lecture and written reviews serve as an introduction to the general subject of the chemistry of the compounds of carbon. In the laboratory the student prepares a large number of typical compounds of carbon and familiarizes himself with their properties, reactions, and relations. The detection of inorganic elements in organic compounds and the recognition of various groups or radicals is included in the laboratory work.

31. ORGANIC CHEMISTRY. Throughout the year, credit three hours a term. Prerequisite courses 7 and 12. Professor ORNDORFF and Mr. HITCH. M W F, 9, Morse L. R. 3.

This course consists of the lectures and written reviews of course 30.

32. ELEMENTARY ORGANIC CHEMISTRY. First term, credit four hours. Prerequisite courses 1, 7, and 12, or the equivalent. Mr. NICHOLS and Mr. CONKLIN. Lectures, and oral and written reviews, M W F, 12, Morse L. R. 3. Laboratory Th, 2-5, Morse 10.

33. SPECIAL CHAPTERS IN ORGANIC CHEMISTRY. Throughout the year, credit two hours a term. Prerequisite course 30. Professor ORNDORFF. T Th, 9, Morse L. R. 2.

Especial attention is given to certain important chapters of organic chemistry. Frequent references are made to the original literature, and an attempt is made to acquaint the student with the classical researches in organic chemistry.

34. ADVANCED ORGANIC CHEMISTRY. Laboratory practice. Throughout the year. Open to those who have had 30 and are taking 33. Professor ORNDORFF and Mr. NICHOLS. Hours to be arranged. The laboratory is open daily, Morse 10.

The course in the preparation of organic compounds is here continued, the preparations, however, being more difficult and requiring more experience and skill on the part of the student. The original literature is consulted, and, before taking up original work in this field, the student is finally required to repeat some extended and important piece of work, and to compare his results with those published.

35. THE COAL TAR DYESTUFFS. First term, credit one hour. Open to those who have had 30 and have had or are taking 33. Professor ORNDORFF. Th, 12, Morse L. R. 3.

The coal tar dyestuffs have become so important, both theoretically and practically, as to justify their consideration in a separate course of lectures. The methods of making the dyestuffs, their properties, constitution, and relations to each other are discussed, the treatment being scientific rather than technical.

36. STEREOCHEMISTRY. Second term, credit one hour. Prerequisite course 30 or 31. Professor ORNDORFF. Th, 12, Morse L. R. 3.

The stereochemistry of the compounds of carbon and nitrogen. The necessity of considering the space relations of the atoms in certain classes of physical isomers is shown and the close agreement of the facts and theory is brought out.

37. METHODS OF ORGANIC ANALYSIS. Throughout the year. Prerequisite course 30. Professor ORNDORFF and Mr. NICHOLS. Hours to be arranged. The laboratory is open daily, Morse 10.

Designed for students that desire practice in the qualitative and quanti-

tative analysis of commercial organic products such as alcohols, ethers, organic acids, glycerin, formalin, acetates, coal tar distillates, petroleum products, soaps, acetanilid, etc.

INORGANIC CHEMISTRY

[46. INORGANIC CHEMISTRY. Advanced course. Throughout the year, credit two hours a term. Prerequisite course 30 and open to those who have completed or are taking courses 50 and 51. Professor DENNIS.

The chemical elements are discussed in the order in which they occur in the Periodic Law of Mendeleéff, and special attention is paid to the group properties of the elements and to the relations of the groups to one another. The rare elements and the rare earths are treated in as great detail as are the more common elements.]

Not given in 1910–11.

47. ADVANCED INORGANIC CHEMISTRY. Laboratory practice. Throughout the year. Prerequisite course 30. Professors DENNIS and BROWNE and Mr. ANDERSON. Morse 68.

The preparation and purification of inorganic compounds and the extraction of the rarer elements from ores and minerals.

Course 47 is designed to accompany course 46, but either course may be taken separately.

48. SELECTED TOPICS IN ADVANCED INORGANIC CHEMISTRY. First term, credit one hour. Prerequisite course 30. Courses 50 and 51 should either precede or accompany 48. Professor BROWNE. Th, 11, Morse L. R. 3.

Experimental lectures, dealing chiefly in 1910–11 with the hydronitrogens and their derivatives.

Open only to seniors and graduate students in chemistry.

49. CHEMISTRY OF GASES. First term, credit one hour. Prerequisite course, 6, or 7 and 12, and should be preceded or accompanied by 19 and 20. Professor BROWNE. T, 11, Morse L. R. 3.

The preparation, properties, and reactions of a large number of gases are discussed, and in many cases are illustrated by experiments. The various generalizations concerning gases are considered, not only in the light of their scientific value, but also to some extent from the point of view of their application to the practical problems of the gas chemist and of the gas engineer. The course may be elected by juniors, seniors, and graduate students in mechanical engineering that intend to specialize in gas power work.

PHYSICAL CHEMISTRY

50. INTRODUCTORY PHYSICAL CHEMISTRY. Throughout the year, credit three hours a term. Prerequisite courses 30 and Physics 14. Mr. WHITE. M W F, 9, Morse L. R. 4.

A systematic presentation of modern chemical theory. Especial attention is paid to the the theory of solution, reaction velocity, catalysis, chemical equilibrium, and the application of the principles of physical chemistry to chemical practice.

51. PHYSICAL CHEMISTRY LABORATORY. Throughout the year, credit three hours a term. Open only to those who have taken or are taking course 50. Messrs. WHITE and BRIGGS. Two laboratory periods a week: M T, 2–5; F, 2–5, S, 9–12. Morse 77.

With the data obtained in the laboratory as a basis, detailed reports covering each sub-division are written. The subject matter includes: the calibration of pipettes, burettes, and measuring flasks; molecular weight determination by vapor density, freezing point and boiling point methods; vapor pressure; viscosity; colloids; diffusion; absorption; thermo-chemistry; reaction velocity; catalysis; dissociation; solubility; formation, separation and identification of phases; study of photo-chemical effects.

[52. ADVANCED PHYSICAL CHEMISTRY. Lectures throughout the year, credit three hours a term. Prerequisite course 50. Professor BANCROFT.
An exposition of the law of mass action in its application to chemical equilibrium and reaction velocities.]
Not given in 1910–11.

53. COLLOID CHEMISTRY AND PHOTOCHEMISTRY. Lectures. Second term, credit three hours. Professor BANCROFT. M W F, 12, Morse L. R. 4.
The theories of colloid chemistry and of photochemistry, with special reference to photography. For advanced students in chemistry or physics.

55. THEORETICAL ELECTROCHEMISTRY. Lectures. Throughout the year, credit three hours a term. Professor BANCROFT. M W F, 10, Morse L. R. 4.
The historical development of the subject with special reference to the theory of the voltaic cell. For advanced students in chemistry or physics.

56a. APPLIED ELECTROCHEMISTRY. Lectures. First term, credit three hours. Prerequisite courses, 6, or 7 and 12. Professor BANCROFT and Messrs. SKILLMAN and BENNETT. M W F, 12, Morse L. R. 4.
The preparation of compounds in the electric furnace; electrolytic extraction and refining of metals; theory of plating; electrolytic manufacture of inorganic and organic compounds; theory and practice of storage cells. Students that take this course are advised to supplement the lectures by laboratory practice, course 56b or 56c; this is however not obligatory.

56b. APPLIED ELECTROCHEMISTRY. Second term, credit two hours. Prerequisite courses 56a; Physics 10 or 14. Messrs. SKILLMAN and BENNETT. Laboratory practice, one morning or one afternoon 8–1 or 1.30–5.30, Morse 79.
Determination of current and energy efficiencies in electrolytic and electrothermal work; preparation and tests of storage batteries. Open to engineering students. Students that are specializing in chemistry are expected to elect course 56c instead of course 56b.

56c. APPLIED ELECTROCHEMISTRY. First term, credit four hours. Open to those who have had 50 and 51, and have taken or are taking 56a. Laboratory practice.
W 2–5, Th 8–1; F 2–5, S 8–1. Morse 79. Professor BANCROFT, and Messrs. SKILLMAN and BENNETT.
Preparation of electrical standards and measurements of electrical constants; qualitative study of conditions affecting electrolytic reactions; determination of current and energy efficiencies in electrolytic and electrothermal work; preparation and tests of storage batteries; electrolytic preparation of inorganic and organic compounds. For students that are specializing in chemistry.

57. ADVANCED LABORATORY PRACTICE. Either term or throughout the year. Credit, one to six hours a term. Prerequisite courses determined in each case by the professor in charge. Professor BANCROFT Mr. WHITE, and Messrs. SKILLMAN and BENNETT. Hours and work to be arranged. Morse.
Students may elect work in mass law, reaction velocity, or efficiency measurements with special reference to course 52; in photochemistry or photography with special reference to course 53; in conductivity or electrometric determinations with special reference to course 55; in electrolytic or electric furnace products with special reference to course 56; in metallography; in the application of physical chemical methods to organic chemistry.

MICROCHEMISTRY AND MICROCHEMICAL ANALYSIS

65. MICROCHEMICAL METHODS. Second term, credit two hours. Prerequisite courses 6, or 7 and 12. Professor CHAMOT and Mr. RATHJEN. Laboratory practice at hours to be arranged.

The use of the microscope and its accessories, and microchemical methods and apparatus as applied to chemical investigations.

66. MICROCHEMICAL ANALYSIS. First term, credit three hours. Prerequisite course 65. Professor CHAMOT and Mr. RATHJEN. Laboratory practice at hours to be arranged, Morse.

Practice in the examination and analysis of inorganic substances containing the more common elements with reference to rapid qualitative methods and the analysis of minute amounts of materials.

67. MICROCHEMICAL ANALYSIS. First term, credit two or more hours. Prerequisite course 66. Professor CHAMOT. Laboratory practice, Morse.

This course may be arranged so as to comprise the analysis of inorganic substances containing the rarer elements or of organic compounds.

SANITARY CHEMISTRY

[70. FOODS, BEVERAGES, AND FOOD ACCESSORIES. First term, credit two hours. Prerequisite course 6, or 7 and 12. Professor CHAMOT.

The source, preparation for use, and the chemistry of foods, beverages, and food accessories ; the individual and relative assimilability, digestibility, and nutritive value of food products ; the relation of pure and adulterated foods to the public health ; the adulteration, sterilization, and preservation of foods ; dietary standards, and the methods for carrying on nutrition investigation.]

Not given in 1910-11.

[71. FOOD ANALYSIS. First term. Prerequisite course 6, or 7 and 12. Professor CHAMOT and Mr. REDFIELD.

The examination of foods by chemical and optical methods, with reference to adulteration, imitation, and alteration ; the examination of foods for artificial coloring matters, preservatives, and poisonous substances ; a study of milk, comestible fats and oils, cereal products and starchy foods, canned goods, jellies, etc. This course may be extended so as to include the analysis of alcoholic beverages.]

Not given in 1910-11.

72. MICROSCOPICAL EXAMINATION OF FOODS. First term, credit two hours. Prerequisite course 66. Professor CHAMOT and Mr. RATHJEN. Hours to be assigned.

The use of the microscope in the examination of foods and condiments for the purpose of detecting adulterations and admixtures.

75. POTABLE WATER. Second term, credit two hours. Prerequisite course 6, or 7 and 12. Professor CHAMOT. T Th, 11, Morse L. R. 2.

Sources of potable water ; how polluted ; agencies at work leading to the natural or self purification of streams, etc., and what they accomplish ; the data necessary for a decision as to the fitness of a water for household use, and for use in steam generators ; the interpretation of the results of water analysis, chemical, microscopical, and bacteriological. Modern methods of water purification.

76. WATER ANALYSIS. Second term, credit three hours. Prerequisite course 6, or 7 and 12. Professor CHAMOT and Mr. REDFIELD. Hours to be arranged, Morse.

The methods employed for the examination of waters with reference to their fitness for household purposes, steam boilers, etc ; the testing of filters and water purifying devices for efficiency.

80. TOXICOLOGY. First term, credit two hours. Prerequisite course 30. Professor CHAMOT. W F, 12, Morse L. R. 2.

A review of the present methods for the separation and identification of the common poisons, together with a brief review of the classification, cause of action, and method of elimination of poisonous substances.

81. TOXICOLOGY. First term, credit two hours. Prerequisite course 30, and open only to those who are taking 80. Professor CHAMOT. M W F, 2-5, Morse.

AGRICULTURAL CHEMISTRY

85. AGRICULTURAL CHEMISTRY. Second term, credit four hours. Prerequisite course Chemistry 1. Professor CAVANAUGH and Messrs. HEDGES, CROSS, and RICE. Lectures T Th S, 11. One recitation a week M, 8 or 9; W, 8 or 9; F, 8 or 9. Morse L. R. 1.

A general course treating of the relation of chemistry to agriculture and dealing with the composition and chemical properties of plants, soils, fertilizers, feed-stuffs, insecticides, and fungicides.

85a. AGRICULTURAL CHEMISTRY, LABORATORY COURSE. Repeated in second term, credit two hours. Prerequisite courses 1, 6, 85. Professor CAVANAUGH and Messrs. HEDGES and RICE. T Th, 2-4.30, W F, 8-10.30, Morse, Quantitive Laboratory.

Designed to accompany course 85.

86. AGRICULTURAL CHEMISTRY, ADVANCED COURSE. Credit two hours. Prerequisite course 87 or 88, or may be taken at same time with 87 or 88. Professor CAVANAUGH. T Th 9, Morse L. R. 4.

87. AGRICULTURAL ANALYSIS. First term, credit three hours. Prerequisite courses 1, 6, 85a, 86, or may be taken at same time with 86. Professor CAVANAUGH and Mr. CROSS. T Th, 2-5, S, 9-12, Morse 57.

The methods of the A.O.A.C. are studied, in the analysis of fertilizers, soils, and insecticides.

88. AGRICULTURAL ANALYSIS. Second term, credit three hours. Prerequisite courses 87, 89. Professor CAVANAUGH and Mr. CROSS. T Th, 2-5, S, 9-12, Morse 57.

Methods of the examination of foods, feed-stuffs, and dairy products.

89. DAIRY CHEMISTRY. First term, credit two hours. Prerequisite courses 85, 85a. Professor CAVANAUGH. T Th, 9, Morse L. R. 4.

90. ADVANCED AGRICULTURAL ANALYSIS. Repeated in second term. Prerequisite courses 86 or 89, 87, 88. Professor CAVANAUGH. Credit and hours by appointment, Morse 57.

Designed to meet the needs of those who are doing research in agricultural chemistry.

SEMINARY

95. SEMINARY. Throughout the year. Morse L. R. 3.

One hour every other week throughout the year.

This is a general seminary in which graduate students with major subjects in chemistry, and seniors that are specializing in chemistry are expected to take part.

RESEARCH

96. RESEARCH FOR UNDERGRADUATE STUDENTS. Throughout the year. Morse.

Seniors that are specializing in chemistry are expected to elect at least four hours a term in research under the direction of some member of the staff of instruction.

BOTANY

1. GENERAL COMPARATIVE MORPHOLOGY AND PHYSIOLOGY OF PLANTS. First term and until March 25, credit three hours first term; one hour second term. Professor ATKINSON and Messrs. STONE, PETRY, and ———. One lecture, M, 10, 11, or 12, and two laboratory periods a week as follows:

Sec. 1, M, 2–4.30, W, 2–4.30; sec. 2, T, 8–10, 2–5; sec. 3, Th, 8–10, 2–5; sec. 4, first term: F, 9–11, S, 9–12; second term: F, 9–12, S, 9–11. Sage College, Botanical Lecture Room.

A study of representative plants of various groups and of the fundamental principles of plant life, relationship, and evolution.

2. SPECIAL MORPHOLOGY, TAXONOMY, AND ECOLOGY OF THE HIGHER PLANTS. Second term beginning March 27, credit two hours. Prerequisite course 1. Professor ROWLEE and Messrs. STONE, BROWN, and PETRY. One lecture, M 10, 11, or 12, and two laboratory periods a week as follows:

Sec. 1, M W, 2–4.30; sec. 2, T, 8–10, 2–5; sec. 3, Th, 8–10, 2–5; sec. 4, Fri, 9–12, S, 9–11.

Sage College, Botanical Lecture Room.

Studies of typical plants representing the more general groups of angiosperms; field excursions for the purpose of studying the local flora.

3. ORGANOGRAPHY AND IDENTIFICATION OF THE HIGHER PLANTS. First term, credit three hours. Prerequisite courses 1 and 2. Professor ROWLEE and Mr. BROWN. Lectures S, 9; laboratory and field work, F afternoon and S morning. Sage College, Botanical Lecture Room.

Lectures, laboratory, and field work.

A study of the kinds of plants with special reference to the morphology, identification, habitat, and range of species. Extra field work will be substituted for some of the lectures.

5. GEOGRAPHICAL BOTANY. Second term. Professor ROWLEE and Mr. BROWN. Lecture S, 9. Laboratory exercises and excursions F, 2-5 and S. Sage College, Botanical Lecture Room.

The distribution of plants over the surface of the earth. Practical field studies in plant distribution; the preparation of an herbarium representing the local flora. Photographs are used to illustrate the distribution of plants.

6. EXOTICS. Throughout the year, credit one or two hours a term. Professor ATKINSON and Mr. SHORE. Hours by appointment.

The conservatory in connection with the department offers excellent opportunities for students that wish to become familiar with practical methods in propagation and cultivation of conservatory plants and in practical greenhouse work.

7. TAXONOMY AND PHYLOGENY OF ANGIOSPERMS. Throughout the year, credit three hours a term. Professor ROWLEE. Lectures, Th, 9. Laboratory work, W afternoon and Th morning, Sage College, Botanical Lecture Room.

A study of the genetic relationships of the phanerogamous orders. Practical studies in the laboratory of economic groups, illustrating the principles of natural classification.

8a. PLANT CYTOLOGY. First term, credit three hours. Prerequisite courses 1 and 2. Dr. BROWN. Lecture F, 9. Laboratory work, F afternoon and S morning, and by appointment, Sage College Histology Laboratory.

Introduction to methods of investigation. Studies of the vegetable cell, its multiplication and contents. Practical application of modern methods in a study of nuclear and cell-division.

8b. COMPARATIVE HISTOLOGY OF PLANTS. Second term, credit three hours. Prerequisite course 8a. Dr. BROWN. Lecture F, 9. Laboratory work, F afternoon and S morning, and by appointment, Sage College, Histology Laboratory.

Structure and development of the tissues of higher plants.

9a. DENDROLOGY. First term, credit three hours. Course 5 may advantageously precede. Dr. BROWN and Mr. BROWN. Lecture T, 9. Laboratory and field work M afternoon and T morning. Sage College, Histology Laboratory.

A biological and taxonomic study of trees and shrubs including laboratory study and field observations upon native species.

9b. DENDROLOGY. Second term, credit three hours. Courses 8b and 9a may advantageously precede this course. Dr. BROWN and Mr. BROWN. Lectures T, 10. Laboratory and field work, M afternoon and T morning. Sage College, Histology Laboratory.

Study of the development of woody structures, structure and properties of different kinds of wood, identification of woods.

10. COMPARATIVE MORPHOLOGY AND EMBRYOLOGY. Throughout the year, credit three hours a term. Prerequisite courses 1 and 2. Professor ATKINSON. Lectures, Th, 12. Laboratory work, M and W afternoons. Sage College, Botany Lecture Room.

A study of representative groups that illustrate the line of evolution of green plants. The development and homologies of sporogenous, reproductive, and embryological organs, with discussions of the principal plant phylae; permanent microscopic sections representing series in the liverworts, mosses, ferns, gymnosperms, and angiosperms; bryophyta; the pteridophyta; the gymnosperms and angiosperms.

11. MYCOLOGY. Throughout the year, credit four hours a term. Prerequisite courses 1 and 2. Professor ATKINSON and Mr. BARRETT. Lectures, T Th, 11. Laboratory work, M W afternoons. Sage College, Botany Lecture Room.

Intended as the basis for research in mycology and plant pathology. General classification, development, and plant pathology. Basidiomycetes, with especial attention to edible and poisonous mushrooms, and wood-destroying and parasitic species; the parasitic fungi; their history and development. Practice in the recognition of species, or research work may in some cases be taken as a parallel course. See course 14a.

12. TAXONOMY OF THE PETERIDOPHYTES, BRYOPHYTES, AND ALGAE. Throughout the year, credit three hours a term. Professor ATKINSON. Lecture, F, 11. Laboratory work, F afternoon and S morning, Sage College, Botany Lecture Room.

A study of typical genera, practice in taxonomy, and field work.

13. METHODS OF RESEARCH IN MORPHOLOGY AND EMBRYOLOGY. Prerequisite course 10, except by special permission. Professor ATKINSON. Hours by appointment, Sage College, Botany Lecture Room.

Original research in sporogeny or embryology and the morphology of the nucleus with reference to sporogenesis, spermagenesis, oogenesis, and fertilization, or in experimental morphology. A thesis embodying the results of the work will be prepared.

Open to graduates and to undergraduates that are engaged in research.

14a. GENERAL TAXONOMIC SURVEY OF THE FUNGI. First term or throughout the year, credit four or eight hours. Prerequisite course 11, except by special permission. Professor ATKINSON and Mr. BARRETT. Hours by appointment, Sage College, Botany Lecture Room.

14b. RESEARCH IN MORPHOLOGY. Throughout the year, credit four hours a term. Professor ATKINSON. Hours by appointment.

Monograph of some genus or limited number of genera, or monographic study of development. A thesis combining the results of the investigation will be required. Reports weekly.

Primarily for graduates.

14c. METHODS OF RESEARCH IN PLANT PATHOLOGY. Professor ATKINSON and Mr. BARRETT.

Methods of cultivation of the fungi to secure familiarity with manipulation in methods of separation, pure culture, and study of development; problems in plant pathology; weekly conferences or lectures and discussions on the history and present condition of the subject.

15. PLANT PHYSIOLOGY. Prerequisite courses 1 and 2, and Education, course 8, 10, or 11, or the equivalent. Professor ATKINSON. Hours by appointment (not less than four a week, and more if the work is taken as a major).

Problems in the physical properties of growth, in nutrition, and in the effects of stimuli and certain natural and environmental forces upon cell activities, plant growth, development, etc. A thesis embodying the results of the investigations will be required.

16. RESEARCH IN TAXONOMY AND PHYLOGENY OF THE ANGIOSPERMS. Prerequisite courses 7 and 8, except by special permission. Professor ROWLEE. Hours by appointment.

Four hours or more a week. A monograph of some group, including a comparative study of organs of taxonomic value and their development. Groups for investigation will be assigned preferably in the preceding spring. Among the groups that may be taken up are the glume bearing monocotyledons, the amentiferous dicotyledons, and the compositae. Since different groups will be taken up in different years, students may pursue this course more than one year.

Primarily for graduates.

17. RESEARCH IN COMPARATIVE HISTOLOGY AND CYTOLOGY. Prerequisite courses 8a and 8b. Professor ROWLEE and Dr. BROWN.

Not less than four hours a week. May form the basis of a major or minor subject for an advanced degree. Special problems in the comparative histology of a series of organs, or the anatomy of an individual plant. Cytology: the biology and structure of starch, plastids, and other cell contents, also nuclear division and cell formation, with special reference to tissue development.

18. SEMINARY IN EMBRYOLOGY, MYCOLOGY, PHYSIOLOGY, ETC. Credit one hour. Professor ATKINSON. W, 5.

Discussions of current literature and problems under investigation. Required of all graduates and open to undergraduates that are interested in research.

19. SEMINARY IN COMPARATIVE HISTOLOGY AND TAXONOMY OF THE ANGIOSPERMS. Credit one hour. Professor ROWLEE. Hours by appointment.

Reading and discussion of current literature and problems under investigation in courses 16 and 17, will form the basis for the seminary work. Required of all graduates and open to undergraduates that are engaged in research.

BIOLOGY

1. GENERAL BIOLOGY. Throughout the year, credit three hours a term. Two lectures and one laboratory period a week. Assistant Professor NEEDHAM and Professor COMSTOCK. Lectures, T Th, 10, Agricultural College, Auditorium. Laboratory, M, T, W, Th, or F, 2–4.30, or S, 8–10.30. Assistant Professor NEEDHAM and Messrs. MATHESON and LLOYD.

An elementary course designed to acquaint the general student with the main ideas of biology through selected practical studies of the phenomena on which biological principles are based. The interdependence of organisms, the simpler organisms, organization and phylogeny, oogenesis and ontogeny, heredity and variation, natural selection and adaptation, segregation and mutation, the life cycle, metamorphosis and regeneration, and the responsive life of organisms.

ENTOMOLOGY AND GENERAL INVERTEBRATE ZOOLOGY

[1. INVERTEBRATE ZOOLOGY.]
Not given in 1910–11. See course 1 in Vertebrate Zoology.

2. MORPHOLOGY OF INVERTEBRATES. Repeated in second term, credit two or more hours. Assistant Professor MACGILLIVRAY. Laboratory work by appointment. Agricultural College, Main 301.
The comparative study of the anatomy of representatives of the principal groups of invertebrates.

3. GENERAL ENTOMOLOGY. First term, credit two or three hours. Prerequisite course General Biology 1 or Zoology 1. Lectures, M W, 9, Agricultural College, Main 392. Professor COMSTOCK. Practical Exercises T or F, 2-4.30, Agricultural College, Main 301, Assistant Professor MACGILLIVRAY.
Lectures on the characteristics of orders, suborders, and the more important families, and on the habits of representative species. The practical exercises include a study of the structure of insects and practice in their classification. The lectures only (credit 2 hours) are taken by those who have had courses 4 and 5.

4. ELEMENTARY MORPHOLOGY OF INSECTS. Repeated in second term, credit three hours. Assistant Professor RILEY and Mr. ———. Laboratory open daily except Saturday, 8-5, Agricultural College, Main 391.
An introductory laboratory course required of all students who plan to do advanced work in the Department of Entomology.

5. ELEMENTARY SYSTEMATIC ENTOMOLOGY. Repeated in second term, credit three hours. Prerequisite course 5. Assistant Professor MACGILLIVRAY and Mr. ———. Laboratory open daily except S, 8-5, Agricultural College, Main 301.
A study of the wing venation of insects and the identification of specimens belonging to the more important orders and families. An introductory laboratory course required of all students who plan to do advanced work in the Department of Entomology.

6. ADVANCED SYSTEMATIC ENTOMOLOGY. Repeated in second term, credit three hours. Prerequisite course 5. Assistant Professor MACGILLIVRAY. Laboratory work by appointment, Agricultural College, Main 301.
A training course in the identification and interpretation of obscure characteristics used in the classification of insects.

7. HISTOLOGY OF INSECTS. Lectures, first term. Laboratory repeated in second term, credit three or more hours. Prerequisite courses 4 and 5. Assistant Professor RILEY. Lecture, Th, 11, Agricultural College, Main 392.
Practical exercises either term by appointment.
Designed for students of general zoology as well as for those who are preparing for research in insect morphology.

10. CLASSIFICATION OF THE COCCIDAE. Second term, credit five hours. Prerequisite course 6. Assistant Professor MACGILLIVRAY. Laboratory work by appointment, Agricultural College, Main 301.
Designed to familiarize the student with the more injurious species of scale insects, the methods of preparing specimens for study, and the systematic arrangement of the species.

11. MORPHOLOGY AND CLASSIFICATION OF THE ARACHNIDA. Throughout the year, credit three or more hours a term. Professor COMSTOCK and Miss STRYKE. Laboratory work by appointment, Agricultural College, Main 301.
Open only to graduates.

12. MORPHOLOGY AND DEVELOPMENT OF INSECTS. Second term, credit two hours. Prerequisite courses 1, 3, 4, and 5. Students are advised to take course 7, also, before taking this course. Professor COMSTOCK and Assistant Professor RILEY. T Th, 9, Agricultural College, Main 392.

14. GERMAN ENTOMOLOGICAL READING. Repeated in second term, credit one hour. Assistant Professor RILEY. W, 7-9 P. M., Agricultural College, Main 391.

Open only to advanced students in entomology or zoology.

[17. LITERATURE OF SYSTEMATIC ENTOMOLOGY. First term, credit two hours. Prerequisite course 5. Assistant Professor MACGILLIVRAY.

A systematic study of bibliographies, indexes, and general entomological literature; the preparation of catalogues of insects; the evolution of the rules of zoological nomenclature; and the methods of determining the priority of generic and specific names.]

Not given in 1910-11.

[18. EMBRYOLOGY OF INSECTS. Second term, credit one hour. Prerequisite courses 3, 4, and 5. Assistant Professor RILEY.

Alternates with course 12.]

Not given in 1910-11.

19. GENERAL LIMNOLOGY. Second term, credit three hours. Open only to students who have taken or are taking General Biology 1 and Entomology 3. Assistant Professor NEEDHAM. Lecture at hour to be arranged, Agricultural College, Main 302. Laboratory work:

Sec. 1, 2-4.30, Agricultural College, Main 302, or Biological Field Station. Assistant Professor NEEDHAM and Mr. LLOYD.

Sec. 2, by appointment.

An introduction to the study of the life of inland waters. Aquatic organisms in their qualitative, quantitative, seasonal, and ecological relations.

20. RESEARCH IN LIMNOLOGY. Throughout the year, credit three or more hours a term. Prerequisite course 19 or the equivalent. Assistant Professor NEEDHAM. Hours by appointment, Agricultural College, Main 302 and Biological Field Station.

Laboratory and field work.

22. ANIMAL PARASITES AND PARASITISM. First term, credit two hours. Must be preceded or accompanied by Biology 1 or Zoology 1, and Entomology 3. Assistant Professor Riley. Lecture T, 8, Agricultural College, Main 392.

Practical exercises: Sec. 1, M, 2-4.30; sec. 2, T, 2-4.30.

A consideration of the origin and biological significance of parasitism, and of the structure, life history, and economic relations of representative animal parasites.

23. THE RELATIONS OF INSECTS TO DISEASE. Second term, credit two hours. Must be preceded or accompanied by Biology 1 or Zoology 1, and if possible by Entomology 3. Assistant Professor RILEY. Lecture T, 8, Agricultural College, Main 392. Practical exercises T, 2-4.30.

Causation and transmission of diseases by insects and other arthropods.

24. THE CLASSIFICATION OF IMMATURE INSECTS. Second term, credit two hours. Prerequisite course 5. Assistant Professor MACGILLIVRAY. Laboratory work by appointment, Agricultural College, Main 301.

The taxonomy of nymphs, larvae, and pupae.

27. RESEARCH IN MORPHOLOGY OF INSECTS. Throughout the year, credit three or more hours a term. Prerequisite courses 3, 4, and 5. Professor COMSTOCK and Assistant Professor RILEY. Laboratory open daily except S, 8-5; S, 8-1, Agricultural College, Main 391.

Special work arranged with reference to the needs and attainments of each student.

SEMINARY. Throughout the year. M, 4.30-5.30, Agricultural College, Main 392.

The work of an entomological seminary is carried on by the Jugatæ, an entomological club which meets for the discussion of current literature and of the results of investigations. Attendance at the meetings may be counted as laboratory work.

28. RESEARCH IN SYSTEMATIC ENTOMOLOGY. Throughout the year, credit three or more hours a term. Prerequisite courses 3, 4, 5, and 6. Professor COMSTOCK and Assistant Professor MACGILLIVRAY. Laboratory open daily except S, 8-5; S, 8-1, Agricultural College, Main 301.

Special work arranged with reference to the needs and attainments of each student.

ECONOMIC ENTOMOLOGY. Second term, M W S. See Entomology in College of Agriculture, course 8.

ADVANCED ECONOMIC ENTOMOLOGY AND INSECTARY METHODS. Second term. By appointment. See Entomology in College of Agriculture, course 9.

RESEARCH IN ECONOMIC ENTOMOLOGY. Throughout the year. By appointment. See Entomology in the College of Agriculture, course 29.

ZOOLOGY

For all the courses, the ability to draw freehand and to read ordinary French and German will be found very useful. A year each of Latin and of Greek will greatly facilitate the interpretation of technical terms which are so largely derived from those languages.

1. ELEMENTARY ZOOLOGY. Throughout the year, credit three hours a term. Prerequisite General Biology 1. Assistant Professor REED and Dr. EMBODY. T Th, 10, McGraw 5. Practicum Sections to be arranged.

Vertebrates and invertebrates. The lectures are illustrated with specimens, models, and charts. At the practicums representative forms are examined.

2. ANATOMIC METHODS AND DISSECTION OF THE CAT. Second term, credit three hours. Dr. WRIGHT. Laboratory and recitations at hours to be arranged, McGraw 9.

Designed for those who intend to teach physiology or who, in preparation for a medical course, desire to gain manipulative skill and familiarity with mammalian structures.

3. COMPARATIVE ANATOMY. First term, credit four hours. Prerequisite course 1. Assistant Professor REED and Dr. WRIGHT. Laboratory and recitations at hours to be arranged, McGraw 9.

A practical study of the structure of vertebrates as exemplified by representatives of the several classes.

4. VERTEBRATE MORPHOLOGY AND EVOLUTION. Second term, credit four hours. Prerequisite courses 1 and 3. Assistant Professor REED. Lectures and demonstrations at hours to be arranged, McGraw.

The several systems of organs are considered with reference to their structures, development, homologies, and evolution in time.

5. SYSTEMATIC VERTEBRATE ZOOLOGY and ECOLOGY. Throughout the year, credit three hours a term. Mr. ALLEN and Dr. EMBODY. Lecture M, 8. Laboratory: sec. 1, T, 2-4.30 and S, 8-10.30; sec. 2, F, 2-4.30 and S, 10.30-1, McGraw 7.

Lectures on the principles of classification and nomenclature: characters and relationships of groups; the habits, life histories, and economic value of the common species. Laboratory study of representative forms with

special reference to the parts employed in classification, and with a view to practical identification. Excursions to the woods, the streams, and the lake for the recognition and observation of animals in a natural state. Study of fishes, birds, and the other classes.

6. ADVANCED VERTEBRATE TAXONOMY. Throughout the year, credit three hours a term. Prerequisite course 5. Dr. WRIGHT. Hours to be arranged, McGraw 9.

A fuller consideration of the vertebrate groups with respect to the taxonomic value of organs, geographic distribution, genetic relationships, and the principles of classification and nomenclature; ornithology and mammalogy; in 1911–12 ichthyology and herpetology.

7. ADVANCED VERTEBRATE ECOLOGY AND ECONOMIC ZOOLOGY. Throughout the year, credit three hours a term. Prerequisite course 5. Dr. WRIGHT and Mr. ALLEN. Laboratory and field work with collateral reading at hours to be arranged. McGraw 9.

A more detailed study of the habits, food, life-histories, and economic importance of vertebrates; the relations of animals to their environment. Any phase of the general subject in which the student is particularly interested may be assigned for investigation and report.

[8. MORPHOLOGY OF THE BRAIN. Second term, credit two hours. Prerequisite course 1, 2, or 4.

The several types of vertebrate brain, beginning with that of the acanth shark; the value of the brain in classification; the development and morphology of the human brain; its resemblances and peculiarities, especially as compared with those of apes; the cerebral fissures as criteria of zoologic or racial affinity, as indexes of physical or mental power, and as boundaries of functional areas].

Not given in 1910–11.

[9. COMPARATIVE ANATOMY OF THE BRAIN. Second term, credit two hours. Prerequisite course 2, or 3.

Beginning with the brain of the acanth shark, the forms examined parallel and supplement as far as possible those discussed in course 8. The actual dissections of mammalian brains are done upon those of the cat and sheep, but each student is enabled to study and draw prepared specimens from many groups, including monkeys, apes, and man, fetal as well as adult].

Not given in 1910–11.

[10. ADVANCED BRAIN MORPHOLOGY. Throughout the year, two hours a term. Prerequisite courses 8 and 9 and Histology 2.

Not given in 1910–11.

11. RESEARCH AND THESES. Throughout the year. The Department staff.

12. SEMINARY. Throughout the year. W, 4.45, McGraw 2.

PHYSIOLOGY

3. ELEMENTARY HUMAN PHYSIOLOGY. First term, credit three hours. Professor SIMPSON and Assistants. T Th S, 12, Stimson Hall, Large Amphitheatre.

For students who expect to teach physiology in the secondary schools, and an introductory course for students of the biological sciences. A general review of the functions of the systems and organs of the human body, with introductory remarks on structure. The lectures will be fully illustrated by experiments, lantern slides, and diagrams, and periodical quizzes and examinations will be given.

6. LABORATORY WORK IN PHYSIOLOGY. First term, credit two hours. Professor SIMPSON and Assistants. Five hours a week, hours and days to be arranged, Stimson Hall, Practical Physiology Laboratory.

A beginning course in practical physiology. May be taken separately or along with course 3. In the laboratory the student is made to carry out for himself experiments which demonstrate the fundamental facts of the science, and he is taught to draw conclusions from these facts. All the apparatus required is supplied by the department.

7. ADVANCED AND RESEARCH WORK IN PHYSIOLOGY AND BIOCHEMISTRY. Throughout the year. Professor SIMPSON, Assistant Professors HUNTER and DRESBACH, and Assistants. Daily, Stimson Hall, Advanced Laboratory.

The physiological and biochemical laboratories in Stimson Hall are open daily from 9 to 5 for advanced work and research. Subjects for original investigation are suggested and direction and advice are freely given during the prosecution of the work. A weekly or fortnightly seminary is held at which results are discussed and criticized by members of the staff and other workers in the department.

9. ELEMENTARY BIOCHEMISTRY. Second term, credit five hours. Prerequisite courses Chemistry 6 and 32, or the equivalent. Assistant Professor HUNTER and Mr. GIVENS. T Th S, —, Stimson Hall.

Two lectures and three three-hour laboratory periods weekly supplemented by occasional demonstrations and reviews. Designed to give a practical acquaintance with the substances met with in living tissues, and to impart an elementary knowledge of the chemical changes underlying the processes of life. Practice in the qualitative and quantitative methods employed in the study of digestion, excretion, and metabolism.

HISTOLOGY AND EMBRYOLOGY

1. THE TISSUES : HISTOLOGY AND HISTOGENESIS. First term, credit four hours. Prerequisite an elementary course in zoology, botany, or physiology. Professor KINGSBURY and Assistants. Lectures W F, 11 ; laboratory M W, 2-4.30, Stimson. The cell and cellular origin of the body, and the structure and development of its component tissues. A knowledge of general histological methods will be acquired and each student will make or receive a series of typical preparations.

2. THE ORGANS : HISTOLOGY AND DEVELOPMENT. Second term, credit four hours. Prerequisite course 1 or the equivalent. Professor KINGSBURY and Assistants. Lectures M F, 11 ; laboratory M W, 2-4.30, Stimson.

A continuation of course 1. Courses 1 and 2 give the fundamental facts of the histology and development of the body.

3. SPECIAL HISTOLOGY AND TECHNIQUE. First term, credit two or more hours. Prerequisite courses 1 and 2, or the equivalent. Professor KINGSBURY and Assistant ———. Laboratory at hours to be arranged, Stimson.

In this course a more detailed knowledge of histology and facility in technique are gained by practical work in one or more fields of histological work. Designed for those who desire a good working knowledge of histological methods for use in biology or medicine.

3a. THE MICROSCOPE AND MICROSCOPIC METHODS. First term, credit one hour. Professor KINGSBURY and Assistants. Laboratory work at hours to be arranged, Stimson.

Designed for those who desire a practical knowledge of the microscope and the accessory apparatus in preparation particularly for courses in bacteriology.

4. EMBRYOLOGY. Second term, credit three hours. Prerequisite course 1 or the equivalent. One lecture, demonstration, or recitation (T, 8) and two laboratory periods a week (hours to be arranged). Dr. HILTON.

The facts and factors in the development of animals, with special reference to the vertebrate group.

5. THE NERVOUS SYSTEM AND SENSE ORGANS: HISTOLOGY AND DEVELOPMENT. Credit two hours. Prerequisite course 1 or the equivalent. Laboratory work with demonstrations and quizzes. Professor KINGSBURY and Dr. HILTON. Stimson.

Designed for general students of zoology or those who are interested in anatomy and physiology and who desire a first hand knowledge of the structure and development of these organs.

7. ADVANCED WORK IN HISTOLOGY AND EMBRYOLOGY. Credit three hours or more. Prerequisite courses, 1, 2, 3, or the equivalent. Laboratory work with conferences at hours to be arranged. Professor KINGSBURY and Dr. HILTON.

Designed for those who are preparing theses for baccalaureate or advanced degrees, and for those who wish to undertake special investigations in histology and embryology.

8. SEMINARY. Throughout the year, credit one hour. Prerequisite courses, 1, 2; may be taken with course 3 or 7. Professor KINGSBURY. Hours to be arranged, Stimson.

For the discussion of current literature and the presentation of original work by the members of the department staff and those doing advanced work in the department.

GEOLOGY

1. ELEMENTARY GEOLOGY. Throughout the year, credit three hours a term. Professors TARR, RIES, HARRIS, and GILL, and Messrs. PERRINE, STEWART, RICH, CLAYTON, and STORRER. Lectures T Th, 9, repeated T Th, 11, McGraw, Geological Lecture Room; one laboratory period a week, sections afternoons daily except Saturday, also probably Friday and Saturday mornings.

Planned to give beginners a knowledge of the fundamental principles and facts of geology by means of lectures, maps, lantern-slides, specimens, and field study. Students who intend to specialize in geology should take this course not later than their sophomore year.

2. ELEMENTARY PHYSICAL GEOGRAPHY OR PHYSIOGRAPHY. This course is divided into three parts: 2a, lectures; 2b, field and laboratory work; 2c, recitations. 2a must be accompanied by either 2b or 2c, or by both 2b and 2c. Students who intend to do further work in geology or physical geography should elect the combination 2a and 2b if time is not available to take all three. Excursions to Taughannock Falls and the Susquehanna Divide required of all members of the class. Voluntary excursions to Watkins Glen and Niagara Falls.

2a. Lectures. Throughout the year. Credit two hours a term. Professor TARR. M W, 9, McGraw. A study of the earth as a whole with special stress on the lands and a briefer consideration of the atmosphere and the oceans. A general account of the development of the main features of the earth and their influence on mankind. Illustrated by maps, models, and lantern slides.

2b. Field and laboratory work. Throughout the year. Credit one hour a term. M or T, 2–4.30, other periods if necessary, Physical Geography Laboratory. Messrs. VON ENGELN, RICH, and MORDOFF. Field excursions to points near the University; indoor laboratory work consisting of a study of the physiographic provinces of the United States, with experiments to illustrate the development of the simpler land forms.

2c. Recitations. Throughout the year. Credit one hour a term. F, 9, Physical Geography Laboratory, other periods if necessary. Recitations on lectures, or text-book assignments. Mr. VON ENGELN and Mr. ———.

3. GEOGRAPHY OF NORTH AMERICA. Throughout the year, credit two hours a term. Prerequisite course 2, or the equivalent. Professor TARR. T Th, 10, McGraw Hall, Lecture Room.

Lectures, quizzes, and examinations. The physiographic features of North America and their influence upon the history and industrial development of the various sections. Illustrated by lantern slides, maps, and models.

Courses 3 and 4 are given in alternate years.

[4. GEOGRAPHY OF EUROPE. Throughout the year, credit two hours a term. Prerequisite course 2, or the equivalent. Professor TARR.

Lectures, quizzes, and examinations. The physiographic features of Europe and their influence upon the history and industrial development of the several nations. Illustrated by lantern slides, maps, and models.

Courses 3 and 4 are given in alternate years.]

Not given in 1910-11.

5. PHYSIOGRAPHY OF THE LANDS. Throughout the year. Prerequisite course 2 or the equivalent. Professor TARR and Mr. ———. Students desiring to take this course should consult Professor Tarr as early as possible. Hours to be arranged. McGraw, Physical Geography Laboratory.

Lectures, quizzes, supplementary reading, field excursions, and laboratory work. Especially planned to meet the needs of prospective teachers of physical geography in the schools and of those who wish a more extensive study of the subject than is possible in a first year course.

Two Saturday excursions to distant points; a voluntary excursion of three days to the anthracite coal field at Wilkes-Barre and Hazelton for a study of the Appalachian mountains and the physiographic importance of the coal fields.

6. METEOROLOGY AND CLIMATOLOGY. Second term, credit three hours. Dr. WILSON. M W F, 10, Agricultural College.

Lectures, laboratory work, and weather observations. The general circulation of the atmosphere, development and movement of cyclones, tornadoes, and special storms, and conditions that attend them; practical weather maps and local observations, the use of meteorological instruments, general and special climatology, and its relation to agriculture.

7. GLACIAL PHYSIOGRAPHY. Second term, credit three hours. Prerequisite course 2. Professor TARR and Mr. ———. M W, 10, W, 2-4.30, McGraw, Physical Geography Laboratory,

A study of living glaciers and of the glacial period. Lectures and field work intended to show the effects of continental glaciation in North America, so clearly exhibited in the Ithaca region. One excursion each week in the spring, and two longer excursions to more distant points. In the winter the laboratory period will be devoted to reading, conference, and discussions of special topics.

8. EXPERIMENTAL PHYSIOGRAPHY. Throughout the year. Professor TARR and Mr. VON ENGELN. Hours to to be arranged. McGraw.

Experiments by the individual students upon the origin and development of land forms. Amount of credit depends on nature and amount of work; in no case to be less than two hours throughout the year, or four hours for a single term.

9. SEMINARY. Throughout the year, credit two hours a term. Professor TARR. M, 4.30, McGraw, Physical Geography Laboratory.

Preparation and reading of reports upon special subjects, particularly upon investigations in the field. Abstracts and discussions of the current physiographic literature.

Open to undergraduates by special permission.

10. PHYSIOGRAPHIC INVESTIGATIONS. Throughout the year. Professor TARR.

Field and laboratory work with reading, conferences, excursions, and the presentation of reports. Original investigation based upon field work is undertaken by each student.

11. MINERALOGY. Throughout the year, credit three hours a term. Prerequisite at least the equivalent of Chemistry 1; more chemistry and some physics desirable. Professor GILL and Mr. GALPIN. Lectures, T Th, 8. Laboratory sections to be arranged. McGraw Geological Lecture Room.

For beginners who desire a general knowledge of the commoner minerals and their uses, or who intend to pursue advanced work in mineralogy or petrography. Elementary crystallography is a part of the course.

12. CRYSTAL MEASUREMENT AND DRAWING. Second term, credit two hours. Prerequisite course first term of 11. Professor GILL. Days to be arranged, McGraw, Mineralogical Laboratory.

Course 12 should be taken by students in course 11 who intend to continue in either course 14 or course 17. Laboratory measurements of crystals, with computation and drawing.

13. BLOWPIPE DETERMINATION OF MINERALS. First term, credit one hour. Prerequisite course 11. Professor GILL. One laboratory period Saturday morning, McGraw, Mineralogical Laboratory.

14. PHYSICAL CRYSTALLOGRAPHY. First term, credit three hours. Prerequisite course 11. Professor GILL. M W, and laboratory to be arranged. McGraw, Mineralogical Laboratory.

Especial attention is devoted to the optical properties of crystals.

15. PETROGRAPHY. Second term, credit three hours. Prerequisite courses 1, 11, 14. Professor GILL. M W, and laboratory to be arranged. McGraw, Mineralogical Laboratory.

Designed to give an elementary knowledge of the determination of minerals and rocks under the microscope.

16. SEMINARY IN MINERALOGY AND CRYSTALLOGRAPHY. Throughout the year, credit one hour a term. Prerequisite courses 11, 14. Professor GILL. Hours to be arranged, McGraw.

Devoted to the study either of current literature, or of some of the more important classics on the subject.

17. ADVANCED OR SPECIAL WORK IN MINERALOGY AND PETROGRAPHY. Throughout the year. Prerequisite courses dependent on nature of work. Professor GILL. Hours to be arranged, McGraw.

Adapted to the needs of the individual student.

22a. STRATIGRAPHIC GEOLOGY (Paleozoic). Second term, credit three hours. Prerequisite courses 1, or General Biology 1, or the equivalent. Professor HARRIS. M W F, 9 and 11, McGraw 23.

General stratigraphy and geographic distribution of the paleozoic systems throughout the world, with discussion of characteristic life forms. North American systems studied mainly in the field by week-end excursions to Little Falls, Syracuse, Rochester, Niagara, Waverly, and Wilkes-Barre.

For teachers and students of earth sciences in general.

[22b. STRATIGRAPHIC GEOLOGY (Mesozoic-Cenozoic). Second term, credit three hours.

Similar to 22a though dealing with the mesozoic and cenozoic systems, with fewer excursions and more laboratory work.]

Not given in 1910–11.

23a. PALEONTOLOGY (Protozoa-Molluscoidea). Second term, credit two hours. Prerequisite course 1, or General Biology 1, or the equivalent. Professor HARRIS. M W, 10 (or hour to be arranged), McGraw 23.

Designed to give students of general biology and geology a proper understanding of the relationship of common living and extinct types of life. Treatment purely biologic.

[23b. PALEONTOLOGY (MOLLUSCA TO VERTEBRATE.) Second term, credit two hours. Prerequisite course 1, or General Biology 1, or the equivalent. Professor HARRIS.

Similar to 23a but treating of the mollusca and higher life types. Lectures on plant evolution may also be here included.]

Not given in 1910-1911.

24. GEOLOGY CONFERENCE AND GENERAL RESEARCH. Second term. Professor HARRIS. Hours to be arranged, McGraw 23.

Advanced stratigraphic and paleontologic research, progress of research and current literature. The more advanced research work deals with the tertiary formations.

29. GEOLOGICAL EVOLUTION OF ORGANISMS. Throughout the year. Professor WILLIAMS. Hours to be arranged, McGraw, special laboratory, fourth floor.

Investigation of the evidences of evolution exhibited by selected groups of fossil organisms; preparation of thesis. Primarily for graduate students and advanced students in paleontology.

30. BUILDING STONES AND CLAY PRODUCTS. Second term, credit three hours. Professor RIES and Mr. STEWART. Lectures M W, 9. Laboratory either M or W, 10, McGraw.

The occurrence, distribution, and uses of building stones, and the applications of clay for structural products. Only by special permission may the lectures be taken without the laboratory work.

31. PRACTICAL GEOLOGY. Throughout the year, credit three hours a term. Registration by special permission. Professor RIES and Messrs. STEWART, KRAMM, and ———. Lectures M W, 11; laboratory work, M T W Th F, 2 and S 8, McGraw.

The practical application of geologic principles and the occurrence of such economic materials as are of importance to engineering students, the whole subject being treated with reference to their needs.

32. GENERAL ECONOMIC GEOLOGY. Throughout the year, three hours a term. Prerequisite, sufficient preparation in geology and mineralogy. Professor RIES, Mr. STEWART, and ——— Lectures M W, 10; laboratory T,2, F,9, or Th,2, McGraw.

The origin, nature, distribution, and uses of the non-metallic, and metallic products of the earth's crust. First term, the non-metallics, including coal, oil, gas, clays, salt, fertilizers, etc. Second term, the metallic products, including the ores of iron, copper, lead, zinc, gold, silver, etc. Students may take lectures without laboratory only by special permission. A portion of the laboratory work may be replaced by field trips.

33. FIELD EXAMINATION OF MINERAL DEPOSITS. First term, credit two hours. Prerequisite course 32 or 31. Professor RIES. Hours to be arranged, McGraw.

Designed to acquaint the student with the methods used for examining deposits of economic value, with a view to determining their extent and character.

34. MINING OF MINERAL DEPOSITS. Two hours a term. Mr. KRAMM. Lectures, M W, 9. McGraw.

A general course describing the methods of mining deposits of economically valuable materials, and the relation between the origin and structure of the deposits and the methods used.

35. CLAY INVESTIGATION. Prerequisite, sufficient knowledge of geology and chemistry. Professor RIES. Hours to be arranged, McGraw.

Laboratory work, field work, and reading. Designed to familiarize the student with the character, occurrence, and applications of clays.

36. ADVANCED ECONOMIC GEOLOGY. Throughout the year. Prerequisite course 32. Professor RIES. Hours to be arranged, McGraw.

Laboratory, field work, and reading. The course varies with the needs of the individual student.

Primarily for graduates.

37. ECONOMIC GEOLOGY SEMINARY. Throughout the year. Professor RIES. T, 4.30, McGraw.

Abstracts and discussions of current literature, and preparation of papers on special subjects.

38. SEMINARY IN FOREIGN LITERATURE. Throughout the year, credit two hours a term. Prerequisite course 32. Professor RIES. Hours to be arranged, McGraw.

Reading and discussion of some of the more important foreign works on economic geology.

For graduates only.

39. EXPERIMENTAL ECONOMIC GEOLOGY. First term. Prerequisite courses 32 and Chemistry 1, or the equivalent. Mr. STEWART. Hours to be arranged, McGraw.

Laboratory experiments demonstrating some of the general principles of ore deposition.

Primarily for graduates.

40. BIBLIOGRAPHY OF ECONOMIC GEOLOGY. First term, credit two hours. Prerequisite course 32. Mr. STEWART. Hours to be arranged, McGraw.

Lectures and discussions on the more important literature of economic geology.

Primarily for graduates.

MILITARY SCIENCE AND TACTICS

1. INFANTRY TRAINING AND INSTRUCTION. Throughout the year. Captain PHILLIPS and Assistants. M W F, 4.45, Armory.

Practical and theoretical instruction, alternating according to the needs of the student, and to meet the varying conditions of season and climate.

A comprehensive course designed to equip the college man with such military instruction and training as will enable him to become an efficient company officer of volunteer infantry in time of war. Includes infantry drill; school of the soldier, company, batallion, and regiment; ceremonies; guard duty; position and aiming drills, gallery and target practice; minor tactics, advance and rear guard, outposts, and reconnoissance; camping and marching; first aid and sanitation; military bridges, roads, obstacles, and field entrenchments; military papers and company administration.

Required of all men in the four year courses. May be elected in lieu of physical training by men in the three year courses.

2. ELECTIVE DRILL. Throughout the year, credit two hours a term. Prerequisite course 1. Captain PHILLIPS and Assistants. M W F, 4.45, Armory.

An advanced course covering all phases of the practical work of the infantryman. May be elected by second year men of the four year courses in lieu of the required physical training.

3. MILITARY SCIENCE. Second term, credit two hours. Captain PHILLIPS. T Th, 12, Goldwin Smith.

Lectures and collateral reading. A purely theoretical course designed to give the student who is seeking a general liberal education such a knowledge of military science as will enable him intelligently to comprehend the military branch of government, military history, military affairs

in general, and their relation to the state and society. Of especial value to the student whose tastes are somewhat military, and who intends to keep up his military interests in connection with the National Guard or otherwise.

4. BAND MUSIC. Practical and theoretical instruction. Throughout the year, credit two hours a term. Mr. BRISSETTE. M W F, 4.45, Armory.

All instruments, music, uniforms, etc., are furnished by the University free of cost to the student. The members constitute the University Band.

Open to all students who have made a satisfactory beginning with any of the customary band instruments. Properly qualified students may substitute this course for either the required military drill (course 1), or the required physical training.

PHYSICAL CULTURE

1. PHYSICAL EXERCISES. Throughout the year. Professor YOUNG and Assistants. Three days a week.

For those freshmen who, in the judgment of the Director, are physically unfitted for required military drill, and for all those who are allowed to substitute, for military drill, work in this department. Class and squad work; exercises prescribed for individual deformity and immaturity.

2. PHYSICAL EXERCISES. Throughout the year. Professor YOUNG and Assistants. Three days a week.

For sophomores who elect work in the department as part of the required work in physical training. Class and squad work; special exercises or work prescribed in one of the various branches of athletics under the general supervision of the department.

3. PHYSICAL EXERCISES. Throughout the year. Professor YOUNG and Assistants. Three days a week.

Elective for juniors and seniors. Class and squad work, or prescribed exercises.

4. BOXING, WRESTLING, AND FENCING. Throughout the year. Messrs. CONLEY, O'CONNELL, and GELAS. Daily except S, Gymnasium.

May be counted toward the required work of freshman and sophomore years, and toward work for which credit is given in the junior and senior years. A special fee of $4.00 a term is charged for instruction in each branch.

5. SWIMMING. Throughout the year. Mr. VERWIEBE. Daily except S, 3, Gymnasium.

Required of all students who are unable to swim sixty feet. No student who is unable to satisfy this requirement will, unless excused because of physical disability, receive credit for work in the department.

10. PHYSICAL TRAINING FOR WOMEN. Throughout the year. Miss CANFIELD. Sage College.

Required of freshmen and sophomores.

11. ADVANCED GYMNASTICS. Throughout the year, credit two hours. Prerequisite course 10 or the equivalent. Miss CANFIELD. M T W Th F, 5.30, Sage College Gymnasium.

SANITARY SCIENCE

A course of lectures on sanitary science and public health will be given throughout the year 1910-11. It is open to any student in the University that has the permission of his faculty to take the course. The lecturers who are invited to take part in the course are chosen as being particularly qualified, by experience, by education, and by research, to discuss the

special topics assigned to them, and the course as given is a remarkable presentation of the vital principles of sanitary science as directly affecting public health.

The course is devoted to a discussion of the relations between public health and state legislation, vital statistics, social problems, voluntary associations, epidemiology with special emphasis on tuberculosis, prophylaxis, quarantine, foods, including milk, the engineering of water supplies and of sewage disposal, housing and ventilation, and other similar questions, each topic requiring from one to six lectures.

The course is made possible through the co-operation of the University with the State Department of Health. The lecturers are chosen in equal numbers from the members of the University Faculty and the staff of the State Department.

Freshmen in the College of Arts and Sciences may not elect this course. University credit of two hours is given to those students who register for the course and who comply with the requirements, and a special certificate is granted by the State Commissioner of Health to those who complete the course.

The course is under the direction of a committee consisting of Professors OGDEN, MOORE, and WILLCOX.

The lectures are held in Goldwin Smith, A, at 12 o'clock noon, on Tuesdays and Thursdays.

OFFICIAL PUBLICATIONS OF CORNELL UNIVERSITY

These publications include the annual Register, for which a charge of twenty-five cents a copy is made, and the following publications, any one of which will be sent gratis and post-free on request:

Circular of Information for prospective students,
Announcement of the College of Arts and Sciences,
Announcement of Sibley College of Mechanical Engineering and Mechanic Arts,
Announcement of the College of Civil Engineering,
Announcement of the College of Law,
Announcement of the College of Architecture,
Announcement of the Medical College,
Announcement of the New York State College of Agriculture,
Announcement of the New York State Veterinary College,
Announcement of the Graduate School,
Announcement of the Summer Session,
The President's Annual Report,
Illustrated Circular of Cornell University,
Pamphlet on prizes, samples of entrance and scholarship examination papers, special departmental announcements, etc.

Correspondence concerning the publications of the University should be addressed to
The Registrar of Cornell University,
Ithaca, New York

OFFICIAL PUBLICATIONS OF CORNELL UNIVERSITY

VOLUME 1 NUMBER 1

GENERAL CIRCULAR OF INFORMATION

1910-11

AUGUST, 1910
PUBLISHED BY CORNELL UNIVERSITY
ITHACA, NEW YORK

This circular of information is intended for prospective students, and is designed to give them general information about Cornell University and its various colleges, the requirements for admission, tuition fees and other expenses, etc.

On the last page of the cover of this pamphlet, there is printed a list of the Official Publications of the University, which includes the special announcements of the various colleges. Every prospective student should consult this list and send at once for the special announcement of the particular college that he intends to enter. If he has not definitely decided in which college he will study, he should send for the special announcements of all the colleges among which his choice lies.

Any of these informational publications will be sent gratis and post free, and all inquiries are welcome and will be promptly answered. All preliminary correspondence by prospective freshmen should be addressed to The Registrar of Cornell University, Ithaca N. Y.

CORNELL UNIVERSITY

Cornell University was incorporated on April 27th, 1865 and was opened on November 7th, 1868.

The total attendance of students by years has been as follows:

1868,	412	1879,	463	1890,	1390	1901,	3293
1869,	563	1880,	399	1891,	1670	1902,	3457
1870,	609	1881,	384	1892,	1883	1903,	3423
1871,	597	1882,	405	1893,	2040	1904,	3841
1872,	539	1883,	447	1894,	2042	1905,	4122
1873,	509	1884,	575	1895,	2057	1906,	4225
1874,	532	1885,	649	1896,	2105	1907,	4465
1875,	542	1886,	829	1897,	2120	1908,	4859
1876,	561	1887,	1022	1898,	2543	1909,	5193
1877,	529	1888,	1229	1899,	2766		
1878,	505	1889,	1329	1900,	2980		

The officers of instruction and administration of Cornell University number 675. The campus and grounds of the University cover 1095 acres. The main University buildings in Ithaca are grouped around a great quadrangle flanked by Goldwin Smith Hall (history, languages, philosophy, etc.), Lincoln Hall (civil engineering), Sibley College (mechanical engineering), White Hall (architecture, mathematics), McGraw Hall (geology, vertebrate zoology), Morrill Hall (administration building), the University Library, Boardman Hall (law), and Stimson Hall (medicine), with Franklin Hall, (electrical engineering), Morse Hall (chemistry), Rockefeller Hall (physics), the buildings of the College of Agriculture, the Veterinary College, the Astronomical Observatory, the Gymnasium, and the Armory conveniently near. The Cornell University Medical College in the City of New York is located on First Avenue from 27th to 28th Sts.

The University is composed of the Graduate School, the School of Education, and the following colleges:

The College of Arts and Sciences,

The College of Law,

The Medical College,

The New York State Veterinary College,

The New York State College of Agriculture, including also Dairy Industry, Animal and Poultry Husbandry, Home Economics, Rural Art, and Nature-Study,

The College of Architecture,

The College of Civil Engineering, including Hydraulic and Sanitary Engineering,

The Sibley College of Mechanical Engineering and Mechanic Arts, including Electrical Engineering.

The University year in all the colleges is divided into two terms with vacations in the winter (at Christmas) and in the spring (at or near Easter). For the year 1910-11, the entrance examinations begin on September 19, instruc-

tion begins on September 30, and Commencement Day is June 22; for the year 1911-12, the corresponding dates are September 15, September 28, and a date in June yet to be determined.

The regular Summer Session of the University will begin in 1911 on July 6 and will close on August 16.

ADMISSION

For admission to the Graduate School and the Medical College, applicants should consult the special announcements of the Graduate School and the Medical College respectively.

All of the other colleges of Cornell University presuppose, on the part of the applicant for admission, an amount of training equivalent to that gained by four years' successful work in an approved high school.

The entrance requirements of these colleges are in many respects similar, but special modifications exist and the faculties of the respective colleges may make further modifications at any time to take effect after due notice has been given. A definite statement of the entrance requirements of the various colleges is given on p. 6.

Every applicant for admission to Cornell University must file at the Registrar's office either a certificate of his good moral character or, in case he has previously attended some other college or university without graduating from it, a certificate of his honorable dismissal by that institution.

Applications for admission to all the colleges except the Medical College and the Graduate School are entertained from the following three classes: (a) persons who desire to begin as freshmen in some college of the University, a regular course of study leading to the degree conferred by that college; (b) students who, having already attended some institution of collegiate rank, desire advanced standing in some college of the University; (c) persons who desire to register as special students not candidates for a degree. The conditions of admission for these three classes of persons are separately described on pages 4, 21, 21.

ENTRANCE REQUIREMENTS FOR FRESHMEN

Men who desire to begin as freshmen a course leading to a degree in one of the colleges of the University, must be at least sixteen years of age. Women must be at least seventeen years of age. In the College of Law the minimum age for both men and women is, for the four-year course, seventeen years; for the three-year course, eighteen years.

Every applicant for admission must, in one of the four following ways, show that he possesses a satisfactory knowledge of the subjects that are

required for admission to the particular college in which he plans to pursue his studies.

1. By passing the required Cornell University Entrance Examinations, see page 6.

2. By passing the College Entrance Examination Board Examinations in the required subjects, see page 16.

3. By passing the necessary Regents' Examinations (for students that have prepared in New York State), see page 18.

4. By presenting an acceptable school certificate, see page 19.

ENTRANCE SUBJECTS

The subjects and the maximum and minimum amounts of credit in each that may be offered for admission to the University are:

1a, 1b.	English	3 units
2a, 2b.	Greek Grammar and Xenophon	2 units
2c, 2d.	Greek Composition and Homer	1 unit
3a, 3b.	Latin Grammar and Caesar	2 units
3c, 3d.	Latin Composition and Cicero	1 unit
3e.	Virgil	1 unit
4a.	Elementary German	2 units
4b.	Advanced German	1 unit
5a.	Elementary French	2 units
5b.	Advanced French	1 unit
6a.	Elementary Spanish	2 units
6b.	Advanced Spanish	1 unit
7.	Ancient History*	½ unit or 1 unit
8.	Modern History* (from 814 A.D.)	½ unit or 1 unit
9.	American History* (inc. Civ. Gov.)	½ unit or 1 unit
10.	English History*	½ unit or 1 unit
11.	Elementary Algebra A	1 unit
12.	Elementary Algebra B	½ unit
13.	Advanced Algebra	½ unit
14.	Plane Geometry	1 unit
15.	Solid Geometry	½ unit
16.	Plane Trigonometry	½ unit
17.	Physics	1 unit
18.	Chemistry	1 unit
19.	Botany	1 unit
20.	Zoology (Vertebrate, Invertebrate)	1 unit
21.	Biology† (Zoology, Botany)	1 unit
22.	Physiography	1 unit
23.	Agriculture**	½ unit or 1 unit
24.	Drawing	½ unit or 1 unit

In the foregoing list a unit means five prepared recitations a week for one year of study; two hours of laboratory work is considered equivalent to one hour of prepared work.

*An applicant may not count more than 2½ units of history.

†Biology may not be counted if either Botany (1 unit) or Zoology (1 unit) has been offered.

**Agriculture may not be counted for entrance to Arts and Sciences, Law, Civil Engineering, or Mechanical Engineering.

SUBJECTS AND UNITS REQUIRED BY THE SEVERAL COLLEGES

The subjects from the above list required by the several colleges for admission to the freshman class are indicated in the following table:

Arts and Sciences	Law*	Agriculture	Veterinary†	Architecture	Civil Engineer'g	Mechanical Engineer'g
English, 3	English, 3	English, 3	English, 3	English, 3	English, 3	English, 3
Foreign Languages, 4	Foreign Languages, 4	French, 3 or German, 3		French, 3 or German, 3	French, 3 or German, 3	French, 3 or German, 3
History, 1	History, 1	History, 1	History, 1**	History, 1	History, 1	History, 1
Plane Geometry, 1	Plane Geometry, 1	Plane Geometry, 1	Plane Geometry, 1	Plane Geometry, 1	Plane Geometry, 1	Plane Geometry, 1
Elementary Algebra A, 1	Elementary Algebra A, 1	Elementary Algebra A, 1	Elementary Algebra A, 1	Elementary Algebra A, 1	Elementary Algebra A, 1	Elementary Algebra A, 1
The Arts College Entrance Diploma or the Science College Entrance Diploma issued by the Education Department of the State of New York will satisfy in full the entrance to Arts and Sciences, Law, or Agriculture.				Elementary Algebra B, ½	Elementary Algebra B, ½	Elementary Algebra B, ½
				Solid Geometry, ½	Solid Geometry, ½	Solid Geometry, ½
				Advanced Algebra, ½	Advanced Algebra, ½	Advanced Algebra, ½
				Plane Trigonometry, ½	Plane Trigonometry, ½	Plane Trigonometry, ½
Elective, 5	Elective 5	Elective, 6	Elective, 9	‡Elective, 4	‡Elective, 4	‡Elective, 4
Total, 15	Total, 15	Total, 15	Total, 15	Total, 15	Total, 15	Total, 15

*A diploma or certificate of graduation from a university or college, or a certificate that the applicant has met the entrance requirements and satisfactorily completed one year of study in a university or college of approved standing is required for admission to the three year course in Law.

**A unit in Botany, Zoology, or Biology may be substituted.

†A Veterinary Student Certificate issued by the Education Department of the State of New York, Albany, N. Y., will be accepted for admission to Veterinary Medicine.

‡It is strongly recommended that at least three of these four elective units be offered in language and history.

For admission to the Graduate School and the Medical College, applicants should consult the special announcements of the Graduate School and the Medical College respectively.

1. CORNELL UNIVERSITY ENTRANCE EXAMINATIONS

Examinations in all subjects required for admission to the University are held in Ithaca and in New York City, in September, at the beginning of the first term (in 1910, September 19-23; in 1911, September 15-20).

Permits to take the examinations must be secured from the Registrar in Ithaca or from the Secretary of the Cornell Medical College in New York City. The permits show the exact dates and hours of the examinations, and should be obtained at least twenty-four hours before the date of the first examination to be taken. The results of the examinations will be reported to applicants that file stamped and addressed envelopes in accordance with the directions printed on the permits.

No examination of candidates for admission will be held by the University at any other times or places, except that, on application made to the Registrar on or before January 15 in any year, special entrance examinations in any of the University entrance subjects may be arranged to be held in Ithaca on or about January 25 of that year. The object of these special January entrance examinations is to permit the immediate beginning of the college course by students that complete their preparation at mid-year, and further, to allow at the beginning of the second term the matriculation of students who on account of slight shortages were unable to enter the University in the preceding September. Specimen copies of the September examination papers may be had on application to the Registrar.

Candidates may take all the entrance examinations in the same year, or they may divide them among two or three successive years.

If a student has failed to pass the Cornell or any other University Entrance Examination in any subject, he will not thereafter be allowed to offer Regents' credentials or a school certificate in that subject unless, subsequent to his failure, he shall have pursued the subject regularly in class for the full time required and shall have done the full amount of work required for entrance in the subject.

Subject-Matter of the Cornell Entrance Examinations

1. English (3 Units)

The examination, which will consist of the writing of compositions on assigned subjects, is designed to test the candidate's training in written expression. The examiner will consider particularly the following essentials: spelling, punctuation, and use of capital letters; grammatical correctness; idiomatic use of words; and structure of sentences and paragraphs.

The subjects of the compositions will be taken mainly from the books adopted by the Conference on Uniform Entrance Requirements in English. One or two of the compositions, however, are usually on subjects assumed to be within the candidate's general knowledge and experience.

The examination will be divided into two parts:

A. Two hours devoted to writing compositions on subjects taken from ten of the books in the following list and on general topics. The list of books for 1911 and 1912 is as follows (substitutes acceptable to the Department of English may be offered):

Group I (two to be selected)

Shakespeare's As You Like It, Henry V, Julius Cæsar, The Merchant of Venice, Twelfth Night.

Group II (one to be selected)

Bacon's Essays; Bunyan's The Pilgrim's Progress, Part I; The Sir Roger de Coverley Papers in the Spectator; Franklin's Autobiography.

Group III (one to be selected)

Chaucer's Prologue; Spenser's Faerie Queene, Book I; Pope's The Rape of the Lock; Goldsmith's The Deserted Village; Palgrave's Golden Treasury (First Series), Books II and III, with special attention to Dryden, Collins, Gray, Cowper, and Burns.

Group IV (two to be selected)

Goldsmith's The Vicar of Wakefield; Scott's Ivanhoe; Scott's Quentin Durward; Hawthorne's The House of Seven Gables; Thackeray's Henry Esmond; Mrs. Gaskell's Cranford; Dickens's A Tale of Two Cities; George Eliot's Silas Marner; Blackmore's Lorna Doone.

Group V (two to be selected)

Irving's Sketch Book; Lamb's Essays of Elia; De Quincey's Joan of Arc and The English Mail-Coach; Carlyle's Hero as Poet, Man of Letters, and as King; Emerson's Essays (selected); Ruskin's Sesame and Lilies.

Group VI (two to be selected)

Coleridge's The Ancient Mariner; Scott's The Lady of the Lake Byron's Mazeppa and The Prisoner of Chillon; Palgrave's Golden Treasury (First Series), Book IV, with especial attention to Wordsworth, Keats, and Shelley; Macaulay's Lays of Ancient Rome; Poe's Poems; Lowell's The Vision of Sir Launfal; Arnold's Sohrab and Rustum; Longfellow's The Courtship of Miles Standish; Tennyson's The Princess; Browning's Cavalier Tunes, The Lost Leader, How They Brought the Good News from Ghent to Aix, Evelyn Hope, Home Thoughts from Abroad, Home Thoughts from the Sea, Incident of the French Camp, The Boy and the Angel, One Word More, Hervé Riel, Pheidippides.

The candidate is not expected to have a minute knowledge of the subject-matter of these books; and he may not offer mere knowledge of the books as a substitute for the ability to write good English. His aim should be to acquire through his reading the power to express his own thought. He is expected, however, to have such general knowledge of the books and their important parts as would come from fresh and thoughtful reading, and to use this knowledge readily in the examination.

The candidate is urged to read all of the books in the list, not merely the ten offered for examination; and in general not to be satisfied with the bare requirement but to read as widely as possible in standard English literature.

B. One hour devoted to questions on the following books:

Shakespeare's Macbeth; Milton's Lycidas, Comus, L'Allegro, and Il Penseroso or Tennyson's Idylls of the King; Burke's Speech on Conciliation with America, or Washington's Farewell Address and Webster's First Bunker Hill Oration; Macaulay's Life of Johnson, or Carlyle's Essay on Burns.

This part of the examination will be upon subject-matter, form, and structure, and presupposes the thorough study of each of the books named. In addition, the candidate may be required to answer questions

involving the essentials of English grammar, and questions on the leading facts in those periods of English literary history to which the prescribed works belong.

2. Greek (2 Units or 3 Units)

Candidates are examined in the following entrance requirements as defined by the College Entrance Examination Board. These are:

2a and b. Greek Grammar and Xenophon (2 Units)

2a. GREEK GRAMMAR: The inflections; the simpler rules for composition and derivation of words; syntax of cases and the verbs; structure of sentences in general, with particular regard to relative and conditional sentences, indirect discourse, the subjunctive, and the optative. The examination will be based on the first two books of the Anabasis. 2b. XENOPHON: The first four books of the Anabasis.

2c and d. Elementary Greek Prose Composition and Homer (1 Unit)

2c. ELEMENTARY GREEK PROSE COMPOSITION: The examination will be based on the first two books of the Anabasis, and will consist principally of detached sentences to test the candidate's knowledge of grammatical constructions. 2d. HOMER: The first three books of the Iliad (omitting II, 494-end), and the Homeric constructions, forms, and prosody.

3. Latin (2, 3, or 4 Units)

Candidates are examined in the following entrance requirements as defined by the College Entrance Examination Board. These are:

3a and b. Latin Grammar and Caesar (2 Units)

3a. LATIN GRAMMAR: The inflections; the simpler rules for composition and derivation of words; syntax of cases and the verbs; structure of sentences in general, with particular regard to relative and conditional sentences, indirect discourse, and the subjunctive. 3b. CAESAR: Any four books of the Gallic War, preferably the first four.

3c and d. Elementary Latin Prose Composition and Cicero (1 Unit)

3c. ELEMENTARY LATIN PROSE COMPOSITION: Translation into Latin of detached sentences and very easy continuous prose based upon Caesar and Cicero. 3d. CICERO: Any six orations from the following list, but preferably the first six mentioned: The four orations against Catiline, Archias, The Manilian Law, Marcellus, Roscius, Milo, Sestius, Ligarius, the fourteenth Philippic.

3e. Virgil (1 Unit)

The first six books of the Æneid, and so much prosody as relates to accent, versification in general, and dactylic hexameter.

4. German (2 Units or 3 Units)

The examination in Advanced German covers the examination in Elementary German.

4a. Elementary German (2 Units). The examination assumes a knowledge on the part of the student that should be gained by the intelligent study of the subject for five times a week during a period of two years. In this time he should have mastered the elements of German grammar and have acquired some proficiency in the translation of the language and in its use in speaking and writing.

4b. Advanced German (1 Unit). The examination assumes that the student has devoted to the subject five times a week for a period of one year in addition to having satisfied the elementary requirements, and that he has, during this third year, made a more detailed study of German grammar, has read some German classics, and has advanced in the use of the language in speaking and writing.

For more specific recommendations as to the nature and character of the three years' preparatory work in German, including texts to be read, applicants are referred to the publications of the College Entrance Examination Board.

5. French (2 Units or 3 Units)

The examination in Advanced French covers the examination in Elementary French. The attention of teachers preparing students in French is called to the valuable report of the Committee of Twelve of the Modern Language Association of America, published by D. C. Heath & Co., Boston.

5a. Elementary French (2 Units). The examination assumes a knowledge on the part of the student that should be gained by the intelligent study of the subject for five times a week during a period of two years. In this time he should have mastered the elements of French Grammar and have acquired some proficiency in the translation of the language and in its use in speaking and writing.

5b. Advanced French (1 Unit). The examination assumes that the student has devoted to the subject five times a week for a period of one year in addition to having satisfied the elementary requirements, and that he has, during this third year, made a more detailed study of French grammar, has read some French classics, and has advanced in the use of the language in speaking and writing.

For more specific recommendations as to the nature and character of the three years' preparatory work in French, including texts to be read, applicants are referred to the publications of the College Entrance Examination Board.

6. Spanish (2 Units or 3 Units)

The examination in Advanced Spanish covers the examination in Elementary Spanish.

6a. Elementary Spanish (2 Units). (i) Elementary grammar, including the conjugation of the regular and the more common irregular verbs, the inflection of nouns, adjectives, and pronouns, and the elementary rules of syntax. (ii) A composition exercise in Spanish to illustrate the principles of grammar. (iii) The reading and accurate rendering into good English of

300 pages of graduated texts, with translation into Spanish of easy variations of the sentences read. (iv) Careful drill in pronunciation and writing Spanish from dictation.

Suitable texts for the elementary work are: Moratin's El Sí de las Niñas, Caballero's La Familia de Alvareda, Alarcón's El Capitan Veneno, and Valera's El Pájaro verde.

6b. Advanced Spanish (1 Unit). (i) The reading in addition to the elementary work, of from 400 to 500 pages of modern prose from different authors (a total, with the elementary requirement, of 600 to 750 pages). (ii) Practice in translating Spanish into English, and English variations of the text into Spanish. (iii) Continued study of the elements of grammar and syntax. (iv) Mastery of all but the rare irregular verb forms and of the simpler uses of the moods and tenses. (v) Writing of Spanish from dictation and memorizing of easy short poems.

Suitable texts for the advanced work are: Galdós's Doña Perfecta and Marianela; Valera's Pepita Jiménez; Alarcón's El Final de Norma; Valdés's José.

7-10. History (½ Unit to 2½ Units)

The examinations in history will be so framed as to require comparison and the use of judgment on the pupil's part, rather than the mere use of memory. The examinations will presuppose the use of good text-books, collateral reading, and practice in written work. Geographical knowledge will be tested by direct questions or by requiring the location of places and movements on an outline map.

7. Ancient History (½ Unit or 1 Unit)

For a full unit of credit, the subject of the examination will be ancient history with special attention to Greek and Roman history, but including also the outlines of ancient oriental history and of early medieval history to the death of Charles the Great (814 A. D.). For a half unit of credit, applicants may be examined on either of the following: a. Greek history to the death of Alexander the Great; b. Roman history to 476 A. D.

8. Modern History (½ Unit or 1 Unit)

For a full unit of credit, the subject of the examination will be medieval and modern European history, from the death of Charles the Great to the present time. For a half unit of credit, applicants may be examined on either of the following: a. Medieval history; b. Modern European history.

9. American History and Civil Government (½ Unit or 1 Unit)

American history from the European discovery of the new world, with especial attention, in the seventeenth and eighteenth centuries, to the British Empire in America. After the Revolution, the history and civil government of the United States only need be studied.

10. English History (½ Unit or 1 Unit)

English history, from the advent of the English in Britain, in the fifth century, to our own day.

11-16. Mathematics (2 to 4 Units)

The requirements in mathematics are substantially as defined by the College Entrance Examination Board.

For students that expect to continue their mathematical studies especially in the engineering colleges, it is not sufficient to have once known the preparatory mathematical subjects. The student must know them at the time he begins his work in the University. It is therefore very important that these subjects be carefully reviewed just prior to entrance.

A knowledge of the metric system of weights and measures is assumed in all the examinations in mathematics.

11. Elementary Algebra A (½ Unit)

The examination will require a thorough knowledge of the four fundamental operations; factoring, including the determination of the highest common factor and the solution of equations by factoring; fractions, including complex fractions, and an elementary treatment of ratio and proportion; the binomial theorem for positive integral exponents (without proof); radicals, including the extraction of the square root of polynomials and of numbers; the solution of equations of the first degree (numerical and literal, integral and fractional) involving one or more unknown numbers; easy quadratic equations, solved both by factoring and by completing the square; and simple cases of simultaneous equations one of which is quadratic.

Emphasis is laid upon translating verbally stated problems into equations, solving these, and interpreting the results.

12. Elementary Algebra B (½ Unit)

The highest common factor by division; surds and imaginary numbers, including the square root of binomial surds and the cube root of polynomials and of numbers; the theory of quadratic equations, including maximum and minimum; the solution of equations and problems (in one or more unknown numbers) which can be made to depend upon quadratics; the theory of exponents; the proof of the binomial theorem for positive integral exponents; graphical representation and solution of equations; and ratio, proportion, variation, and the progressions.

13. Advanced Algebra (½ Unit)

The examination will require such knowledge as may be gained from one of the better text-books on this subject, including, in addition to a thorough review of elementary algebra, permutations and combinations, inequalities, mathematical induction, irrational and complex numbers with graphical representation of sums and differences of the latter, elementary treatment of determinants including the use of minors and the solution of linear equations, undetermined coefficients not involving infinite series, partial fractions, and logarithms (not including logarithmic series).

The solution of numerical equations of higher degree, and so much of the theory of equations as is necessary for their treatment, including graphical methods, Descartes's rule of signs and Horner's method, but not Sturm's functions or multiple roots.

Special attention should be paid, throughout the course, to applications under each topic, and emphasis should be laid upon accuracy and precision.

14. Plane Geometry (1 Unit)

The usual theorems and constructions contained in the better text-books on this subject, including the general properties of plane rectilinear figures, the circle and the measurement of angles, similar polygons, areas, regular polygons, the measurement of the circle, the solution of original exercises, including loci problems, and the mensuration of lines and plane surfaces.

15. Solid Geometry (½ Unit)

The usual theorems and constructions contained in the better text-books on this subject, including the relations of planes and lines in space; the properties and measurement of prisms, pyramids, cylinders, and cones; the sphere and the spherical triangle; the solution of original exercises including loci problems, and the mensuration of surfaces and solids.

16. Plane Trigonometry (½ Unit)

The definitions and relations of the six trigonometric functions as ratios; circular measurement of angles; proofs of the principal formulas, especially those for the sine, cosine, and tangent of the sum or difference of any two angles whatever, and of double angles and half angles; also the product expressions for the sum of two sines or of two cosines, etc; the transformation of trigonometric expressions by means of these formulas, the use of inverse functions, and the solution of right and oblique triangles, together with simple applications.

17. Physics (1 Unit)

The examination in physics assumes that the student has completed a course in school of at least five hours a week for one year, not less than half of which time should have been devoted to individual laboratory practice, mainly quantitative in nature. He should be able to solve simple numerical problems involving elementary principles. No special outline and no arbitrary list of experiments is prescribed. It is expected that the work will be fairly well distributed among the various topics and that it will not differ to any considerable extent from the requirements of the College Entrance Board.

18. Chemistry (1 Unit)

The examination in chemistry assumes that the student has completed a full year's course in this subject. This course should include lecture table demonstrations, recitations from a suitable text-book, and individual laboratory work comprising at least forty exercises (80 actual hours).

The instruction should be thorough rather than comprehensive, and to this end, the ground to be covered should be restricted to:

(a) The study of the preparation and properties of the following elements: hydrogen, oxygen, nitrogen, chlorine, bromine, iodine, carbon, sulphur, silicon, phosphorus, sodium, calcium, copper, aluminum, and iron; the preparation and properties of the more important compounds of these elements; the consideration of certain important topics, such as the atmosphere, combustion, acids, bases, salts, oxidation, reduction, crystallization, nascent state, catalysis, electrolysis, symbols, formulas, equations, valency, solution, and the manufacture of illuminating gas.

Only such commercial processes as illustrate fundamental principles should be considered.

(b) A careful and thorough study of the important laws and principles pertaining to the following subjects: combining proportions by weight and volume; variation of gas volumes with changes in temperature or pressure; conservation of matter and energy; structure of matter (atomic theory). It is unwise to accord the subjects mass action, equilibrium, and ionization, more than mere mention in an elementary course. Moreover, the instruction should not be extended to cover the elements of qualitative analysis, for the time at the disposal of the high-school teacher is usually no more than sufficient to cover the field of elementary inorganic chemistry.

The student should keep a note book record of his laboratory experiments and this should be written up in the laboratory at the time the experiments are performed.

19. Botany (1 Unit)

The examination assumes a knowledge of the general laws and fundamental principles of plant nutrition, assimilation, and growth, as exemplified by plants chosen from the different groups, as well as of the general comparative morphology and the broader relationship of plants.

The following synopsis will suggest the topics of preparatory study: the general fundamental principles of plant physiology; general morphology, including form, methods of reproduction, propagation, etc., of selected representatives of the algae, fungi, liverworts, mosses, ferns, and seed plants; special morphology of the higher plants.

20. Zoology (1 Unit)

The examination in zoology will consist of two parts:

I. Invertebrate Zoology. The examination assumes a knowledge on the part of the student that should be gained by the intelligent study of the subject for five hours a week during a half-year. The greater part of this time should have been devoted to laboratory practice in the observation of living forms and to dissection. Laboratory notes and drawings should be carefully made throughout the course.

II. Vertebrate Zoology. The examination assumes a knowledge on the part of the student that should be gained by the intelligent study of the subject for five hours a week during a half-year. The greater part of this time should have been devoted to laboratory practice in the observation of living forms and to dissection. Laboratory notes and drawings should be carefully made throughout the course.

21. Biology (1 Unit)

The examination assumes a knowledge on the part of the student that should be gained by the intelligent study of the subject for five periods a week during a year. A large part of this time should have been devoted to laboratory practice. Laboratory notes and drawings should be carefully made throughout the course.

22. Physiography (1 Unit)

The ground covered in the examination on text-book work is essentially that outlined by the College Entrance Examination Board, the principal topics being the earth as a planet, the ocean, the atmosphere, and the lands, as treated in the more modern standard text-books on physical geography. The emphasis of the instruction in preparatory school should have been on the human relationships to physiographic conditions.

Some work with books of reference is assumed to have been done in preparatory school, and the examination may test the student with reference thereto; but a certification of the amount of such work, signed by the teacher, will be taken as evidence and will be considered as a part of the examination. No definite list of reference books is prescribed. In general it may be said, however, that books or papers relating to the physiography of the region where the study is carried on, or those relating to phenomena illustrated in that region, should certainly be included. The standard text-books give ample references to suitable books and papers bearing on the various physiographic provinces and phenomena of the country.

Two periods a week for an entire year should have been devoted to laboratory and field work. The laboratory work should be divided between the study of the atmosphere and the study of the land. The student should be familiar with weather maps and topographic maps, and be able to interpret them. He should be able to tell what physiographic forms are represented on typical maps. The student should do enough field work to understand the physiography of the region where he studies. A note book record of the laboratory and field work should be carefully kept.

For further suggestions concerning laboratory work, the Syllabus of the College Entrance Examination Board and the Regents' Syllabus for the Schools of New York State may be consulted.

23. Agriculture (½ Unit or 1 Unit)

The examination assumes that the candidate has done the equivalent of the work outlined in the Syllabus for Secondary Schools—Agriculture, published by the New York State Education Department, 1907 (Albany) or in A Secondary Course in Agronomy, Circular 77 (revised), 1908, Office of Experiment Stations, United States Department of Agriculture. Agriculture may not be used for entrance to Arts and Sciences, Law, Civil Engineering, or Mechanical Engineering.

24. Drawing (½ Unit or 1 Unit)

The entrance requirement in drawing includes simple, plane, and solid geometrical figures, simple still life and groups or pieces of machinery, and

a fair knowledge of the rules of perspective and light and shade as applied in freehand sketching. The preparation may also include the drawing of simple pieces of architectural ornament, decoration, and simple plant forms, etc. This requirement represents about 300 hours of actual work (which may be entirely freehand drawing, entirely mechanical drawing, or part freehand and part mechanical) for the credit of 1 unit, or about 150 hours for the half unit.

Candidates taking the examination must present samples of their work, and a teacher's statement showing time and proficiency.

2. COLLEGE ENTRANCE EXAMINATION BOARD EXAMINATIONS

The examinations of the College Entrance Examination Board, held in Ithaca and elsewhere in June of each year, are accepted as the full equivalents of the Cornell University Entrance Examinations in the corresponding subjects.

All certificates of the College Entrance Examination Board should be sent by mail to the Registrar of Cornell University, Ithaca, New York, as early as possible in the summer before the applicant intends to enter. To insure consideration, they should reach him not later than the first of September.

If a student has failed to pass the College Entrance Board Examination in any subject, he will not thereafter be allowed to offer Regents' credentials or a school certificate in that subject unless, subsequent to his failure, he shall have pursued the subject regularly in class for the full time required and shall have done the full amount of work required for entrance in the subject.

Information regarding the requirements of the College Entrance Examination Board as to note books may be obtained from the Secretary of the College Entrance Examination Board, Post Office Sub-Station 84, New York, N. Y.

The following table shows the Cornell University entrance subjects with the equivalent subjects of the College Entrance Examination Board.

Cornell University Entrance Subjects	Equivalent College Entrance Board Subjects
1. English.	a, b. English.
2a. Greek Grammar.	a, i. Greek Grammar.
2b. Xenophon.	b. Xenophon, Anabasis, Books I-IV.
2c. Elementary Greek Prose Composition.	a, ii. Elementary Greek Prose Composition.
2d. Homer.	c. Homer, Iliad, Books I-III.
3a. Latin Grammar.	a, i. Latin Grammar.
3b. Caesar.	b. Caesar—Gallic War, Books I-IV.
3c. Elementary Latin Prose Composition.	a, ii. Elementary Latin Prose Composition.
3d. Cicero.	c. Cicero—Six orations.
3e. Virgil.	d. Virgil—Aeneid, Books I-VI.
4a. Elementary German.	a. Elementary German.

4a and b. Advanced German.	b.	Intermediate German.
5a. Elementary French.	a.	Elementary French.
5a and b. Advanced French.	b.	Intermediate French.
6a. Elementary Spanish.		Spanish.
6a and b. Advanced Spanish.		———
7. Ancient History (to 814 A.D.).	a.	Ancient History.
8. Modern History (from 814 A.D.).	b.	Medieval and Modern History.
9. American Hist. (including Civil Government).	d.	American History and Civil Government.
10. English History.	c.	English History.
11. Elementary Algebra, A.	a.	Elementary Algebra, i.
12. Elementary Algebra, B.	a.	Elementary Algebra, ii.
13. Advanced Algebra.	b.	Advanced Algebra.
14. Plane Geometry.	c.	Plane Geometry.
15. Solid Geometry.	d.	Solid Geometry.
16. Plane Trigonometry.	f.	Plane Trigonometry.
17. Physics.		Physics.
18. Chemistry.		Chemistry.
19. Botany.		Botany.
20. Zoology.		Zoology.
21. Biology.		———
22. Physiography.		Geography.
23. Drawing.		Drawing.
24. Agriculture.		———

The examinations of the College Entrance Examination Board will be held at Ithaca, and at various other places, June 19-24, 1911. A list of places at which the examinations will be held will be published about March 1, 1911, by the Secretary of the Board. Requests that the examinations be held at particular points, to receive proper consideration, should be submitted to him not later than February 1, 1911.

The examination fee at points in the United States and Canada is five dollars; at points outside of the United States and Canada, fifteen dollars, for each candidate examined.

Each candidate that desires to take the examinations of the Board must make application to its Secretary upon a blank to be obtained gratis from him. Applications for examinations at points in the United States on or east of the Mississippi River must reach the Secretary of the Board not later than Monday, June 5, 1911; at other points in the United States and in Canada, not later than Monday, May 29, 1911; at points outside of the United States and Canada, not later than May 15, 1911.

Applications received later than the prescribed dates will be accepted when it is possible to arrange for the examination of the candidates, but only upon payment of five dollars in addition to the usual examination fee. Candidates that file belated applications do so at their own risk.

Teachers, parents, and candidates for examination who desire more specific information concerning the work of the Board, as well as those who wish to procure blank forms of application for examination, are requested to address College Entrance Examination Board, Post Office Sub-Station 84, New York, N. Y.

3. ENTRANCE BY REGENTS' CREDENTIALS

Regents' credentials issued by the Department of Education of the State of New York certifying that the student has passed a subject and showing a mark of at least sixty per cent will be accepted in lieu of passing the Cornell Entrance Examination in the corresponding subject.

All Regents' credentials should be sent by mail to the Registrar of Cornell University, Ithaca, New York, as early as possible in the summer before the applicant intends to enter. To insure consideration, they should reach him not later than the first of September.

The following table shows the Cornell Entrance subjects with the corresponding Regents' equivalents:

Cornell University Entrance Subjects	Regents' Equivalents
1a. English A.	English 1st, 2d, and 3d years.
1b. English B.	English 4th year.
2a. Greek Grammar.	First-year Greek and Greek Grammar.
2b. Xenophon.	Xenophon.
2c. Greek Comp.	Elem. Greek Composition.
2d. Homer.	Homer.
3a. Latin Grammar.	First-year Latin and Latin Grammar.
3b. Caesar.	Caesar.
3c. Latin Composition.	Elem. Latin Composition.
3d. Cicero.	Cicero.
3e. Virgil.	Virgil.
4a. Elem. German.	German 1st and 2d years.
4b. Adv. German.	German 1st, 2d, and 3d years.
5a. Elem. French.	French 1st and 2d years.
5b. Adv. French.	French 1st, 2d, and 3d years.
6a. Elem. Spanish.	Spanish 1st and 2d years.
6b. Adv. Spanish.	Spanish 1st, 2d, and 3d years.
7. Ancient History.	Ancient History 3–5 counts.
8. Modern History.	European History 3–5 counts.
9. Am. History, Civics.	American Hist. and Civics 3–5 counts.
10. English History.	Hist. of Britain and Ireland 3–5 counts.
11. Elem. Algebra A.	Elementary Algebra.
12. Elem. Algebra B.	Intermediate Algebra.
13. Advanced Algebra.	Advanced Algebra.
14. Plane Geometry.	Plane Geometry.
15. Solid Geometry.	Solid Geometry.
16. Plane Trigonometry.	Trigonometry.
17. Physics.	Physics 5 counts.
18. Chemistry.	Chemistry 5 counts.
19. Botany.	Advanced Botany 5 counts.
20. Zoology.	Advanced Zoology 5 counts.
21. Biology.	Biology 5 counts (or Physiology 2½, and Bot. 2½ or Zool. 2½).
22. Physiography.	Physical Geography 5 counts.
23. Drawing.	El. and Adv. Drawing 3–6 counts.
24. Agriculture.	Agriculture 3 counts = ½ Cornell unit.

A Regents' diploma will admit to the University only when the subjects satisfy the entrance to the college concerned (see page 7). But the Arts College Entrance Diploma and the Science College Entrance Diploma issued by the Department of Education of the State of New York satisfy in full the requirements for admission to the College of Arts and Sciences, the College of Agriculture, and the four years' course of the College of Law. The Veterinary Student Certificate issued by the Department of Education of the State of New York admits to the Veterinary College.

Note books and teachers' statements are in general not required, and should not be sent unless they are in individual cases specifically asked for by the Registrar of the University.

The Department of Education, Albany, N. Y., will on request issue to any student a statement showing all subjects passed by him to date. All Regents' credentials should be secured as soon as possible after the examinations have been passed and should be forwarded immediately to the Registrar of the University. They should not be retained for personal presentation in Ithaca.

Candidates for admission on Regents' credentials should not assume that their credentials will be accepted; on the contrary, the candidates should appear at the Cornell Entrance Examinations held in Ithaca and in New York City in September unless they have been formally notified of the acceptance of their credentials. Special entrance examinations will not be given except as specified on page 7.

If a student has failed to pass in any entrance subject the Cornell or any other University Entrance Examination, or the College Entrance Board Examination, or the Regents' examination, he will not thereafter be allowed to offer Regents' credentials in that subject unless, subsequent to his failure, he shall have pursued the subject regularly in class for the full time required and shall have done the full amount of work required for entrance in the subject.

Admission on Regents' credentials is in all cases provisional. If, after admission to the University, a student fails in any subject dependent upon an entrance subject for which Regents' credentials have been accepted, credit for that entrance subject may be cancelled.

4. ENTRANCE BY SCHOOL CERTIFICATE

Certificates of work done in public or in private schools, in or out of the State, will be accepted in lieu of passing entrance examinations, if the University authorities are satisfied regarding the standing of the school and if the applicant has completed a full regular course in the school and has been duly graduated after at least one year in the school.

The University does not engage in advance to accept the certificate of a school and the previous acceptance of certificates does not establish a permanent right to acceptance, but merely raises the presumption that similar certificates will be accepted.

Three separate steps must be taken before a student of any school will, on its certificate, be admitted to a college of Cornell University:

(a) The principal of the school must by formal application secure the certificate privilege for his school.

(b) The principal of the school must submit a school certificate duly filled out for the individual candidate for admission.

(c) The candidate himself must make a personal application for admission to the particular college of Cornell University in which he intends to study. Official blanks for each of the above purposes may be obtained from the Registrar of Cornell University and when duly filled out, should be returned to him.

The school certificate should be forwarded by the principal as soon as possible after the graduation of the candidate. The application for the certificate privilege should, unless previously granted, accompany the school certificate. The candidate's personal application for admission to a particular college should be sent as early as possible after the candidate has decided in which college of Cornell University he desires to study. The application will be considered merely as a declaration of intention, and will constitute no obligation upon the prospective student.

The school certificate should include all the subjects that the candidate has satisfactorily completed in the school, whether or not they are required by the particular college in which the candidate proposes to study; neglect to comply with this regulation may entail serious inconvenience and disappointment to the student. The school certificate may include subjects in which an examination has been passed for admission to the school. No additional or supplementary certification will be considered after the end of the first college term.

Note books are in general not required to be submitted, and should not be sent unless they are in individual cases specifically asked for by the Registrar of the University.

Subjects in which the work has been done privately outside of the regular school curriculum, even if under the direction of teachers in the school, should not be included in the certificate.

The candidate must take his entrance examinations at Cornell University (in Ithaca or in New York City) in September if by that time he has not been notified that his school certificate has been accepted. Special entrance examinations will not be given except as specified on p. 7.

If a student has failed to pass in any entrance subject the Cornell or any other University Entrance Examination, or the College Board Entrance Examination, or the Regents' examination, he will not thereafter be allowed to offer a school certificate in that subject unless, subsequent to his failure, he shall have pursued the subject regularly in class for the full time required and shall have done the full amount of work required for entrance in the subject.

Admission on school certificates is in all cases provisional. If, after admission to the University, a student fails in any subject dependent upon an entrance subject for which a school certificate has been accepted, credit for that entrance subject may be cancelled.

All communications and requests in connection with admission on school certificate should be addressed to the Registrar of the University.

The University will welcome any special or personal information that school principals care to furnish in connection with individual applicants for admission.

SURPLUS ENTRANCE CREDIT

Credit towards a degree for work done in a preparatory school, upon subjects which may be offered for entrance to the University, will be given to those students only who, in addition to satisfying all entrance requirements, pass separate examinations in the subjects for which they seek college credit. These examinations will cover substantially the same ground as the University courses in the corresponding subjects. An applicant that desires a college credit examination of this kind must apply to the Registrar as early as possible, and in no case later than September 12th, 1911, specifying which fifteen units he intends to offer in satisfaction of the entrance requirements, and upon what other entrance subjects he wishes to be examined for credit.

In case he fails to satisfy the entrance requirements in any one or more of the units upon which he has proposed to enter, but passes the credit examination in any other subject or subjects, he may use the latter towards satisfying the entrance requirements, but in that case he cannot also receive college credit therefor. The college credit examinations will be held in September, on the dates set for the entrance examinations in the same subjects.

ADMISSION TO ADVANCED STANDING

A student who, having already attended some college or university, desires advanced standing in a regular course in some college of Cornell University should file with the Registrar of Cornell University, on an official blank to be obtained from him, a formal application for admission to advanced standing in one of the colleges of the University, along with an official certificate from the college or university already attended, of (1) his honorable dismissal, (2) his entrance examinations in detail, (3) his terms of attendance and the amount of work that he has completed, and (4) a detailed statement of the courses pursued for which he desires credit at Cornell. He should send also a catalogue of the institution, writing on it his name and marking the entrance requirements that he has satisfied and each subject that he has completed. All applicants for advanced standing should consult the special announcement of the college in which they propose to study.

ADMISSION OF SPECIAL STUDENTS

A person, ordinarily one of considerable maturity, may under certain circumstances, even without satisfying the entrance requirements, be admitted to one of the colleges of Cornell University as a special student not candidate for a degree. The applicant must give evidence of ability to do creditable work in the college and his application for admission must be recommended by the department in which he proposes to do the main part of his work.

If a person admitted as a special student without satisfying the entrance requirements subsequently satisfies these requirements, he may be graduated under the ordinary regulations that obtain in the particular college in which he is studying. He will not be permitted, however, to make up deficiencies in entrance subjects by attending University instruction in those subjects.

Candidates for admission as special students must file their applications directly with the Dean of the particular college in which they propose to study.

Special students in the College of Arts and Sciences must be at least twenty-three years of age; in the College of Law, twenty years of age; in the College of Architecture and in Sibley College, twenty-one years of age.

The College of Civil Engineering admits as special students persons at least twenty-one years of age that are college graduates and that intend to pursue advanced work without being candidates for a degree.

Special students in the College of Agriculture, if residents of the State of New York, must be at least eighteen years of age. No others will be accepted under the age of twenty-three years unless they can satisfy all the entrance requirements for the regular course.

THE BEGINNING OF THE COLLEGE COURSE

The first formal step at the beginning of the college career is the act of registration in the University. September 25 and 26 are the days for the registration of new students in 1911.

Each candidate, to be entitled to register, must present a formal registration permit, which is a card issued by the Registrar and sent to the candidate as soon as the requirements for entrance have been satisfied. This registration permit is ordinarily sent direct to the home address of the prospective student if he is entering by school certificate, College Entrance Board examinations, or Regents' credentials. If the candidate is entering by the September Cornell examinations, in New York City or in Ithaca, the registration permit is ordinarily sent to his local address as soon as the requisite examinations have been passed.

If the candidate is entitled to this registration permit but has for any reason not received it by September 25, he should call in person at the Registrar's office and procure it.

The registration permit bears on its face all the necessary directions for the candidate's registration in the University.

No candidate will be allowed to register after September 26 unless he has first obtained the special permission of the Dean of the college in which he purposes to study.

With a young man's first registration in the University there begins for him a period of greater personal responsibility than he has ever before been called upon to face. He should realize that the success of his college career depends in large measure on his individual ideals, his individual industry, and his individual determination to make the best possible use of his opportunities. Cornell University offers its equipment; its officers of

instruction and administration stand ready to help with their personal encouragement and advice; but after all, the ultimate responsibility for success or failure is on the individual student himself.

FIRST YEAR SUBJECTS AND STUDIES

With reference to details of curriculum, subjects to be studied, requirements for the degree, etc., the prospective student should consult the special announcement of the particular college that he intends to enter. Several of the colleges publish hand books of information for their students. These may be obtained from the Deans of the several colleges.

In the College of Arts and Sciences there is a considerable range of choice in studies to be pursued. An Administrative Board in charge of Freshmen and Sophomores advises the entering freshman in his selection of studies. In the other colleges, where there is a more or less fixed curriculum, this control is exercised directly by the Dean of the College or by a special class adviser.

No college in the University undertakes to send to parents or guardians regular reports of the progress and standing of the students under its control. Students in the University are accepted as responsible young men and young women and the constant effort is made to inspire and develop in them the sense of this personal responsibility and the realization that the success or failure of their college course is, in the last analysis, a matter of their own making.

PAYMENTS TO THE UNIVERSITY

Annual Tuition Fees

	Regular Students.	Special Students.
Graduate Department (General)	$100	——
Graduate Department (Technical and Architecture)	150	——
College of Arts and Sciences	100	$125
College of Law	100	125
Medical College	150	150
Veterinary College (For free tuition see page 24)	100	125
College of Agriculture (For free tuition see page 24)	100	125
College of Architecture	150	150
College of Civil Engineering	150	150
Sibley College	150	150

Students upon registering become liable for the tuition fee for the term.

The $100 tuition is payable in instalments of $55 at the beginning of the first term and $45 at the beginning of the second term; the $125 fee is payable similarly in instalments of $70 and $55; the $150 fee, in instalments of $85 and $65; in the Medical College in New York City, the entire fee is payable at the beginning of the year.

The tuition of any student that withdraws within twenty days after the first registration day for reasons satisfactory to the Treasurer and the Registrar, may be refunded.

A student that withdraws from the University, for reasons satisfactory to the Treasurer and the Registrar, on or before November 15th or March 15th, may have refunded one-half of the tuition fee for the current term.

Students registering after December 1st shall pay for the balance of the first term two-thirds of the tuition fee for the first term. Students registering after April 1st shall pay for the balance of the second term two-thirds of the tuition fee for the second term.

Tuition is free to to New York State students in the State Veterinary College pursuing the regular Veterinary course who for a year or more immediately preceding admission to the Veterinary College have been residents of New York State; to students pursuing the prescribed course in Agriculture and intending to complete that course; and to special and graduate students in Agriculture taking at least two-thirds of their entire work in the College of Agriculture.

No student who has received free tuition under the above regulations will be allowed to change to a course for which tuition is charged without first paying to the Treasurer of the University tuition fees for the full time spent in the free tuition course.

Other Fees

A matriculation fee of $5 is charged all students on entering the University.

Every student (except those registered in the Medical College in New York City) is charged an Infirmary fee of $2.00 a term, payable at the beginning of each term. Students in the winter courses in agriculture, etc. are required to pay the Infirmary fee for one term. In return for the Infirmary fee, any sick student is on his physician's certificate admitted to the Infirmary, or in the case of those contagious diseases which under present rules cannot be there cared for, to the Ithaca City Hospital, if receivable under its rules, and is given without further charge a bed in a ward, board, and ordinary nursing, for a period not exceeding two weeks in any one academic year.

Extra charges are made for private rooms, special foods, and special nurses. If a sick student who has not received two weeks' service in the year is refused admittance to either the Infirmary or the City Hospital, by reason of lack of accommodation, he is entitled to a refund of the fee for both terms.

Students in the Summer Session have all the privileges of admission to the Infirmary. They pay no fee in advance, but are liable for regular charges for services rendered.

Each student in the Department of Physical Culture is required to pay a locker fee of $2 a term.

Students taking work in Sibley College are charged $10 a term for material used in Sibley College shops and laboratories.

A fee of $7.50 a term, to cover cost of materials used, is required of all students in Agriculture, except those in the first two years of the regular course.

A graduation fee of $10 is required of each person taking a first or undergraduate degree. This fee must be paid at least ten days before Commencement. The amount will be refunded should the degree not be conferred.

A graduation fee of $20 is required of each person taking an advanced

degree. This fee must be paid at least ten days before Commencement. The amount will be refunded should the degree not be conferred.

Every person taking laboratory work or laboratory courses must pay to the Treasurer the fee or the deposit for the materials to be used in the work.

All students in the University are held responsible for any injury done by them to its property.

A student that fails to pay his indebtedness to the University within twenty days after it is due will be dropped from the University.

EXPENSES

A student's expenses at Cornell, beyond the stated University fees and a small outlay for books and instruments, depend in large measure on his personal tastes and habits. His expenses, other than those for board and room, may be estimated at the normal rate prevailing throughout that section of the country in which Ithaca is situated.

Parents and guardians are earnestly cautioned against providing their sons and wards with an excessive amount of pocket money. Many young men have been fatally handicapped in their college careers by over indulgence in this respect.

The University possesses no dormitories for men students. There are, however, in Ithaca many private boarding and rooming houses near the University Campus. In these the cost of board and furnished room, with heat and light, varies from $5 to $12 a week. By the formation of clubs, students are sometimes able to reduce their expenses for room and board.

Before engaging rooms, students should carefully examine the sanitary conditions and should particularly insist on satisfactory and sufficient fire-escapes. In general, room contracts should not be made for longer than a single term. New students are advised to come to Ithaca a few days in advance of the beginning of their University duties in order that they may have ample time to secure room and board before the opening of the college year. The Cornell University Christian Association offers its assistance to new students in the selection of rooming and boarding houses.

The dormitories for women students are Sage College and Sage Cottage. In these buildings, which are exclusively for women students, the total cost of board and rent of furnished rooms with heat and light varies from $225 to $300 a year. Both buildings are warmed by steam, lighted by electricity, and, in most cases, the sleeping apartment is separate from the study.

The University Adviser of Women has jurisdiction over all women students in the University, and women students are not permitted to board and lodge in houses in which men also board and lodge, unless for special reason approved by the Adviser.

Letters of inquiry in regard to board and rooms at Sage College and Sage Cottage should be addressed to The Business Manager of Sage College, Ithaca, N. Y.

SCHOLARSHIPS AND PRIZES

A special pamphlet on scholarships and prizes is published by the University. It may be had on application to the Registrar.

State Scholarships

Under the law of the State of New York the Commissioner of Education is empowered to award annually a number of free scholarships in Cornell University equal to the number of Assembly districts in the State of New York. Each scholarship entitles the holder to free tuition for four years beginning in the September immediately following the award of the scholarship.

All scholarship holders must satisfy the regular requirements for admission to one of the colleges of the University.

Holders of State Scholarships are notified that failure to register before the close of registration day of each term involves the severance of their connection with the University and consequently the forfeiture of their scholarships. The President of the University is required by law to send immediate notice of such vacancies to the Commissioner of Education and the Commissioner fills vacancies forthwith.

A State Scholarship holder, after regular registration at the University, may receive a leave of absence for the purpose of earning the necessary funds to defray his living expenses at the University. Such leave of absence may be granted at the beginning of the college course, but in that case the scholarship will not be extended for the period covered by the leave of absence; on the contrary, it will lapse at the expiration of four years from the date of its original award. If, however, leave of absence for the aforementioned purpose is granted after the holder has made a creditable record in the University for at least one year, his scholarship will be extended for a period not to exceed two years thus making the scholarship valid for a total period not to exceed six years from the date of the original award.

For particulars in regard to the awarding of State Scholarships, application should be made to the Commission of Education, Albany, N. Y.

University Undergraduate Scholarships

Eighteen University Undergraduate Scholarships, continuing for two years and of an annual value of $200 each, are offered each year to members of the incoming freshman class. The award is made on the basis of a special competitive examination held in Ithaca in September between the period of the entrance examinations and the opening of the University.

All candidates for these scholarships must have full entrance to one of the colleges of the University.

Holders of New York State Scholarships are eligible for University Undergraduate Scholarships.

The University Undergraduate Scholarships will be awarded on the basis of examinations in three of the seven following subjects:

(a). English. Entrance requirement. See page 7.

(b). Greek. Greek grammar and Xenophon; composition and Homer. See page 9.

(c). Latin. Latin grammar and Caesar: composition and Cicero; Virgil. See page 9.

(d). French. Advanced entrance requirement. See page 10.

(e). German. Advanced entrance requirement. See page 10.

(f). Elementary mathematics. Algebra through quadratics and plane geometry. See pages 12 and 13.

(g). Advanced mathematics. Solid geometry, advanced algebra, and plane trigonometry. See pages 12 and 13.

In choosing three of these seven subjects, every candidate must take English and at least one of the other four languages; and any candidate who does not select either Latin or Greek must take advanced mathematics.

No scholarship will be awarded to any candidate who is reported markedly deficient in any subject in which he is examined, and the right is reserved to fill fewer than eighteen scholarships in the absence of a sufficient number of duly qualified candidates.

The holder of a University Undergraduate scholarship shall forfeit the right to the same in case said scholar shall during incumbency change the course registered in at the time of receiving the award, unless the records of entrance examinations shall show that, at the time of the holder's admission to the University, all the subjects required for admission to the course last chosen were passed. All candidates must state before the scholarships are awarded what course they intend to pursue.

All persons shall be debarred from the competition for these Scholarships who have participated in any previous competition for the same, or have been in the previous year or years registered as a student in this University or in any other University or College.

These Scholarships will be forfeited at any time in case two-thirds of the Faculty present at any meeting, notice having been given at the meeting immediately before, shall decide that the holders have been guilty of negligence, or failure to maintain a high standard of scholarship, or of conduct of any kind that is unbecoming students holding such scholarships.

Whenever any of these scholarships shall for any reason become vacant, the vacancy shall be filled as the Faculty may determine.

The moneys due on these scholarships are paid at the office of the Treasurer of the University in two equal payments, on the 20th of February and the 25th of June, but no scholarship holder is entitled to receive his semi-annual payment until the Scholarship Committee has examined and approved the holder's record for the preceding term, and until the chairman of the Scholarship Committee certifies that the record of the holder is satisfactory.

Special Undergraduate Scholarships

The following scholarships are likewise open to members of each incoming freshman class.

1. **The Frank William Padgham Scholarship.** This scholarship, founded in 1892 by Amos Padgham of Syracuse, N. Y., in memory of his son, Frank William Padgham, a graduate of Sibley College of the class of 1888, entitles the holder to free tuition and fees in the regular course in Sibley College of Mechanical Engineering. It cannot be held in connection with a New York

State Scholarship. The Frank William Padgham Scholarship will be awarded to the candidate who has had his preparatory education wholly or in part in the public schools of Syracuse, N. Y., and who having been admitted to the regular course in Sibley College, shall in competition pass the best examination in studies selected from those required for admission to Sibley College. These subjects are: 1. Advanced Mathematics, 2. Advanced German, 3. Advanced French, 4. Physics, 5. Chemistry. Of these subjects the candidate must take three including Advanced Mathematics and one of the Modern Languages. The examination for the Padgham Scholarship is held at the same time as the University Undergraduate Scholarship examinations; it is, however, a special examination and the candidate must declare his intention to enter the Padgham Scholarship examination and state his qualifications therefor to the Registrar who will issue the usual permit to enter the examination.

2. **State Grange Scholarships in Agriculture.** At its annual meeting, held February, 1910, the New York State Grange adopted a resolution whereby $600 is to be given to members of the Order in the form of twelve scholarships in the winter courses in agriculture in Cornell University. The scholarships are each of the value of $50, to be awarded to men or women who attain the highest standing in competitive examinations. The candidate should apply to the Master of the Pomona Grange in his home county, or to the Deputy in counties that have no Pomona.

The following undergraduate scholarships are not open to students at the beginning of their freshman year in the University. The special pamphlet on prizes and scholarships should be consulted for a full statement of the terms of eligibility in connection with each of them.

1. **The Alumnae Scholarship** of the annual value of $100, to be awarded to a self-supporting woman who has spent at least one year in the University.

2. **The Boardman Senior Law Scholarship** of the annual value of $100, to be awarded at the end of the junior year in the College of Law.

3. **The Roberts Scholarship Fund,** providing for five annual scholarships of the value of $240 each, for students in the College of Agriculture. The award is made after the end of the first term of each year.

4. **The Buffalo Alumni Association Scholarship** of the annual value of $200, for students who are residents of Erie or Niagara County, New York. The recipient must have been at least one year in some university. Cornell University is not responsible for the award or the payment of this scholarship.

Scholarships and Fellowships in the Graduate School

There are in the Graduate School seventeen scholarships of the annua value of $300 each, and twenty-three fellowships of an annual value of from $500 to $600 each. For full information concerning these scholarships and fellowships the announcement of the Graduate School and the pamphlet on prizes and scholarships should be consulted.

Prizes

The special pamphlet on prizes and scholarships should be consulted for the terms of eligibility in connection with each of these.

1. **The Woodford Prize,** an annual prize in oratory consisting of a gold medal of the value of $100.

2. **The '86 Memorial Prize in Declamation,** of the annual value of $86.

3. **The '94 Memorial Prize in Debate,** of the annual value of about $25.

4. **The Shakespeare Prize,** of the annual value of about $50.

5. **The Guilford Essay Prize**, of the annual value of about $150.

6. **The French Prize.** An annual prize consisting of a gold medal of the value of $50.

7. **The Browning Prize.** An annual prize consisting of a gold medal of the value of $50.

8. **The Luana L. Messenger Memorial Prize,** for the essay giving evidence of the best research and most fruitful thought in the field of human progress or the evolution of civilization. This is an annual prize of $50.

9. **The Sherman Bennett Prize.** An annual prize consisting of the income on $400, for the best essay discussing the principles of free government.

10. **The Frances Sampson Fine Arts Prize.** An annual prize of the value of about $30, awarded to the student who shows the most intelligent appreciation of the graphic arts and architecture.

11. **The John Metcalf Polk Memorial Prizes,** awarded annually to students in the Medical College.

12. **The Horace K. White Prizes** of $15 and $10 respectively, awarded annually to the most meritorious students in the graduating class of the Veterinary College.

13. **The Sibley Prizes in Mechanic Arts,** of the annual value of $100, awarded to students in the Sibley College of Mechanical Engineering.

14. **The Fuertes Medals,** awarded to students in the College of Civil Engineering.

15. **The Sands Memorial Medal,** awarded to students in the College of Architecture.

16. **The Brown Memorial Medal,** awarded to students in the College of Architecture.

17. **The Central New York Chapter A. I. A. Prize** of $20, awarded annually to students in senior design in the College of Architecture.

FINANCIAL ASSISTANCE

The F. W. Guiteau Student Loan Fund. Through the generosity of the late Mr. Frederick W. Guiteau and his sister, the late Mrs. Nancy G. Howe, both of Irvington-on-Hudson, N. Y., a fund, known as the F. W. Guiteau Student Loan Fund, has been established in Cornell University, the income from which, amounting to about $11,000 annually, is to be "used in advancing and assisting needful, worthy young men in pursuing their studies in said University".

The benefits of this fund are open to young men who have been in attendance at Cornell University for at least two years. Account is taken of the

applicant's character, scholastic record, and need of financial assistance. Loans are made primarily to cover tuition fees.

Official application blanks to be used in applying for aid from the F. W. Guiteau Student Loan Fund may be secured at the President's Office, and all applications should be addressed to the Student Loan Fund Committee, President's Office, Morrill Hall.

OPPORTUNITIES FOR SELF-SUPPORT

Many students earn the whole or a part of their expenses while attending the University. Opportunities for self-support occur chiefly in the line of personal services of various kinds, e.g., waiting at table, caring for furnaces, the management of various student enterprises, laundry agencies, etc. In practically all of the numerous student boarding houses, student waiters are employed, receiving their board in return for their services.

Students of fine scholarship occasionally have the opportunity of doing some tutoring in the latter part of their college course, and in some of the departments of the various colleges positions as student assistant with appropriate compensation are open to seniors of exceptional ability and attainments.

The Cornell University Christian Association, through its employment bureau, is always ready to assist students in search of work, and its Secretary will welcome any inquiries from male students with reference to opportunities for self-support. Women students in search of employment should address their inquiries to Mrs. G. S. Martin, University Adviser of Women, Sage College, Ithaca, N. Y.

THE UNIVERSITY LIBRARY

The University Library contains 375,000 volumes. The library is open on week days during the college year from 8 o'clock in the morning until 10.45 o'clock in the evening. Every convenience is offered to students to facilitate and encourage their use of the library books.

MILITARY DRILL, PHYSICAL EXERCISE, AND ATHLETICS

The University encourages every student to participate in some form of athletic exercises unless prevented by physical disability.

A careful physical examination is made of all new students and exercises are prescribed to meet their individual needs. All men and women who

desire to train for athletic competitions are examined by their respective medical examiners.

The new playground and athletic field covering 55 acres on the Campus within five minutes' walk of the quadrangle offers ample room for outdoor athletic games and exercises. The armory and the gymnasium are used for the indoor work during the winter months. Percy Field, a thoroughly equipped athletic field, covering 10 acres with club house, etc., is used for most of the intercollegiate contests. Women students have their separate gymnasium, boat-house, etc.

A particular effort is made to interest all students in physical exercises, not merely those of unusual physical ability who are attempting to become members of some of the organized athletic teams. An athletic league exists among the various colleges of the University and a series of athletic contests is carried on throughout the year. All students in the University except the 'varsity athletes may participate in these. The games consist of cross country running, association football, basketball, indoor athletics, baseball, track athletics, and rowing. Participation in these games as well as in such other games as tennis, lacrosse, handball, and golf, and in such forms of exercise as boxing, wrestling, and fencing, is regarded as fulfilling the requirements of the Department of Physical Culture.

The act of Congress of 1862 providing for the establishment of "Land Grant Colleges" requires that instruction be given in military science and tactics in all institutions that are its beneficiaries. At any such institution where a professor of military science and tactics is detailed by the War Department, it is required that the institution shall provide, in its regular schedule of studies, instruction in the military department for at least three hours a week for two years or the equivalent thereof.

In fulfilment of these provisions regular courses of instruction are offered by the commissioned officer of the regular army detailed at Cornell University as professor of military science and tactics, and in addition military drill during the freshman year is required of all male students in those colleges of the University which have four year courses. During their sophomore year these students have the option of taking part in military drill or of doing work in the Department of Physical Culture. Freshmen in those colleges which have three year courses have this same option.

Membership on the teams that represent the University in intercollegiate contests is by rigid competition. These intercollegiate sports consist of rowing, football, baseball, track athletics, lacrosse, basketball, cross country running, hockey, wrestling, fencing, association football, tennis, and swimming.

THE CORNELL INFIRMARY

The Cornell Infirmary is the former mansion of the late Henry Williams Sage, for many years chairman of the Board of Trustees of the University. At his death in 1897, his sons, Dean and William Henry Sage, endowed it

and gave it to the University for a students' Infirmary as a memorial to their father.

The Infirmary, which is in charge of an experienced superintendent, is thoroughly equipped in every way, and is open throughout the University year, as a home for students suffering from any except contagious diseases. (All cases of contagious disease are treated at the Ithaca City Hospital.)

For Infirmary fees see page 24.

THE SAGE CHAPEL AND BARNES HALL

Religious services, provided for by the Dean Sage Preachership Endowment, are conducted in Sage Chapel throughout the college year by eminent clergymen selected from the various religious denominations. These services are supplemented by the Cornell University Christian Association, a voluntary organization of students and professors formed for their own religious culture and the promotion of Christian living in the University. The Christian Association has its home in Barnes Hall; it has a permanent secretary and a carefully selected biblical library, also comfortable reading and recreation rooms. Bible study courses are carried on throughout the year. A committee of the Association, in attendance at Barnes Hall during the first week of each college year, offers its assistance to new students in the selection of rooming and boarding houses.

There is in addition to the Men's Christian Association, a flourishing Young Women's Christian Association, with quarters in Barnes Hall.

The students of the University are welcomed by the numerous churches in the city of Ithaca at all their services.

STUDENT FRATERNITIES, CLUBS, AND ORGANIZATIONS

There are nearly fifty fraternities at Cornell University. Membership in them is by invitation and election. Many of the fraternities have their own houses in which their members live.

The national literary and scientific societies, Phi Beta Kappa, Sigma Xi, and Tau Beta Pi have chapters at Cornell. In addition to these there are various college and departmental and class clubs of a literary or scientific nature. Membership in all of these is by election.

The musical and dramatic clubs of the University comprise the Glee Club, the Mandolin Club, the University Orchestra, the Masque, the Dramatic Club, the Deutscher Verein, Les Cabotins, and the English Club.

STUDENT PUBLICATIONS

THE CORNELL ERA, a literary magazine published monthly. The editors are chosen by competition.

THE CORNELL DAILY SUN, published daily except Sunday by a board of editors chosen from the senior, junior, and sophomore classes.

THE WIDOW, an illustrated humorous paper published bi-weekly. The editors are chosen by competition.

THE SIBLEY JOURNAL OF ENGINEERING, published monthly by a board of fourteen members chosen by competition from students in Sibley College.

THE CORNELL COUNTRYMAN, an illustrated monthly magazine published by students in the College of Agriculture.

THE CORNELL CIVIL ENGINEER, published monthly by the Association of Civil Engineers of Cornell University.

THE CORNELL ALUMNI NEWS, issued weekly during the college year and monthly in July and August. The business manager is chosen by competition.

LECTURES, CONCERTS, ETC.

During the course of each year many men, native and foreign, of eminence in public and private life, are invited to lecture before the University or some of its colleges. These lectures are always free to students in all of the colleges of the University.

A series of musical concerts at various times during each year is provided by the Department of Music. Weekly organ recitals, with free admission to all members of the University, are given in Sage Chapel.

OFFICIAL PUBLICATIONS OF CORNELL UNIVERSITY

Issued at Ithaca, N. Y., monthly from July to November inclusive, and semi-monthly from December to June inclusive.

These publications include the annual Register, for which a charge of twenty-five cents a copy is made, and the following publications, any one of which will be sent gratis and post-free on request:

General Circular of Information for prospective students,
Announcement of the College of Arts and Sciences,
Courses of Instruction in the College of Arts and Sciences,
Announcement of Sibley College of Mechanical Engineering and the Mechanic Arts,
Announcement of the College of Civil Engineering,
Announcement of the College of Law,
Announcement of the College of Architecture,
Announcement of the Medical College,
Announcement of the New York State College of Agriculture,
Announcement of the Winter Courses in the College of Agriculture,
Announcement of the New York State Veterinary College,
Announcement of the Graduate School,
Announcement of the Summer Session,
The President's Annual Report,
Pamphlet on prizes, samples of entrance and scholarship examination papers, special departmental announcements, etc.

Correspondence concerning the publications of the University should be addressed to
The Registrar of Cornell University,
Ithaca, N. Y

OFFICIAL PUBLICATIONS
OF CORNELL UNIVERSITY

VOLUME 1 NUMBER 2

NEW YORK STATE COLLEGE OF AGRICULTURE

ANNOUNCEMENT OF WINTER COURSES 1910-11

SEPTEMBER, 1910
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ITHACA, NEW YORK

NEW YORK STATE COLLEGE OF AGRICULTURE

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Edwin S. DeLany, Clerk.
Laura McLallen Van Auken, Clerk in Department of Dairy Industry.
Gilbert Arthur Renney, Superintendent of Mailing-Rooms.

THE WINTER COURSES.

The Winter-Courses are five in number.

1. General Agriculture (first given in 1893).
2. Dairy Industry (first given in 1894).
3. Poultry Husbandry (first given in 1905).
4. Horticulture (first given in 1906).
5. Home Economics (first given in 1906).

All of these courses will begin November 29, 1910, and will close February 24, 1911. Instruction will begin at 8 a. m., November 30. No work is to be given on Saturday, December 24; Monday, December 26; and Monday, January 2.

Correspondence concerning these courses and other work connected with the College of Agriculture, may be addressed to L. H. Bailey, Director; or, when pertaining specially to one of the Winter-Courses, to the person in charge of the course, as announced below.

It is advised that students plan to spend two winters at the College, the first winter taking the course in General Agriculture, and the second winter specializing in the subject in which they are particularly interested.

Expenses

Tuition is free to residents of New York state. Non-residents pay a tuition fee of $25. There are a few small fees and incidental expenses which are detailed under the description of each course, but practically the only expense is the cost of living in Ithaca and the railroad fare to and from Ithaca. Satisfactory table-board can be secured in Ithaca, within five to fifteen minutes walk of the campus, for about $3.50 to $4.50 a week. Comfortable rooms near the place of boarding may be had at $1 to $2 a week when two persons occupy the room, and at $2 to $3 when one person occupies the room. The cost of books need not be more than $5, but it has been the experience of Winter-Course students in the past that they wish to purchase a number of books to take home, and it would be well, if possible, to allow at least $10 for them. The expenses of the students in the Winter-Courses of past years, as stated by them, have been from $85 to $125, the average now being probably about $95. By careful management, this may be reduced somewhat, but it is best not to stint too much, as too great economy is likely to lessen the value of the course.

In the past, a few students have been obliged to earn money during the course and have worked at odd jobs about the University or on neighboring farms. This is never advisable unless absolutely necessary. It is much better to borrow the necessary money or to postpone the course of study until another year than thus to be handicapped during the limited time spent at the University. All the energies should be concentrated on the work of the course.

All the fees mentioned under each course must be paid to the Treasurer of the University (Morrill Hall) within two days after registration.

Infirmary fee.—Every registered student at Ithaca is charged an Infirmary fee of $2.00 per term, payable at the beginning of each term. Students in the Winter-Courses are required to pay the Infirmary fee for one term. In return for the Infirmary fee, any sick student is, on his physician's certificate, admitted to the Infirmary, or in the case of those contagious diseases which under present rules cannot be there cared for, to the Ithaca City Hospital, if receivable under its rules, and is given without further charge a bed in a ward, board, and ordinary nursing for a period not exceeding two weeks in any one academic year. Extra charges are made for private rooms, special foods and special nurses. The Infirmary charge for a bed in a ward, board, and ordinary nursing in excess of the two weeks is $1.00 per day. If a sick student who has not received two weeks service in the year is refused admittance to either the Infirmary or the City Hospital by reason of lack of accommodation, he is entitled to a refund of the fee paid.

Scholarships for Winter-Course Students.—At its 31st annual meeting, held at Cortland, February 4, 1904, the New York State Grange resolved to appropriate funds annually, to be given to members of the Order in the form of scholarships in any of the Winter-Courses in Agriculture in Cornell University. The scholarships (now twelve in number) are each $50 in cash, to be awarded to men and women who attain the highest standing on competitive examination. Awards are made each summer. Candidates should apply to the Master of the Pomona Grange in their home counties, or to the Deputy in counties that have no Pomona.

Mr. H. L. Beatty has offered for the year 1910–11, a similar scholarship of a value of $75, "open to any farmer who resides in Bainbridge, N. Y., or to any boy over 16 who shall have attended the Bainbridge High School for one full term".

Admission

The Winter-Courses are business and occupational courses, not academic; hence, there are no examinations for admission. However, in order that the student may be able to make the best use of the instruction, it is necessary that he should have a good common school education. Winter-Course students are sometimes seriously handicapped in their work by being deficient in arithmetic and English. Those who are planning to take a Winter-Course are advised to review these subjects before coming to Ithaca. Anyone who has graduated from the common schools of the State, or who has an eighth grade certificate, should be able to do the Winter-Course work satisfactorily. When making application, candidates for admission should give a description of their school training and, if possible, should send a certificate or statement from the teacher of the school last attended.

All the courses are open to both men and women of at least seventeen years of age. Not a few women have taken the work with results satisfactory to themselves and to their instructors. The average age of the students in the course in General Agriculture has been about twenty-one years. The dairy students have on the average been somewhat older. There is no limit to the age above seventeen; some of the best Winter-Course students have been mature men, owners of farms or managers of dairy concerns and of poultry plants.

This circular contains application blanks for admission to the Winter-Courses. These should be filled out and forwarded at once by any person that is planning, as yet even indefinitely, to attend any one of the Winter-Courses. The filing of an application for admission does not constitute an obligation to attend any one of the courses, and applications may be withdrawn at any time.

On account of the limited accommodations in the Dairy Course and in the Poultry Course, all candidates for admission must, on the acceptance of their applications, deposit an advance fee of five dollars. This deposit is returnable on request at any time before November 1st. In these courses, applicants for admission who are residents of New York State are given precedence.

Applicants for admission to the Winter-Courses should, by way of preparation, read carefully some of the best books, bulletins, etc., on the subject to which their attention will be chiefly directed

while at Cornell. The Supervisors of the Reading-Courses will, on request, suggest appropriate books for such reading.

Arrival at Ithaca.—Students that desire to secure rooming and boarding places are invited to come directly to the College of Agriculture on their arrival in Ithaca. Instructors will be on duty at the headquarters of the several Winter-Courses to assist all applicants in finding comfortable accommodations. It is desirable that all such arrangements should be completed before registration day.

Registration.—On Tuesday, November 29, beginning at 8:00 A.M., all students must report for registration at the office of the Secretary to the College of Agriculture, Main building, Room 122. After registering here and receiving study cards, the students will go at once to the headquarters of their particular Winter-Courses, as follows: General Agriculture Course, Main building, Room 193 (first floor); Dairy-Course, Dairy building, Room 102 (first floor); Poultry-Course, Dairy building, Room 119 (first floor); Horticulture-Course, Main building, Room 202 (second floor); Home Economics Course, Main building, Room 402 (fourth floor).

After the student has filled out and returned his study card showing the subjects he wishes to register for, he may not change his registration in any respect except on the recommendation of the head of the Winter-Course concerned and with the approval of the Secretary.

Women who desire to pursue the Winter-Course in Home Economics should correspond with Miss Martha Van Rensselaer, Ithaca, N. Y., in regard to rooms and accommodations.

Methods of Instruction

Instruction in the Winter-Courses is given by lectures, by such practical work in the various agricultural operations as can be conducted at this time of the year (laboratory practice), and sometimes by trips or excursions to points of special interest.

The lectures are given in large part by the regular professors and instructors in the College of Agriculture. These lectures are plain and practical, in the style of farmers' institute talks. As far as possible, collected material is used to illustrate the subjects. When this is impossible, lantern-slide views are often used. A free discussion by the students of the subject under consideration is

encouraged. Further opportunity for these general discussions is afforded in the meetings of the Winter-Course clubs.

Other lectures are given to the students by successful practical men, in large part from New York State, who are directly engaged in agriculture as a business. They present to the students the results of their experience and observation.

There may also be special lectures by various members of the University Faculty, not members of the Faculty of Agriculture. The Winter-Course students are welcomed at the various addresses given by eminent men before the University in general.

Practical work is made a special feature in the Winter-Courses. The student is expected to perform all the various operations as carefully as if he were working at home on a farm-practice basis. In the Dairy and Poultry Courses, the instruction is largely practical, and the students have an opportunity of becoming familiar with all of the essential operations in these enterprises. In the General Agriculture and Horticulture Courses, there is necessarily a smaller amount of practical work; advantage is however taken of the greenhouses, barns, and laboratories to demonstrate to the students some of the operations which would normally be conducted in the summer season. Whenever possible, the aim is to make the practical work take up as large a part of the student's time as the lectures.

Excursions to nearby points of special interest have been made a feature of the Poultry-Course. They are also conducted in other courses whenever practicable.

By "hour" in the following schedules is meant one lecture of one hour each week for twelve weeks, or one period (of two hours and one-half) of laboratory or practice a week for twelve weeks.

Certificates

Certificates are granted to those who, in any one of the Winter Courses, complete fifteen hours, including all the required work, and who subsequently complete one year of satisfactory practical work on a farm or in a creamery, poultry establishment, or other agricultural enterprise.

The City and the University

Ithaca is situated in Tompkins county at the head of Cayuga Lake. It is a city of about fifteen thousand inhabitants. It is reached by the Lehigh Valley and the Delaware, Lackawanna and Western Railroads, also by steamer on the Lake in the summer. The University stands on a plateau about four hundred feet above the Lake. The officers of instruction and administration of Cornell University number 675. The campus and grounds covers 1095 acres.

The main buildings of the University are over thirty in number, providing quarters for the several colleges of the University. These are Arts and Sciences, Law, Medicine, Agriculture, Veterinary, Medicine, Architecture, Civil Engineering, and Mechanical Engineering.

The New York State College of Agriculture at Cornell University is now occupying the new buildings erected by the State. These buildings are large and well equipped, and afford an attractive and comfortable home for the College.

Social and Religious Advantages

Each year the students in the several Winter-Courses have formed clubs, in each course. These societies meet once a week and debate subjects of special interest, discuss various problems, sing college songs, and indulge in other forms of social entertainment. Every Winter-Course student is urged to attend these meetings.

The Winter-Course students are welcomed at the meetings of the Agricultural Association, the Horticulturists' Lazy-Club, the Poultry Association, the Round-Up Club, and the other organizations of students in the College. The meetings of these societies are devoted to discussions of live agricultural subjects and to the promotion of a fraternal feeling among the students. On the first Thursday evening of each month the Director of the College meets the agricultural faculty and students in the "Agricultural Assembly". At this meeting the Director gives a talk on matters of especial importance to those interested in agriculture and country life, or a reading, which is followed by singing and social intercourse.

Each winter the students in the various Winter-Courses compete for the Morrison Winter-Course Trophy Cup. Last year the contest

was a series of debates, as a result of which the cup was awarded for one year to the Winter-Course in Poultry Husbandry.

The Farmers' Week will be held this year in the week of Washington's birthday, Feb. 20th to 25th, inclusive. At this convention, discussions are held from the college man's point of view on all the leading agricultural topics. All farmers of the State are invited to attend.

The Agricultural Experimenters' League meets at the University at the time of Farmers' Week. It is designed to develop the investigational spirit among New York farmers and to promote a closer friendship among the farmers of the state. All students in the Winter-Courses are eligible to membership in this League, and should attend the meeting. During this week, also, there is held the annual meeting of the Students' Association of the New York State College of Agriculture, an organization of present and former students for social purposes and to promote the interests of the College and of country life affairs at large. Winter-Course students have equal privileges with others in this Association.

Religious services, provided for by the Dean Sage Preachership Endowment, are conducted in Sage Chapel throughout the college year by eminent clergymen selected from the various religious denominations. These services are supplemented by the Cornell University Christian Association, a voluntary organization of students and professors formed for their own religious culture and the promotion of Christian living in the University. The Christian Association has its home in Barnes Hall; it has a permanent secretary and a carefully selected biblical library, also comfortable reading and recreation rooms. Bible study courses are carried on throughout the year, and special courses are provided for the students in the Winter-Courses.

There is in addition to the Men's Christian Association, a flourishing Young Women's Association, with quarters in Barnes Hall.

The students of the University are welcomed by the numerous churches in the city of Ithaca at all their services.

DESCRIPTION OF THE WINTER COURSES

I. GENERAL AGRICULTURE

A large proportion of the young men who come for a Winter-Course expect to engage in general farming or hope to secure positions as superintendents of farms where diversified agriculture is practiced. It is for these that the General Agricultural Course is especially designed. The other courses meet the needs of those who plan to specialize.

On the other hand, the General Agriculture Course can be taken with advantage also by those who plan to do special work in agriculture later. It thus gives an opportunity of laying a broad foundation of general knowledge as a basis for subsequent specialization. This course gives a general survey of agriculture in practically all its phases. It is strongly advised that those who desire to pursue one of the special Winter-Courses, should first take the General Agriculture Course and postpone to the following winter their special work.

Students register at 8:30 A. M., November 29, in Room 193, first floor of the Main building, after registering with the Secretary (page 9.)

Special Expenses

General fee	$5.00
Work-suit, about	1.50
Those who elect Plant Diseases add	2.50
Those who elect Farm Dairying, add laboratory deposit (part of it returnable)	4.00
Those who elect Farm Mechanics add	2.00

For laboratory and other fees in the different courses, see the descriptions of those courses on the following pages.

Required Subjects

All students in the General Agriculture Course are required to take the following four subjects:

1. **Fertility of the Land.**—A study of soils from the chemical and the physical point of view, with discussions on fertilizers, manures, and the principles of plant growth. Lectures, two hours a week. Professor CAVANAUGH.

2. **Agronomy.**—A study of field crops and farm management. As much time as possible is devoted to soil management and the culture of special crops, as corn, potatoes, wheat, oats, pastures, and forage. Lectures and practice, four hours a week. Professor STONE and Mr. MINNS.

3. **Animal Husbandry.**—The student is required to take one of the following two courses, and may elect the other:

(a) **Breeds and Breeding.**—The principles of breeding farm animals; the history of breeds; the adaptation of different breeds for certain purposes; the care of farm animals. Three hours a week, two hours of lectures and one practice period. Professor WING and Assistant Professor HARPER.

(b) **Feeds and Feeding.**—The principles and practice of compounding rations and feeding farm animals. Three hours a week, two hours of lectures and one practice period. Professor WING and Assistant Professor SAVAGE.

4. **Horticulture.**—The principles of fruit-growing and vegetable-gardening; propagation of fruits, with practice in budding and grafting; orchard tillage and fertilizers, pruning, and spraying; harvesting, marketing, and storing of fruit; planning and planting the vegetable garden; fertilizers, tillage, and control of pests and diseases. Representative truck crops treated in detail. Lectures, three hours a week. Professor CRAIG.

A series of special lectures will be given by various members of the University Faculty, and by prominent men from elsewhere who are authorities on certain lines of agriculture and horticulture. Students in the General Agriculture Course are required to attend these lectures.

In the General Agriculture Course there are thus 12 hours a week of required work. Six hours of elective work may be chosen from the subjects described below. No student may take more than 18 hours of work, except by special permission of the Faculty, and 16 hours is as much as the average student can carry satisfactorily.

Elective Subjects

61. **Vegetable Culture.**—A study of the growing and marketing of vegetables for special and general market. Lectures and exercises, three hours a week. Mr. WORK.

6. **Rural Improvement.**—A course of six lectures, commencing after the Christmas Recess, dealing with questions of rural improvement and intended to give the farm boy a general view of rural art together with specific hints for working out some of his home problems. Assistant Professor FLEMING.

7. **Farm Mechanics.** A study of gasoline and steam engines, steam boilers, power transmission and shafting, pumps, and hydraulic rams. Laboratory fee $2.00. The number of students will be limited. Three hours a week, two hours of lectures and one practice period. Assistant Professor H. W. RILEY.

8. **Farm Dairying.**—The care of milk, butter-making, and milk testing. Those who elect this course deposit an additional laboratory fee of $4.00 to cover breakage and white suits. Part of this is returnable. One lecture a week and two afternoons of practice.

3a and 3b. **Animal Husbandry.**—The student who desires as much work as possible in Animal Husbandry may take both 3a and 3b in that subject, as described on page 14.

9. **Farm Poultry.**—A discussion of the domestic breeds of poultry; hatching and rearing; the principles of feeding and management; the building of poultry structures. Lectures and demonstrations, two hours a week in Poultry Laboratory. Professor RICE and Mr. KRUM.

10. **Economic Entomology.**—A study of insect pests of farm, orchard, and garden, and remedies for them. Lectures, one hour a week. Assistant Professor HERRICK.

11. **Plant Diseases.**—A study of a few of the common diseases of cultivated crops, caused by bacteria and fungi. Laboratory fee $2.50. Three hours a week, one hour lecture and two hours laboratory practice. Professor WHETZEL and Mr. BARRUS.

12. **Diseases of Dairy Cattle, and Veterinary Hygiene.**—(For description of this course, see page 22.) Lectures. Dr. UDALL and others.

13. **Farm Structures.**—A discussion of the principles involved in the construction of farm barns, stables, silos, and other buildings. The practices of fencing, farm road-making, and the use of concrete on the farm will be studied. Open to all students in the Winter-Courses. Lectures, demonstrations, and practice in preparing working plans, two hours per week. Mr. MINNS.

3. **Extension Work.**—A study of the problems of university extension in agriculture. Practice in oral and written presentation of topics in agriculture, with criticism and individual appointments on the technique of public speech. Designed to acquaint students with parliamentary practice, to encourage interest in public affairs, and to train for effective self-expression in public. Open to all students in the Winter-Courses. Lectures and discussions, one hour a week. Professor TUCK.

For further information regarding instruction in General Agriculture, address

J. L. STONE,
Professor of Farm Practice

II. DAIRY INDUSTRY

This course is intended especially for persons who make a business of manufacturing butter or cheese or of handling milk for the market. Anyone wishing instruction in "Farm Dairying" should consult the description of that course in the announcement of the Winter-Course in General Agriculture, No. 8 above.

NEW YORK STATE COLLEGE OF AGRICULTURE AT CORNELL UNIVERSITY

I. WINTER-COURSE IN GENERAL AGRICULTURE

APPLICATION FOR ADMISSION

Name of applicant.....*Date of Birth*.....

P. O.....*County* .....*State* .....

Name and address of parent or guardian, or person to be notified in case of serious illness or accident.....

.....

PREVIOUS SCHOOL TRAINING

Name of school last attended.....*No. of terms in attendance*.....

AMOUNT OF WORK DONE IN THE COMMON BRANCHES

.....

.....

REFERENCES:—I am personally acquainted with the above applicant and believe*.....*to be of good moral character, industrious, studious, and physically and otherwise capable.*

Name ..... *Name*.....

Position ..... *Position*.....

Address ..... *Address* .....

*References: Two are necessary and should be preferably by your teacher, pastor, or some public official.
This blank must not be used for enrollment in the *Reading-Course*. A card for that purpose will be sent on application.

This application should be mailed to Professor J. L. Stone, Cornell University, Ithaca, New York

NEW YORK STATE COLLEGE OF AGRICULTURE AT CORNELL UNIVERSITY

II. WINTER-COURSE IN DAIRY INDUSTRY

APPLICATION FOR ADMISSION

Name of applicant.....*Date of birth* .....

P. O.....*County* .....*State* .....

Name and address of parent or guardian, or person to be notified in case of serious illness or accident.....

.....

PREVIOUS SCHOOL TRAINING

Name of school last attended.....*No. of terms in attendance*.....

AMOUNT OF WORK DONE IN THE COMMON BRANCHES

.....

Give experience, if any, in dairy work .....

REFERENCES:—I am personally acquainted with the above applicant and believe*.....*to be of good moral character, industrious, studious, and physically and otherwise capable.*

Name ..... *Name*.....

Position ..... *Position*.....

Address ..... *Address* .....

*References: Two are necessary and should be preferably by your teacher, pastor, or some public official.
This blank must not be used for enrollment in the *Reading-Course*. A card for that purpose will be sent on application.

This application should be mailed to Professor W. A. Stocking, Jr., Cornell University, Ithaca, New York

NEW YORK STATE COLLEGE OF AGRICULTURE AT CORNELL UNIVERSITY

III. WINTER-COURSE IN POULTRY HUSBANDRY

APPLICATION FOR ADMISSION

Name of applicant.....*Date of Birth*.....

P. O.....*County* .....*State* .....

Name and address of parent or guardian, or person to be notified in case of serious illness or accident.....

.....

PREVIOUS SCHOOL TRAINING

Name of school last attended.....*No. of terms in attendance*.....

AMOUNT OF WORK DONE IN THE COMMON BRANCHES

.....

.....

REFERENCES:—I am personally acquainted with the above applicant and believe*.....*to be of good moral character, industrious, studious, and physically and otherwise capable.*

Name ..... *Name*.....

Position ..... *Position*.....

Address ..... *Address* .....

*References: Two are necessary and should be preferably by your teacher, pastor, or some public official.
This blank must not be used for enrollment in the *Reading-Course*. A card for that purpose will be sent on application.

This application should be mailed to Professor James E. Rice, Cornell University, Ithaca, New York

NEW YORK STATE COLLEGE OF AGRICULTURE AT CORNELL UNIVERSITY

IV. WINTER-COURSE IN HORTICULTURE

APPLICATION FOR ADMISSION

Name of applicant.....*Date of birth* .....

P. O.....*County* .....*State* .....

Name and address of parent or guardian, or person to be notified in case of serious illness or accident.....

.....

PREVIOUS SCHOOL TRAINING

Name of school last attended.....*No. of terms in attendance*.....

AMOUNT OF WORK DONE IN THE COMMON BRANCHES

.....

.....

REFERENCES:—I am personally acquainted with the above applicant and believe*.....*to be of good moral character, industrious, studious, and physically and otherwise capable.*

Name ..... *Name*.....

Position ..... *Position*.....

Address ..... *Address* .....

*References: Two are necessary and should be preferably by your teacher, pastor, or some public official.
This blank must not be used for enrollment in the *Reading-Course*. A card for that purpose will be sent on application.

This application should be mailed to Professor John Craig, Cornell University, Ithaca, New York

NEW YORK STATE COLLEGE OF AGRICULTURE AT CORNELL UNIVERSITY

V. WINTER-COURSE IN HOME ECONOMICS

APPLICATION FOR ADMISSION

Name of applicant.....*Date of Birth*.....

P. O.....*County* .....*State* .....

Name and address of parent or guardian, or person to be notified in case of serious illness or accident.....

.....

PREVIOUS SCHOOL TRAINING

Name of school last attended.....*No. of terms in attendance*.....

AMOUNT OF WORK DONE IN THE COMMON BRANCHES

.....

.....

REFERENCES:—I am personally acquainted with the above applicant and believe*.....*to be of good moral character, industrious, studious, and physically and otherwise capable.*

Name ..... *Name*.....

Position ..... *Position*.....

Address ..... *Address* .....

*References: Two are necessary and should be preferably by your teacher, pastor, or some public official.
This blank must not be used for enrollment in the *Reading-Course*. A card for that purpose will be sent on application.

This application should be mailed to Department of Home Economics, Cornell University, Ithaca, New York

Students will be received in this course between 8:30 A.M. and 12M., or 2 and 5 P. M., Tuesday, November 29th, in Room 102, first floor of the Dairy building. They should report at once after registering with the Secretary (page 9). At 5 P. M., there will be a meeting of students and teachers in the lecture-room of the Dairy building.

Instruction begins at 8 A. M., Wednesday, November 30th. Instruction ends Friday afternoon, February 24, 1911.

General fee (to pay partially for materials used)	$15.00
Laboratory deposit (part of it returnable)	4.00
Books, about	5.00
Use of two white suits with caps and aprons	1.50
One suit blue overalls, about	1.00

Special Expenses

Five dollars of the general fee must be paid as soon as the application is accepted, see p. 8. Names of students will be entered in the order of these payments.

Books, note-books, and blue overall suits can be purchased at reasonable prices in Ithaca. The white suits for use in the creamery are furnished by the Department.

Methods of Instruction

Instruction is partly by lectures and recitations, but largely by actual practice in the different kinds of dairy work. The class assembles daily at 8 A. M., and the class-room work continues two hours. The students are then assigned by sections or squads to different kinds of practice for the remainder of the day. These assignments are so made that in the course of the term each student will have a due proportion of work in the different departments.

Lectures and Recitations

These are given in one-hour periods. Frequently they are replaced by examinations and often a part of the hour is occupied by informal discussions of previous lectures or topics previously assigned for study. The subjects of the required lecture courses and the approximate number of hours given to each are as follows:

20. Milk and Its Products.—This course is given from 8 to 9 A. M. daily from Monday to Friday each week. It includes a full description of the

secretion or formation of milk, its nature, composition, and methods of testing, its care and preservation, the manufacture of different dairy products, conditions affecting their quality, methods of marketing, the business side of dairying, the construction of dairy buildings, and the legal requirements applying to dairy products. Special attention is given to dairy bacteriology and dairy sanitation. The lectures are supplemented by references to dairy literature,—current periodicals, experiment station publications, and books. Lectures, five hours a week. Professor STOCKING, Assistant Professors ——— and ROSS, and Mr. GRIFFITH.

3b. **Animal Husbandry—Feeds and Feeding.**—This subject includes the principles and practice of compounding and feeding the most economical rations. Three hours a week, two hours of lectures and one hour of practice. Professor WING and Assistant Professor SAVAGE.

21. **Dairy Mechanics.**—The care of the boiler and engine, construction of separators, installation of shafts and pulleys, pipe-fitting, belt-lacing, soldering, etc. Lectures, one hour a week. Mr. H. L. AYRES.

22. **Dairy Chemistry.**—The elementary principles of chemistry are explained with a view to enable the student better to understand the composition of dairy products and the chemical changes connected with and influencing certain dairy operations. Lectures, three hours a week, the first three weeks of the term. Mr. TROY.

23. **General Agriculture.**—Under this heading are included several brief courses of lectures upon subjects intimately related to dairy industry, such as farm manures, commercial fertilizers, and the improvement of the land by judicious cropping. Lectures, three hours a week, the last nine weeks of the term. Professors STONE, CAVANAUGH, WARREN and others.

12. **Diseases of Dairy Cattle, and Veterinary Hygiene.**—This course will include a discussion of the most common diseases of dairy cattle, their prevention and remedies, stable ventilation, and general questions of animal hygiene. Lectures. Dr. UDALL, and special lectures by Dean MOORE and Dr. WILLIAMS.

Practice

All class-room work is supplemented by laboratory or practical exercises as follows:

30. **Butter.**—The creamery contains numerous styles of the apparatus found in a well-equipped commercial plant. The milk is received, weighed, sampled, and separated, and the entire processes of cream ripening and churning are carried through in the most approved manner. Special attention is given to pasteurization and the use of starters. Every step of the work is performed by students under the close supervision of the instructor. Mr. GRIFFITH and Mr. W. E. AYRES.

31. **Cheese.**—The cheese-room is equipped with all necessary apparatus for making cheddar cheese such as is used in large factories. All the work is performed by students and every step is carefully observed and reported by

them on blank forms provided for the purpose. Special attention is given to judging the quality of milk for cheese-making and the cheese when ready for market. Assistant Professor ——— and Mr. DUTTON.

32. **Fancy Cheese.**—A study of a few varieties of fancy cheese. Assistant Professor ———.

33. **Market Milk.**—The University operates a milk route and students are given practice in preparing and bottling milk and cream for retail trade. Quick and accurate methods for standardizing milk and cream are taught. Assistant Professor ROSS.

34. **Testing.**—The testing laboratory is fitted with all appliances necessary for making the usual quick tests of milk and its products, including lactometers and a variety of Babcock testers. Each student is expected to become familiar with the Babcock method of determining fat, the calculation of total solids, and the more simple tests for preservatives and adulterations. Mr. TROY.

35. **Dairy Mechanics.**—The student is given opportunity to learn the construction of the boiler and engine, to care for them, to take separators entirely apart and to set them up again, to repair pipes, solder, lace belts, etc. Mr. H. L. AYRES.

36. **Arithmetic and Bookkeeping.**—A thorough drill is provided in simple problems, such as are constantly arising in all kinds of dairy work; and in the keeping of factory accounts. Assistant Professor ROSS.

37. **Dairy Bacteriology.**—Elementary laboratory work will be given during the term. Professor STOCKING and Mr. COOK.

Certificate of Proficiency

Upon the successful completion of the Dairy-Course, a student may become an applicant for a Certificate of Proficiency under the following general terms and conditions:

"A person who has passed one full term in attendance upon the Dairy-Course and has satisfactorily passed all of the examinations required of him, may become a candidate for a Certificate of Proficiency in the kind of work in which he is engaged.

"Such a candidate must spend one full year, as manager or first man, in work at an approved creamery, cheese factory, market-milk plant, or farm dairy. He must report regularly, upon blanks furnished for the purpose, such information in regard to his work as may be required, and he must have his work in readiness for inspection at any time.

"On satisfactorily completing these requirements, a certificate will be granted. Under certain conditions a longer period than one year's work may be required."

Positions

The College does not agree to find positions for all students registered in this course, but it has opportunity to recommend students for a large number of positions. Thus far it has been difficult to supply all the places that the College has been asked to fill.

Previous experience in a well-conducted dairy is strongly advised for those who come to the College expecting to be recommended for positions. Many students who have taken the Dairy-Course have secured an increase in their salary during the following season sufficient to pay the entire cost of the course. Such results are not guaranteed, but they are not uncommon, and they prove that there are excellent opportunities in the field of dairy industry.

A SPECIAL ONE-WEEK COURSE FOR FACTORY AND CREAMERY MANAGERS

Beginning Wednesday, March 1, 1911, and closing Wednesday, March 8, 1911

This course is intended for managers of creameries and factories who cannot be absent from their business for any considerable time, but who wish to come back to the College to get the latest knowledge in their special line of work. All the regular branches of cheese-making and butter-making will be taught and special attention will be given to the use of the moisture and Babcock tests, creamery over-run, construction of factory and creamery buildings, drainage and water supply, commercial starters, relation of bacteria to dairy products, market milk, dairy inspection, judging dairy products, keeping factory accounts, etc.

Requirements for Admission, and Expenses

The only requirement for admission to this one-week course is that the applicant shall have had at least one year of experience as manager of a factory or creamery.

The only fee will be five dollars, payable at the time of registration. This covers the use of white suits, apparatus, and materials required in connection with the laboratory and practice work.

For cost of board and other expenses, see page 6.

For further information regarding instruction in Dairy Industry, address

W. A. Stocking, Jr.,
Professor of Dairy Industry

III. POULTRY HUSBANDRY

The Winter-Course in Poultry Husbandry is one of the means by which the College of Agriculture endeavors to meet the needs of the young farmers of the State. It is intended also to supply the large and growing demand for trained poultrymen to take charge of poultry plants owned by others. While it is manifestly impossible to give, in twelve weeks, full preparation for so exacting a business as poultry-keeping, this course will give the student a good start in the right direction, enable him to avoid many mistakes, give him facts and principles of value gleaned from the life-long experience, study, and observation of others, and fill him with enthusiasm for his life work and a determination to make the best use of his natural abilities and opportunities.

After registering with the Secretary (page 9), students should report at once at the office of the department in the Dairy building (Room 119, first floor) where they will receive their assignments at 8:30 A. M., and 2 P. M., Tuesday, November 29, 1910. A meeting of all Poultry-Course students and the staff of the Department will be held at 5 P. M., Tuesday, November 29. Instruction will begin at 8 A. M., Wednesday, November 30 and will end Friday night, February 24, 1911.

Special Expenses

Laboratory fee (partially to cover cost of materials used)	$7.50
Laboratory deposit (part of it returnable)	2.50
Books (to be retained by the student)	5.00
Suit of work-clothes (to be purchased in Ithaca)	1.25

The estimated expenses, aside from above, are: Board, about $50.00; room (two rooming together), about $18.00; excursions, about $10.00.

Required Subjects

37. **General Poultry Lectures.**—These lectures include discussions of subjects of special interest to poultrymen; opportunities in poultry husbandry; advantages and disadvantages of various kinds of poultry-keeping; laying out and estimating the cost of poultry plants; poultry farm management; history and characteristics of the breeds; feeding for egg production and for flesh; incubating; brooding; feeding chickens; caponizing; mating and breeding; planning and building poultry houses. Lectures, text-book,

and recitation, five hours a week. Poultry laboratory in Dairy building, 11 to 12. Professor RICE and Assistant Professor ROGERS.

37a. Special Non-Resident Lecturers.—From time to time special lectures are given to the Winter-Course students by experts from other colleges and experienced poultrymen who have made a marked success of some special line of poultry husbandry.

37b. Special Resident Lecturers.—The Poultry Department is fortunate in being able, through the courtesy of the New York State Veterinary College, to avail itself of the expert services of several eminent teachers. Their lectures, together with those of several other experts from other departments in the College of Agriculture, furnish a course of one lecture a week during the entire twelve weeks.

38. Afternoon Practice.—This course consists in planning and studying poultry buildings and colony houses; laying out poultry plants; making egg crates, shipping coops, and trap nests; selecting fowls for mating; killing, dressing, packing, and marketing poultry; caponizing; study of the egg; anatomy of poultry; study of poultry feeds; fitting fowls for exhibition. Professor RICE, Assistant Professor ROGERS and Mr. HURD.

39. Feeding and Management Practice.—Each student is assigned a flock of 25 or 30 fowls, and performs all of the daily operations in caring for it, keeping accurate accounts of the cost of food, gain or loss in weight, temperature of houses, time required to do the work, and the profit or loss. Practice is also given in crate fattening. In addition to this, he takes his turn in doing all of the different kinds of work about the poultry plant, including the handling of gasoline engines, power bone-cutters, feed-mills, corn-sheller, etc. Practice, one and one-half hours each day, morning, noon, and afternoon, for six weeks. Mr. KRUM and Mr. HURD.

40. Incubator and Brooder Practice.—The student operates an incubator and gives a complete record of his work and of the results secured. At the conclusion of each hatch, the results of the hatch from each of the incubators are tabulated so that the various machines can be compared, and the fertility, hatching power of the eggs, and the vigor of the chicks from the different pens can be observed.

The season of the year makes it impracticable to give systematic practice in brooding chickens. Whenever the student cannot be assigned a brooder with chickens, demonstration work is given. The brooder work includes the operation of the New York State gasoline-heated colony house, where 200 to 300 chickens are kept in one flock; also a pipe-system brooder-house and several types of outdoor brooders.

Practice, one and one-half hours each day, morning, noon, and afternoon. Mr. FINCH and Mr. ———.

42. Systematic Reading.—This is intended to supplement the lectures. One forenoon each week is set apart in which the students can devote themselves to special reading along the lines in which they are interested. Miss NIXON.

43.—**Drawing.**—Two hours each week are spent in drawing plans of poultry houses, incubators, and brooders. Assistant Professor ROGERS and Mr. BENJAMIN.

Excursions.—One or more excursions will be taken to near-by poultry farms and to a large poultry show where student contests will probably be held. These excursions are not required but every student is urged to take them.

Observations.—The students have the added advantage, while taking the Poultry-Course, of observing the results of the large number of investigations with poultry which are being conducted at the University poultry plant. These include a comparison of types of houses, methods of feeding, breeding, trap-nesting, incubating, brooding, etc.

Examinations

Examinations, both written and oral, are held frequently during the term. Drawings of poultry buildings, incubators, trap nests, etc., are made. Several themes are written on poultry topics. Written reports of observations made during excursions and of the daily practice work are required of each student. On these and the student's general conduct, his sincerity, accuracy, honesty, promptness, and ability to work, is based his final standing.

Prizes

Through the kindness of former students in poultry husbandry and friends of the College, a long list of prizes is provided each year for students in this course. They are awarded for excellence in some phase of the work, as for best judging, scoring, picking, fitting, drawing poultry houses and farm plans, class record, and the like. These prizes have created valuable friendly competition among the students.

Certificate of Proficiency

Upon the completion of the required course, 15 hours, a student in poultry husbandry may become an applicant for a certificate signed by the Director of the College and the Professor of Poultry Husbandry, under the following terms and conditions:

"A person who has completed one full term in attendance on the Poultry-Course, and has satisfactorily passed all of the examinations required of him, may become a candidate for a certificate in Poultry Husbandry.

"Such a candidate must spend one full year in successful work at an approved poultry plant. He must report regularly, upon blanks furnished for the purpose, such information in regard to his work as may be required, and he must hold his plant in readiness for inspection at any time.

"Upon satisfactorily completing these requirements, a certificate will be granted. Under certain conditions a longer period than one year of practical work may be required."

Positions

While the College of Agriculture does not guarantee to secure positions for students who complete the Poultry-Course, every effort is made to help capable and worthy students to secure places of responsibility best suited to their respective qualifications. Usually the demand for young men who have completed the Poultry-Course has been greater than the supply. This is particularly true of the better positions, in which managers or superintendents are wanted to take charge of poultry farms. The salaries obtained by students, after completing the course, range from $25 to $75 per month with board and room, the average being about $40. Students who have not previously had considerable farm or poultry experience cannot, as a rule, be recommended to positions of responsibility until they have spent a season on an approved poultry farm.

For further information regarding the Poultry-Course, address

James E. Rice,
Professor of Poultry Husbandry

IV. HORTICULTURE

Each year since the establishment of the Winter-Courses, the demand for special instruction in fruit-growing and gardening has increased. The opportunities for profitable fruit and vegetable-growing on the comparatively cheap lands of the East and within easy reach of the great markets, are attracting capital and energy. It is in response to this general demand and these opportune conditions that a Winter-Course in Horticulture is offered. The various studies included in this course are intended to help the fruit-grower and gardener to manage his orchards and gardens better than in the past; to fit those who have had some experience for positions of responsibility; to give the beginner the salient principles and

acquaint him as far as possible with the best practices of commercial and amateur fruit-growers and gardeners the country over.

Equipment

Practically the same facilities are available to the Winter-Course student as to the student in the regular course. The well selected library, and the equipment of the forcing-houses, including plants, work-rooms, spray pumps, and implements, are used in conducting the work of instruction.

The course is made up of lectures, recitations, and practice. Special stress is laid on the practice.

Registration

All students register in Room 202, second floor of Main building, at 8:30 A. M., November 29, 1910. They should report at once after registering with the Secretary (page 9).

Special Expenses

General laboratory fee	$7.50
Books, about	5.00
Work-suit	1.50

Required Subjects

All students in this course, except those who have previously completed satisfactorily the Winter-Course in General Agriculture, are required to take the subjects that follow. Those who have completed the Winter-Course in General Agriculture will not be required to take again subjects in which they have already passed. They should consult the professor in charge concerning substitutes for any of the subjects.

60. Commercial Fruit-Growing.—A survey of the principles and practices of fruit-growing with reference to orchard management, handling, packing, storing, transplanting, and marketing of orchard products. Seven hours. Five hours a week of lectures and two afternoons a week of practice. Professor WILSON and Mr. ANTHONY.

61. Vegetable Culture.—A study of the growing and marketing of vegetables for special and general market. Lectures and exercises, three hours a week. Mr. WORK.

62. Principles of Plant Culture.—This course is designed to give the student an elementary understanding of the structure and function of plants, with special reference to growth and reproduction. Two hours a week, one hour lecture and one hour laboratory. Professor CRAIG and Mr. FROST.

1. Fertility of the Land.—(For description of this course, see page 13). Lectures, two hours a week. Professor CAVANAUGH.

There are thus fourteen hours a week of required work in this course. Students may elect, with permission of the instructor concerned, four hours a week additional, by taking some of the following courses or choosing from those given on pages 14 and 15.

Elective Subjects

10. Economic Entomology.— For description of this course, see page 15. Lectures, one hour a week. Assistant Professor HERRICK.

11. Plant Diseases.— For description of this course, see page 15. Three hours a week, one hour lecture and two hours laboratory practice. Professor WHETZEL and Mr. BARRUS.

63. Horticultural Reading.—Assignment of topics for abstracts and reports in standard works, bulletins, and current periodicals. Two hours a week. Mr. BEAL.

64. Floriculture and Greenhouse Practice.—A study of the growing and marketing of greenhouse crops. Designed to familiarize the student with the ordinary greenhouse operations. Lectures and exercises three hours a week, two lectures and one laboratory period. Mr. BEAL and Mr. COSH.

6. Rural Improvement.—A course of six lectures, commencing after the Christmas recess, dealing with questions of rural improvement, such as will enable the farm boy to get a point of view in rural art in general, together with specific hints for working out some of his home problems. Assistant Professor FLEMING.

3. Extension Work. For description of this course, see p. 15. Lectures and discussions, one hour a week. Professor TUCK.

Prizes

Attention is called to the fruit-judging contest at Rochester under the auspices of the Western New York Horticultural Society. The following prizes were offered last year by the society: first prize, ten dollars ($10); second prize, five dollars ($5). (See Report Western New York Horticultural Society for 1910, page 202.)

Certificates

These are available to those who complete in a satisfactory manner, the required courses, as previously outlined, and who subse-

quently spend one full summer season in active work upon a fruit farm. A statement of the season's work, approved by the proprietor of the establishment, and satisfactory to the Professor of Horticulture, is required.

Positions

The Department of Horticulture does not agree to find positions for all students in the Winter-Course in Horticulture. The Department takes pleasure, however, in recommending men for positions of responsibility on the following conditions: (1) The student must be of good moral character; (2) his previous record must be good; (3) his work in the Winter-Course must be satisfactory; (4) his college courses must be supplemented by practical experience.

Those who desire additional information should apply to

JOHN CRAIG,
Professor of Horticulture.

V. HOME ECONOMICS

A Winter-Course in Home Economics has been established in the New York State College of Agriculture, the main object of which is to furnish scientific training in the subjects pertaining to the home.

Special attention will be given to household sanitation, the selection and preparation of foods, problems of nutrition, house construction and decoration, and household management. The instruction is of interest to both men and women in so far as both are concerned with the problems of the right maintenance of the home. The aim of the course is to increase efficiency in household administration, to give the breadth of view and interest which come with intelligent labor, to teach not only how to do the work, but also why it should be done. It is believed that with a scientific knowledge of housekeeping, no occupation affords a larger field for interesting effort.

For three years past, some of the students in the course have been women who found it possible to accompany another member of the family who had come to attend one of the other Winter-Courses. Some have combined with the Home Economics Course, instruction in another of the Winter-Courses.

In order to keep a proper social balance in a community, farm girls should be given social and educational opportunities equal to those given the boys. Their household problems are as scientific

as the outside problems of the farm. The farm home rises no higher than its women, hence one of the Winter-Courses offered at the College is intended to prepare women for their task in life. The equipment for instruction in this course is the same as that for the longer courses in Home Economics. A well-equipped laboratory is provided for practical instruction in foods. Library privileges are extended to the members of the class.

Persons over seventeen years of age are admitted to the Winter-Course in Home Economics. No entrance examinations are required.

Registration is at 10 A. M., November 29, in Room 402, fourth floor of the Main building. Students must first present themselves at the office of the Secretary for registration, (page 9).

Special Expenses

A food laboratory fee of $5.00 is required to cover the cost of materials used. Those taking the Domestic Art course will be charged a fee of $1.00, and $1.50 additional for chart. From $3 to $5 should be allowed for the purchase of books and thermometer.

Required Subjects

1. **Foods.**—This course will include a study of food composition, food values, methods of selection, preparation and preservation of food materials, principles of nutrition, dietaries, care and feeding of children. Laboratory work will be given for application of the above principles and will include practice in preparation of food and in serving. Lectures, four hours a week, and two three-hour laboratory periods a week. Miss ROSE and Miss BAILEY.

2. **Household Sanitation.**—The lectures in this course include a discussion of the sanitary conditions of the house and site; conditions for health and care of sick; the relation of bacteriology to the household in cleaning, in the preservation of foods, in disease, in disinfection. Lectures, five hours a week. First half of term. Miss VAN RENSSELAER.

3. **Household Management.**—This course includes a study of the family income, cost of living, household accounts, problems of domestic service, methods of housekeeping, equipment, marketing. Lectures, five hours a week. Second half of term. Miss VAN RENSSELAER.

4. **House Planning and Decoration.**—An elementary course for the developing of economic house plans in accordance with architectural principles. Besides the work of drawing plans, the course includes discussions of the building site, building materials, elements of construction, laying out of the grounds, and criticisms of interior design. The lectures of this course will apply principles of color and design to questions of interior decoration and

furnishing. Students experiment with color combinations for decorative schemes, and with textile combinations for curtain-stuffs, wearing apparel, etc. Lectures, three hours per week. Mrs. Young.

5. **Sewing and Drafting.**—This course includes several laboratory classes each week with instruction in sewing, cutting, and fitting garments.

Elective Subjects

In addition to the courses outlined in Home Economics, opportunities are open to women to receive instruction in dairying, poultry husbandry, gardening, and extension work. Practical instruction may thus be had in milk and its products; feeding, care, and marketing of eggs and fowls; diseases of fowls; commercial fruit-growing, vegetable-culture, floriculture, and ornamental gardening; public speaking. Women enter the regular classes in these subjects; but if a sufficient number desire work in home dairying, a special class or section may be organized.

Certificates

At the close of the Winter-Course, certificates are granted to those students who have completed the required work satisfactorily.

Correspondence regarding the course in Home Economics should be addressed to

Department of Home Economics,
Ithaca, N. Y.

OTHER WORK OF THE COLLEGE OF AGRICULTURE

In addition to offering the Winter-Courses, the New York State College of Agriculture at Cornell University is endeavoring to serve the agricultural interests of the State by the following and by other means:

The Four-Year Course in Agriculture.—This course is of equal academic rank with other courses in the University. It offers a thorough theoretical and practical training in agricultural and country-life subjects. The equivalent of a high school training is necessary for admission. A program will be sent on application to the Secretary, College of Agriculture.

Rural Art Course, comprising the junior and senior years in the four-year course, providing instruction in landscape gardening and related subjects.

Home Economics Course, for women, comprising the last two years of the four-year course.

Special Work in Agriculture.—Special students take whatever studies will be most valuable to them in the various departments, as far as they are qualified to pursue them. This opportunity to pursue special work is provided especially for those who wish to fit themselves for practical farming but cannot take a four-year course. About two years can be spent profitably in such work. In the admission of special students, each case is judged on its own merits. Persons desiring to enter as specials must be at least 18 years of age, and must submit a full statement of school and other experience, together with references. No non-resident of New York State under the age of twenty-three, is admitted as a special student unless he can meet in full the requirements for entrance to the regular course.

Nature-Study Special Course.—A two years' course for those who desire to prepare themselves to teach elementary agriculture and nature-study. Open to teachers or to students in the University who are preparing to teach.

Farmers' Reading-Course.—For those who are unable to leave their work but desire to learn. Practical bulletins on agricultural subjects are sent to the reader and correspondence is encouraged. Free to persons residing in New York. Address, Farmers' Reading-Course, College of Agriculture.

Farmers' Wives' Reading-Course.—Similar to the above, but the bulletins discuss household economy, cooking, home furnishing, etc. Address, Farmers' Wives' Reading-Course, College of Agriculture.

Nature-Study Agriculture.—Extension work for teachers and pupils, particularly in the rural schools. Two publications are issued in the interest of this work: Home Nature-Study Course, quarterly, Cornell Rural School Leaflet, monthly, for pupils, with a Supplement for teachers. Address, Bureau of Nature-Study, College of Agriculture.

The Agricultural Experiment Station issues bulletins on agricultural subjects which are sent free to residents of New York. Back numbers of some issues are available. Address, Superintendent of Mailing Rooms, College of Agriculture.

Co-operative Experiments in Agriculture.—The college co-operates with farmers in making demonstrations on their land that will be of direct practical value to them.

Correspondence and co-operation are solicited on any of these various enterprises. For information, address L. H. Bailey,
Director of the College of Agriculture,
Ithaca, N. Y.

OFFICIAL PUBLICATIONS OF CORNELL UNIVERSITY

Issued at Ithaca, N. Y., monthly from July to November inclusive, and semi-monthly from December to June inclusive.

(Application for entry as second class matter at the post office at Ithaca, N. Y., pending.)

These publications include the annual Register, for which a charge of twenty-five cents a copy is made, and the following publications, any one of which will be sent gratis and post-free on request:

General Circular of Information for prospective students,
Announcement of the College of Arts and Sciences,
Courses of Instruction in the College of Arts and Sciences,
Announcement of Sibley College of Mechanical Engineering and the Mechanic Arts,
Announcement of the College of Civil Engineering,
Announcement of the College of Law,
Announcement of the College of Architecture,
Announcement of the Medical College,
Announcement of the New York State College of Agriculture,
Announcement of the Winter Courses in the College of Agriculture,
Announcement of the New York State Veterinary College,
Announcement of the Graduate School,
Announcement of the Summer Session,
The President's Annual Report,
Pamphlet on prizes, samples of entrance and scholarship examination papers, special departmental announcements, etc.

Correspondence concerning the publications of the University should be addressed to
The Registrar of Cornell University,
Ithaca, N. Y.

OFFICIAL PUBLICATIONS
OF CORNELL UNIVERSITY

VOLUME 1 NUMBER 3

COLLEGE OF ARTS AND SCIENCES

ANNOUNCEMENT OF THE DEPARTMENT OF CHEMISTRY 1910-11

OCTOBER, 1910
PUBLISHED BY CORNELL UNIVERSITY
ITHACA, NEW YORK

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Special Lecturers

Aside from the regular instruction a number of special lectures are given either under the auspices of the Department or before the Cornell Section of the American Chemical Society. The lecturers in 1909–10 were:

Brainerd Dyer, - - - - - - Cleveland, Ohio
Materials and Processes used by the National Carbon Company.

Clarence Floyd Hirshfeld, B.S., M.M.E., - - - Cornell University
Some Problems of the Gas Engineer.

James George Needham, B.S., Ph.D., - - Cornell University
Some New Developments in Limnology.

Henry Neely Ogden, C.E., - - - - - Cornell University
Disposal of Sewage.

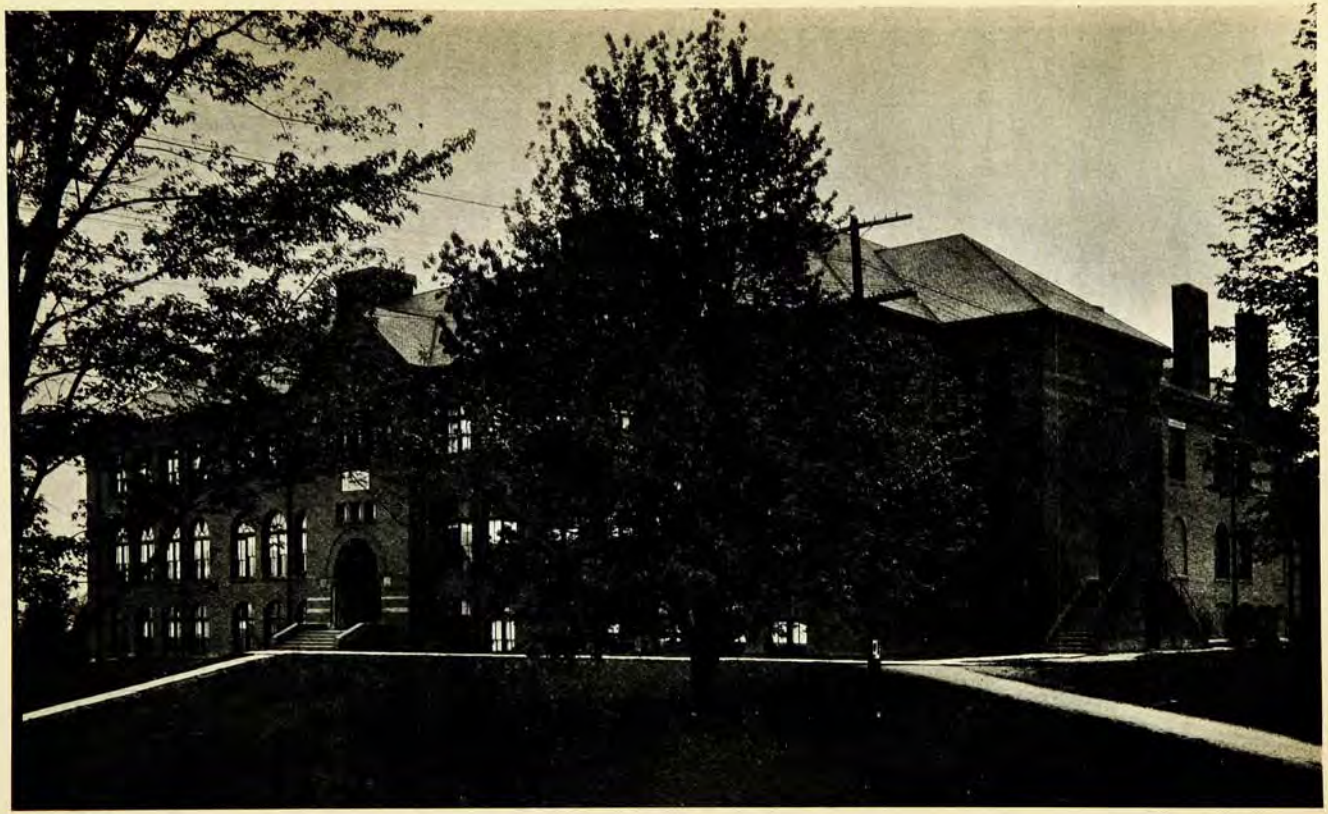
John Sandford Shearer, B.S., Ph.D., - - - Cornell University
Measurement of High Temperatures by Various Pyrometers.

John Edgar Teeple, B.S., Ph.D., - - - - - New York
Sulphuric Acid by the Lead-Chamber Process (Five Lectures).
Sulphuric Acid by the Contact Process (Two lectures).
Wood Distillation (Three lectures).
Chemical Resources of the United States.

GENERAL EQUIPMENT AND METHODS OF INSTRUCTION

The Chemical Laboratory

The laboratory, Morse Hall, consists of two buildings, with floor space of over 74,000 square feet. The buildings are connected by corridors on each floor. The laboratory contains four lecture rooms, one seating three hundred and ninety students, another eighty, and each of the others sixty-two. These rooms are furnished with all necessary appliances for the illustration of lectures by experiment and by lantern projection, and are provided with adjacent preparation rooms. For elementary work in inorganic chemistry and in qualitative and quantitative analysis, there are three large laboratories containing in the aggregate places for eight hundred and fifty students working in sections. In addition to these are two rooms for organic chemistry and a research laboratory for advanced work in that field, a special laboratory for micro-chemical analysis, two for bacteriological work in connection with the analysis of water and foods, one room for distillation in water and food analysis, three rooms for assaying, two with northern exposure for gas analysis, a fire-proof room for work with highly inflammable substances, a laboratory for organic ultimate analysis by combustion provided with powerful ventilation and with special balances, a hydrogen sulphide room connected with strong fan exhaust for work with noxious gases, an electric furnace laboratory, a large room for advanced inorganic chemistry, together with two smaller ones for research work in this field, a room for spectroscopic chemical analysis with a photographic dark room and a mercury-pump room adjoining, a large laboratory for elementary work in physical chemistry, one for electrochemistry, one for undergraduate research, one for graduate work, and a large room for advanced work in agricultural chemistry. The student laboratories contain in the aggregate places for one thousand and sixty students working in sections, or four hundred and fifty students working at once. In the sub-basement there are two constant temperature rooms, a dynamo room containing motors and a high pressure blower for air blast, a room for the storage of ores, two others for the storage of highly inflammable chemicals, and a number of stock rooms. A general supply room from which all students draw their chemicals



South Hall

MORSE HALL—THE CHEMICAL LABORATORY

North Hall

and apparatus for use in their work is situated on the main floor of the building. There are eleven private laboratories for professors and instructors. The laboratory of the Agricultural Experiment Station is also situated in Morse Hall. Distilled water is conducted in block tin pipes to all of the more important rooms on each floor from a tin-lined tank in the upper story of each building. Air blast is conducted wherever required from a high pressure blower in the basement. The buildings are supplied with an alternating current of 2200 volts and with two direct currents of 500 and 110 volts. Lighter currents for electrochemical analysis and synthesis are furnished by storage batteries. With the aid of a motor generator, low voltage direct currents up to 2000 amperes may be obtained. The buildings are lighted with gas and electricity, heated by steam and thoroughly ventilated by forced draft. All working tables are provided with gas and water and most of them with blast and with suction pumps.

The Museum

The Museum contains collections for the illustration of lectures upon inorganic, organic, sanitary, and applied chemistry. These collections include specimens of the elements, their compounds, and the ores from which they are obtained, a complete collection of the most important organic compounds, and also specimens illustrating the leading chemical industries, such as the manufacture of the various acids, alkalies and salts, pigments, glass, pottery, soap, stearine and glycerine, and the chemical processes of metallurgy, bleaching, dyeing, and photography.

The Chemical Library

The Chemical Library, which is centrally located on the first floor of South Hall, contains complete sets of all of the more important journals and is very fully supplied with works of reference and with the standard books on chemistry and allied subjects. Such additions are made to it from year to year as are necessary to keep abreast of the times. It is accessible to all students, under such restrictions only as are necessary to secure it against injury or loss.

Introductory Inorganic Chemistry

The elements of inorganic chemistry are taught by lectures, laboratory work, and recitations from a text book. The lectures deal with the fundamental theories and laws of chemistry, and with the more common elements and their compounds. They are profusely illustrated by experiments. In so far as is

MORSE HALL WITH CAYUGA LAKE IN BACKGROUND

found practicable in an introductory course reference is made to important recent advances in the science, and in its industrial applications.

The laboratory work is designed not only to familiarize the student with the principles and facts of chemistry, but also to afford a thorough preliminary training in the construction and maniulatipon of laboratory apparatus. Students who have had a thorough high school course in chemistry are permitted to substitute a series of supplementary experiments for certain parts of the regular laboratory work. This supplementary course comprises instruction and practice in the principles of simple glass blowing, together with a large number of quantitative chemical experiments.

The recitations deal with the subject matter of the lectures and with the experimental work carried on in the laboratory. They also comprise thorough drill in the solving of chemical problems.

Advanced Inorganic Chemistry

Three courses of lectures in advanced inorganic chemistry are offered. One of these courses, extending throughout the year, comprises a general survey of the field and deals with the chemistry of both the rare and the common elements. A second course, extending throughout one term, covers selected topics in advanced inorganic chemistry, while a third is concerned with the chemistry of gases.

Advanced laboratory work in inorganic chemistry is offered both for students that desire to acquaint themselves with the preparation and purification of inorganic compounds and with the extraction of the rare elements from ores and minerals, and for those who desire to pursue investigation in this branch of chemical science. The equipment for research is very complete, and excellent facilities are available for investigation in any branch of the field that the graduate student may desire to take up under the direction of the professors in charge.

Qualitative and Quantitative Analysis

Two beginning courses are given in chemical analysis. These vary in scope and length, and are designed to meet the different needs of the students of chemistry and engineering.

Qualitative analysis begins with the study of the reactions of the elements and their compounds with different reagents. This is followed by the practical application of

the knowledge thus gained to the analysis of unknown substances both in the solid form and in solution.

The work in quantitative analysis comprises gravimetric and volumetric determinations together with the study of the chemistry of the operations involved. The work in the laboratory is supplemented by lectures and recitations, the latter including practice in writing chemical equations explanatory of the actual operation of analytical work.

Advanced Quantitative Analysis

For students intending to devote themselves chiefly to the study of chemistry an advanced course is provided in quantitative analysis, especially designed to give as wide an acquaintance as possible with analytical manipulation. This course comprises the determination of the more important elements; the analysis of ores, minerals and alloys; electro-chemical analysis; the ultimate analysis of organic substances; the analysis of iron and steel, slags, paints and varnishes, coal and coke, and a number of other commercial products.

A course of lectures upon selected topics in advanced quantitative analysis is also offered.

Assaying

The instruction in this subject consists of lectures and laboratory practice. The lectures comprise a complete and detailed discussion of the theory and practice of the scorification, crucible and wet assay. In the laboratory the student is given instruction in the scorification and crucible assay of silver and gold ores, mattes and bullion, and also in the wet assay of bullion and of the ores of copper, lead and zinc.

Spectroscopic Chemical Analysis and Colorimetry

The work in spectroscopic chemical analysis and colorimetry consists of lectures and laboratory practice. The lectures are devoted to a detailed discussion of the methods of optical analysis, especial attention being given to those methods involving the use of the spectroscope, colorimeter, polariscope, and refractometer. The laboratory work is intended to supplement the subject matter of the lectures and consists of practice in the manipulation of the above instruments in actual analyses. The spectroscopic laboratory is designed especially for optical work and the equipment includes the latest and most improved types of optical apparatus and accessories. Special opportunities are given for advanced work and research.

Lecture courses and laboratory courses are given in gas analysis and the subject taken up both from a scientific and from a technical standpoint. Within certain limits the regularly outlined laboratory courses may be modified to meet the needs of the individual student. The laboratories devoted exclusively to the analysis of gases are provided with a large collection of the standard forms of gas apparatus and special apparatus, and afford exceptional opportunities for advanced work and research.

Gas Analysis

An elementary course dealing with microchemical methods and planned to meet the needs of students specializing in chemistry, serves as an introduction to more advanced courses in inorganic and organic qualitative micro-analysis and the microscopy of foods and water.

Microchemistry

The course in microchemical methods deals with the application of the microscope and its accessories to the solution of problems arising in chemical practice, including micrometry and quantitative analysis by means of the microscope; methods for the preparation and examination of metallurgical materials, textiles and papers; and the handling, examination and analysis of minute amounts of material. Exceptional facilities are offered for the pursuance of advanced work and for research.

Two elementary courses are given in organic chemistry, one extending throughout the year, the other throughout the first half-year. The shorter course is intended for and required of students in medicine and is especially adapted to their needs. It may also be taken by other students who have had courses in inorganic chemistry and qualitative and quantitative analysis. The longer course is for students specializing in chemistry or for those who wish a more extended knowledge of the subject. The method of instruction is the same in both courses and consists of lectures, written reviews and laboratory work. The lectures are fully illustrated by experiments, by specimens of the compounds considered and by charts. Students are required to take careful notes on these lectures, and written reviews on the lectures and laboratory work are given every week. The laboratory work follows the lectures closely and comprises the preparation and purification of a large number of typical organic compounds and the detailed study of their properties, reactions and relations.

Organic Chemistry

South Hall

MORSE HALL FROM THE NORTHEAST

North Hall

The detection of different elements in organic compounds, and the recognition of various groups or radicals is also included in the laboratory work. The second year's work in organic chemistry consists of lectures on special chapters of the subject and of advanced laboratory work in the preparation and study of the more complicated compounds of carbon. Special courses of lectures are also given on the coal tar dyes and on the stereochemistry of the compounds of carbon and nitrogen. In all the advanced work constant reference is made to the original literature of the subject in the various chemical journals so as to familiarize the students with the classical investigations of the science. A course on the methods of organic analysis is also given in which the qualitative and quantitative analysis of commercial products and of mixtures of organic substances is taken up.

Physical Chemistry

An outline of the more important features of the physical aspect of chemical change is given in an introductory course of lectures in physical chemistry. This course aims to give a systematic presentation of modern chemical theory and to serve as an introduction to the other courses in physical chemistry. An advanced course of lectures is offered in which especial attention is paid to the Gibbsian phase rule and to a non-mathematical exposition of the mass law with its application to chemical equilibrium and reaction velocity. This course aims to cover the work that has not yet appeared in the text books and to give a critical survey of the field of physical chemistry in general. The first laboratory course covers the more important sub-divisions of the subject with a series of experiments that aim to illustrate the fundamental principles of the science. In the advanced laboratory courses the student may elect work on the mass law, reaction velocity, high temperature measurements, the study of alloys, or the application of physical chemical methods to organic chemistry. Opportunity is offered for investigation in the field of metallography and photography.

Electrochemistry

In electrochemistry a course of lectures is given in which emphasis is laid on the industrial aspects of the subject. Electrothermal processes, inorganic and organic synthesis by the electric current, electrochemical analysis and storage batteries are considered in this course. In an advanced course the theory of the voltaic

cell, the calculation and measurement of electromotive force, and electrochemical theories are considered in detail. Laboratory instruction in electrochemistry includes the preparation of compounds by electro-chemical and electro-thermal methods and a study of storage batteries.

Sanitary Chemistry and Toxicology

The laboratories devoted to sanitary chemistry and toxicology are exceptionally well equipped with the most modern apparatus both chemical and optical, and afford facilities for the microscopical study of preparations and materials obtained in the laboratory courses in food analysis. Provision is made also for research in water analysis, water purification and chemical bacteriology. A large collection of pure and adulterated food products supplies materials for those desiring to specialize in Board of Health work or in domestic economy.

The equipment for the study of toxicology is such as to permit of the detection and determination of the rarer as well as the common poisons of both organic and inorganic origin.

Agricultural Chemistry

An elementary course, consisting of lectures, laboratory practice and recitations, deals with the fertility of the soil, the relations of soils to plant growth, and the composition of plants and fertilizers. In the laboratory are studied the chemical and physical properties of soils and fertilizers. A series of elementary lectures is given for the winter course students. Two advanced courses are offered, one on dairy chemistry and one on the chemistry of plant and animal life.

A laboratory course in the chemical analysis of agricultural products extends throughout the year. Special attention is given to the methods of analysis recommended by the Association of Official Agricultural Chemists.

Seminary

A general seminary, attended by the members of the staff of instruction in the Department of Chemistry and by graduate students and seniors specializing in chemistry, meets every two weeks throughout the year. Members of the seminary report upon recent advances and upon selected topics in chemical science.

Research

The Department possesses unusual facilities for the prosecution of experimental research in the different branches of chemical science, and every encouragement is afforded for work of this nature.

COURSES OF INSTRUCTION OFFERED BY THE DEPARTMENT OF CHEMISTRY

INTRODUCTORY INORGANIC CHEMISTRY

1. **Introductory Inorganic Chemistry.** Lectures, recitations, and laboratory. Repeated in second term, credit six hours.

1a. Lectures. First term, T Th S, 11, Professor DENNIS and Mr. SUTHERLAND; M W F, 11, Professor BROWNE and Mr. SUTHERLAND. Second term, M W F, 11. Morse 1.

1b. Recitations (one hour a week to be arranged), and laboratory (two 2½ hour periods a week to be arranged). Professors DENNIS and BROWNE, Mr. WELSH, and Messrs. HOULEHAN, GAUB, FINK, HOLLINGSHEAD, NUNEZ, and ————.

Entrance credit in chemistry does not carry with it University credit in course 1. If a student entering the University from a preparatory school desires credit in course 1 he must pass an examination set by the department of chemistry. This examination is held both in New York City and in Ithaca on the same day in September as the entrance examination. University credit in course 1 that is obtained by passing this examination does not carry with it entrance credit in chemistry.

Examinations for those who were unavoidably absent from the term examination in course 1, and for those who have conditions to remove in this course, will be held at 2 p.m on the day before instruction begins in the fall, and also in the month of May at a date to be announced. No special examinations will be given at other times.

ANALYTICAL CHEMISTRY

6. **Qualitative and Quantitative Analysis.** Repeated in second term, credit five hours. Prerequisite course 1. Dr. LUNDELL, Mr. LEMON, and Messrs. RIEGGER, DILLON, WALKER, RHODES, UHLRICH, A. R. HITCH, and GIBBONS. Lectures, T Th, 12, Morse L. R. 1.

Laboratory sections: M W F, 2–5; T Th S, 8–11; T Th, 9–12.

Qualitative work: the properties and reactions of the common elements and acids and their detection in various liquid and solid mixtures.

Quantitative work: the preparation and use of volumetric solutions and work in elementary gravimetric analysis.

7. **Qualitative Analysis.** Second term, credit six hours. Prerequisite course 1. Dr. LUNDELL, Mr. LEMON, and Mr. ———. Lectures T Th, 9, Morse L. R. 3.

Laboratory, M F, 11–1; T Th, 2–5.

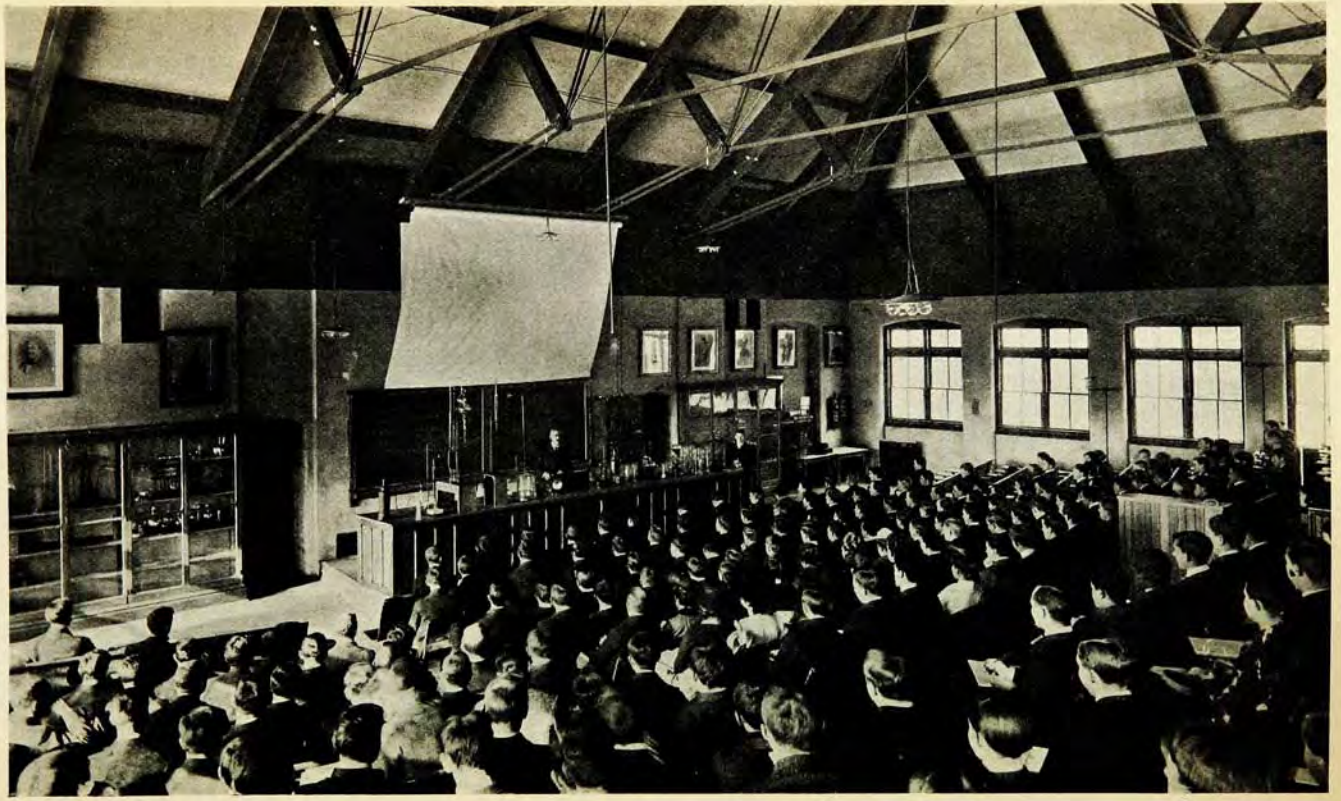
The properties and reactions of the common elements, and of the inorganic and organic acids, also the qualitative analysis of a number of solutions and solid mixtures.

Students in science are advised and those who are specializing in chemistry are required to take this course instead of course 6.

12. **Quantitative Analysis, Elementary Course.** First term, credit six hours. Prerequisite 6, or preferably 7. Dr. LUNDELL and Messrs. MARSH and KING. Lectures, T Th, 9.

Laboratory sections: T W Th, 2–5.30; W Th, 2–5.30 and S, 9–12.30.

The preparation and standardization of various volumetric solutions and their use in analyzing a variety of substances; gravimetric methods.



CLASS IN INTRODUCTORY INORGANIC CHEMISTRY

Students in science are advised and those who are specializing in chemistry are required to take this course instead of the quantitative analysis of course 6.

14. **Quantitative Analysis, Advanced Course.** Repeated in second term. Credit one to four hours. Prerequisite course 6, or 7 and 12. Dr. LUNDELL, and Messrs. MARSH and KING.

Laboratory sections: 1st term, M T W Th, 2–5.30; T S, 9–12.30; 2nd. term, M T W Th F, 2–5; T Th S, 9–12.30.

Gravimetric, volumetric, and electrolytic methods of analysis, and methods of combustion analysis; analysis of iron ores, iron and steel, slags, paints, lubricants, coal and coke, cements and cement materials, alloys, ores of copper, lead, zinc, mercury, manganese, tin, etc.

Designed for students that are specializing in chemistry, and as an elective for mechanical and civil engineering students.

15. **Quantitative Analysis, Advanced Lectures.** First term, credit two hours. Prerequisite course 6, or 7 and 12. Dr. LUNDELL. M W, 11, Morse, L. R. 3.

Selected topics in advanced quantitative analysis.

Designed for students that are specializing in chemistry.

17. **Spectroscopic Chemical Analysis and Colorimetry.** Second term, credit two hours. Prerequisite courses 6, or 7 and 12; Physics 1 and 6. Dr. SHETTERLY, and Messrs. WILSON and MILLER. Lectures, W, 11, Morse, L. R. 3.

Laboratory practice, (three actual hours) at hours to be arranged.

The lectures are devoted to a description of the instruments used in the laboratory and to a detailed discussion of spectroscopic methods.

The laboratory instruction includes the following work: the observation and mapping of emission spectra of various elements in the Bunsen flames the electric arc, and the electric spark; the qualitative analysis of mixture, and minerals by the use of the Krüss spectroscope and the direct vision spectroscope; the observation and mapping of absorption spectra; the examination and identification of rare earths and of organic dyes in solution by means of their absorption spectra; the calibration of spectroscopes; spectrum photography; and practice in the use of colorimeters, polariscopes, and refractometers of various types.

18. **Assaying.** First term, credit three hours. Prerequisite course 6, or 7 and 12, and if possible a course in mineralogy. Dr. LUNDELL and Mr. ————. Lecture, F, 10, Morse 2.

Laboratory sections: M W, 2–5; W F, 2–5; M F, 2–5.

Lectures on the theory and practice of the scorification and crucible assay, and on the metallurgy of copper, lead, zinc, silver, and gold. In the laboratory, practice is given in assay of zinc, lead, copper, gold, and silver ores, mattes, and bullion.

Designed for students that are specializing in chemistry, and as an elective for students in mechanical and civil engineering.

19. **Qualitative and Quantitative Gas Analysis.** Lectures. First term, credit one hour. Prerequisite courses 6, or 7 and 12; Physics 1 and 6. Dr. SHETTERLY. T, 9, Morse L. R. 3.

LABORATORY OF INTRODUCTORY INORGANIC CHEMISTRY

A detailed discussion of many representative types of apparatus employed by the gas analyst, and of the various methods of analysis involved in their use. Numerous simple problems are assigned which afford practice in the calculation and interpretation of the results obtained in the analysis of gases.

20. **Technical Gas Analysis.** First term, credit two hours. Prerequisite courses 6, or 7 and 12; Physics 1 and 6. Open to those who are taking course 19. Dr. SHETTERLY, and Messrs. WILSON and MILLER. Laboratory practice at hours to be arranged.

The analysis of gas mixtures with the apparatus of Honigmann, Bunte, Orsat, Lunge, and Hempel; the complete analysis of flue gas, illuminating gas, generator gas, acetylene, and air; the determination of the heating power of gaseous, liquid and solid fuels, and the analysis of various substances by gas analysis methods involving the use of the different types of gas evolution apparatus such as the nitrometers of Hempel, Lunge, and Bodländer. Within certain limits the work may be selected to suit the requirements of the individual student.

21. **Gas Analysis.** Advanced course. Repeated in second term, credit one to four hours. Prerequisite courses 1, 6 (or 7 and 12), 19, and 20; Physics 1, and 5 or 6. Professor BROWNE and Dr. SHETTERLY. Laboratory Practice at hours to be arranged, Morse.

Special topics in the field of either scientific or industrial gas chemistry. The course may be elected by seniors and graduate students in chemistry, and is open to seniors or graduates in mechanical engineering that are specializing in gas power work.

ORGANIC CHEMISTRY

30. **Organic Chemistry.** Throughout the year, credit six hours a term, Prerequisite courses 7 and 12. Professor ORNDORFF, Mr. NICHOLS, and Messrs. E. F. HITCH and CONKLIN. Lectures and written reviews, M W F, 9, Morse, L. R. 3.

Laboratory sections: M T, 1–5.30; F, 1–5.30 and S, 8–1. Morse 9.

The lectures and written reviews serve as an introduction to the general subject of the chemistry of the compounds of carbon. In the laboratory the student prepares a large number of typical compounds of carbon and familiarizes himself with their properties, reactions, and relations. The detection of inorganic elements in organic compounds and the recognition of various groups or radicals is included in the laboratory work.

31. **Organic Chemistry.** Throughout the year, credit three hours a term. Prerequisite courses 7 and 12. Professor ORNDORFF and Mr. E. F. HITCH. M W F, 9, Morse L. R. 3.

This course consists of the lectures and written reviews of course 30.

32. **Elementary Organic Chemistry.** First term, credit four hours. Prerequisite courses 1, 7, and 12, or the equivalent. Mr. NICHOLS and Mr. CONKLIN. Lectures, and oral and written reviews, M W F, 12, Morse L. R. 3. Laboratory Th, 2–5, Morse 10.

33. **Special Chapters in Organic Chemistry.** Throughout the year, credit two hours a term. Prerequisite course 30. Professor ORNDORFF. T Th, 9, Morse L. R. 2.

Especial attention is given to certain important chapters of organic chemistry. Frequent references are made to the original literature, and an attempt is made to acquaint the student with the classical researches in organic chemistry.

34. **Advanced Organic Chemistry.** Laboratory practice. Throughout the year. Open to those who have had 30 and are taking 33. Professor ORNDORFF and Mr. NICHOLS. Hours to be arranged. The laboratory is open daily, Morse 10.

The course in the preparation of organic compounds is here continued, the preparations, however, being more difficult and requiring more experience and skill on the part of the student. The original literature is consulted, and, before taking up original work in this field, the student is finally required to repeat some extended and important piece of work, and to compare his results with those published.

35. **The Coal Tar Dyestuffs.** First term, credit one hour. Open to those who have had 30 and have had or are taking 33. Professor ORNDORFF. Th, 12, Morse L. R. 3.

The coal tar dyestuffs have become so important, both theoretically and practically, as to justify their consideration in a separate course of lectures. The methods of making the dyestuffs, their properties, constitution and relations to each other are discussed, the treatment being scientific rather than technical.

36. **Stereochemistry.** Second term, credit one hour. Prerequisite course 30 or 31. Professor ORNDORFF. Th, 12, Morse L. R. 3.

The stereochemistry of the compounds of carbon and nitrogen. The necessity of considering the space relations of the atoms in certain classes of physical isomers is shown and the close agreement of the facts and theory is brought out.

37. **Methods of Organic Analysis.** Throughout the year. Prerequisite course 30. Professor ORNDORFF and Mr. NICHOLS. Hours to be arranged. The laboratory is open daily, Morse 10.

Designed for students that desire practice in the qualitative and quantitative analysis of commercial organic products such as alcohols, ethers, organic acids, glycerin, formalin, acetates, coal tar distillates, petroleum products, soaps, acetanilid, etc.

INORGANIC CHEMISTRY

[46. **Inorganic Chemistry.** Advanced course. Throughout the year, credit two hours a term. Prerequisite course 30 and open to those who have completed or are taking course 50 and 51. Professor DENNIS.

The chemical elements are discussed in the order in which they occur in the Periodic Law of Mendeleéff, and special attention is paid to the group properties of the elements and to the relations of the groups to one another. The rare elements and the rare earths are treated in as great detail as are the more common elements.] Not given in 1910–11.

47. **Advanced Inorganic Chemistry.** Laboratory practice. Throughout the year. Prerequisite course 30. Professors DENNIS and BROWNE and Mr. ANDERSON. Morse 68.

The preparation and purification of inorganic compounds and the extraction of the rarer elements from ores and minerals.

Course 47 is designed to accompany course 46, but either course may be taken separately.

48. **Selected Topics in Advanced Inorganic Chemistry.** First term, credit one hour. Prerequisite course 30. Courses 50 and 51 should either precede or accompany 48. Professor BROWNE. Th, 11, Morse L. R. 3.

Experimental lectures, dealing chiefly in 1910–11 with the hydronitrogens and their derivatives.

Open only to seniors and graduate students in chemistry.

49. **Chemistry of Gases.** First term, credit one hour. Prerequisite course, 6, or 7 and 12, and should be preceded or accompanied by 19 and 20. Professor BROWNE. T, 11, Morse L. R. 3.

The preparation, properties, and reactions of a large number of gases are discussed, and in many cases are illustrated by experiments. The various generalizations concerning gases are considered, not only in the light of their scientific value, but also to some extent from the point of view of their application to the practical problems of the gas chemist and of the gas engineer. The course may be elected by juniors, seniors, and graduate students in chemistry, and is open to seniors in mechanical engineering who intend to specialize in gas power work.

PHYSICAL CHEMISTRY

50. **Introductory Physical Chemistry.** Throughout the year, credit three hours a term. Prerequisite courses 30 and Physics 14. Dr. WHITE. M W F, 9, Morse L. R. 4.

A systematic presentation of modern chemical theory. Especial attention is paid to the theory of solution, reaction velocity, catalysis, chemical equilibrium, and to the application of the principles of physical chemistry to chemical practice.

51. **Physical Chemistry Laboratory.** Throughout the year, credit three hours a term. Open only to those who have taken or are taking course 50. Dr. WHITE and Mr. BRIGGS. Two laboratory periods a week: M T, 2–5; F, 2–5, S, 9–12. Morse 77.

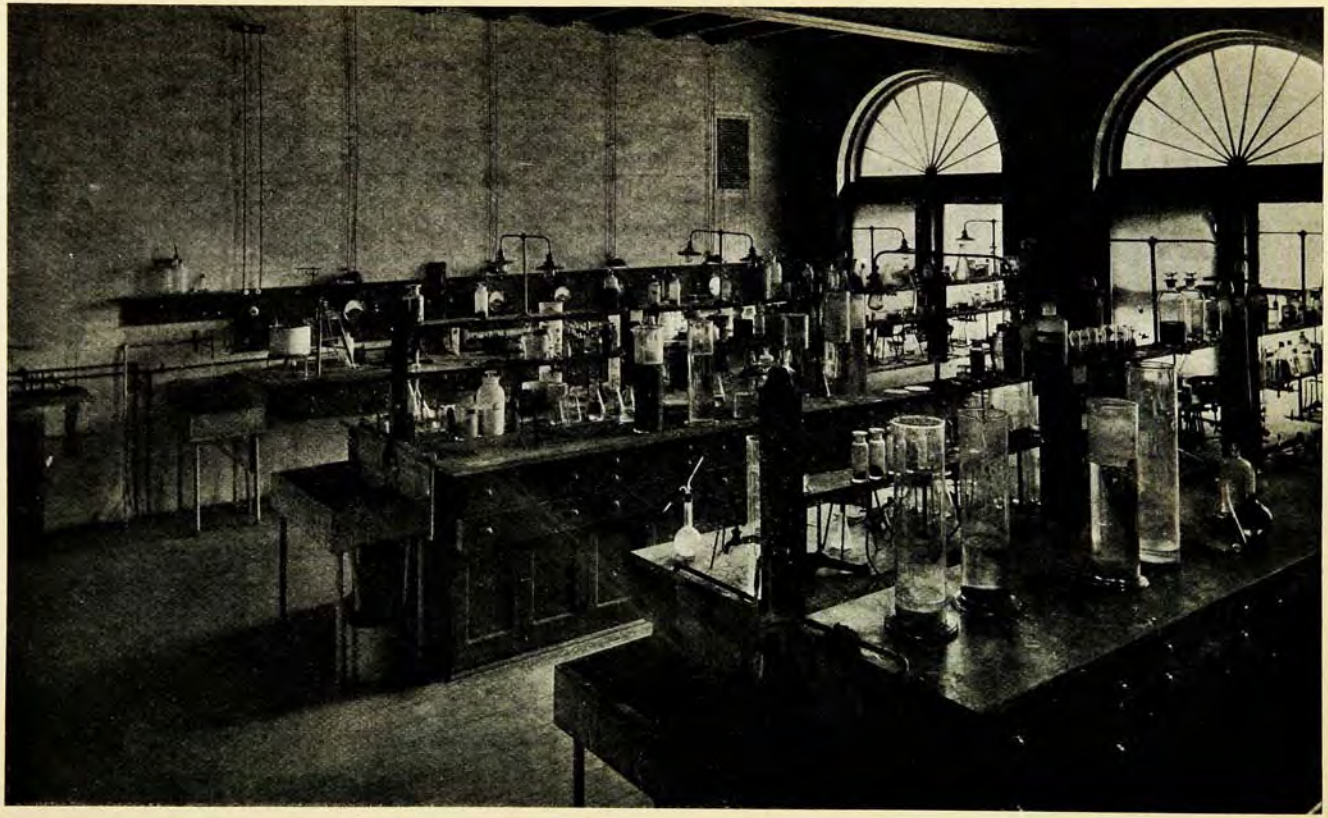
With the data obtained in the laboratory as a basis, detailed reports covering each sub-division are written. The subject matter includes: the calibration of pipettes, burettes, and measuring flasks; molecular weight determination by vapor density, freezing point and boiling point methods; vapor pressure; viscosity; colloids; diffusion; absorption; thermochemistry; reaction velocity; catalysis; dissociation; solubility; formation, separation and identification of phases; study of photo-chemical effects.

[52. **Advanced Physical Chemistry.** Lectures throughout the year, credit three hours a term. Prerequisite course 50. Professor BANCROFT.

An exposition of the law of mass action in its application to chemical equilibrium and reaction velocities.] Not given in 1910–11.

53. **Colloid Chemistry and Photochemistry.** Lectures. Second term, credit three hours. Professor BANCROFT. M W F, 12, Morse L. R. 4.

The theories of colloid chemistry and of photochemistry, with special reference to photography. For advanced students in chemistry or physics.



LABORATORY OF ADVANCED INORGANIC CHEMISTRY

55. **Theoretical Electrochemistry.** Lectures. Throughout the year, credit three hours a term. Professor BANCROFT. M W F, 10, Morse L. R. 4.

The historical development of the subject with special reference to the theory of the voltaic cell. For advanced students in chemistry or physics.

56a. **Applied Electrochemistry.** Lectures. First term, credit three hours. Prerequisite courses, 6 or 7 and 12. Professor BANCROFT and Messrs. BENNETT and KOERNER. M W F, 12, Morse L. R. 4.

The preparation of compounds in the electric furnace; electrolytic extraction and refining of metals; theory of plating; electrolytic manufacture of inorganic and organic compounds; theory and practice of storage cells. Students that take this course are advised to supplement the lectures by laboratory practice, course 56b or 56c; this is, however, not obligatory.

56b. **Applied Electrochemistry.** Second term, credit two hours. Prerequisite courses 56a; Physics 10 or 14. Messrs. BENNETT and KOERNER. Laboratory practice, one morning or one afternoon 8–1 or 1.30–5.30, Morse 79.

Determination of current and energy efficiencies in electrolytic and electrothermal work; preparation and tests of storage batteries. Open to engineering students. Students that are specializing in chemistry are expected to elect course 56c instead of course 56b.

56c. **Applied Electrochemistry.** First term, credit four hours. Open to those who have had 50 and 51, and have taken or are taking 56a. Laboratory practice.

W, 2–5, Th, 8–1; F, 2–5, S, 8–1. Morse 79. Professor BANCROFT, and Messrs. BENNETT and KOERNER.

Preparation of electrical standards and measurements of electrical constants; qualitative study of conditions affecting electrolytic reactions; determination of current and energy efficiencies in electrolytic and electrothermal work; preparation and tests of storage batteries; electrolytic preparation of inorganic and organic compounds. For students that are specializing in chemistry.

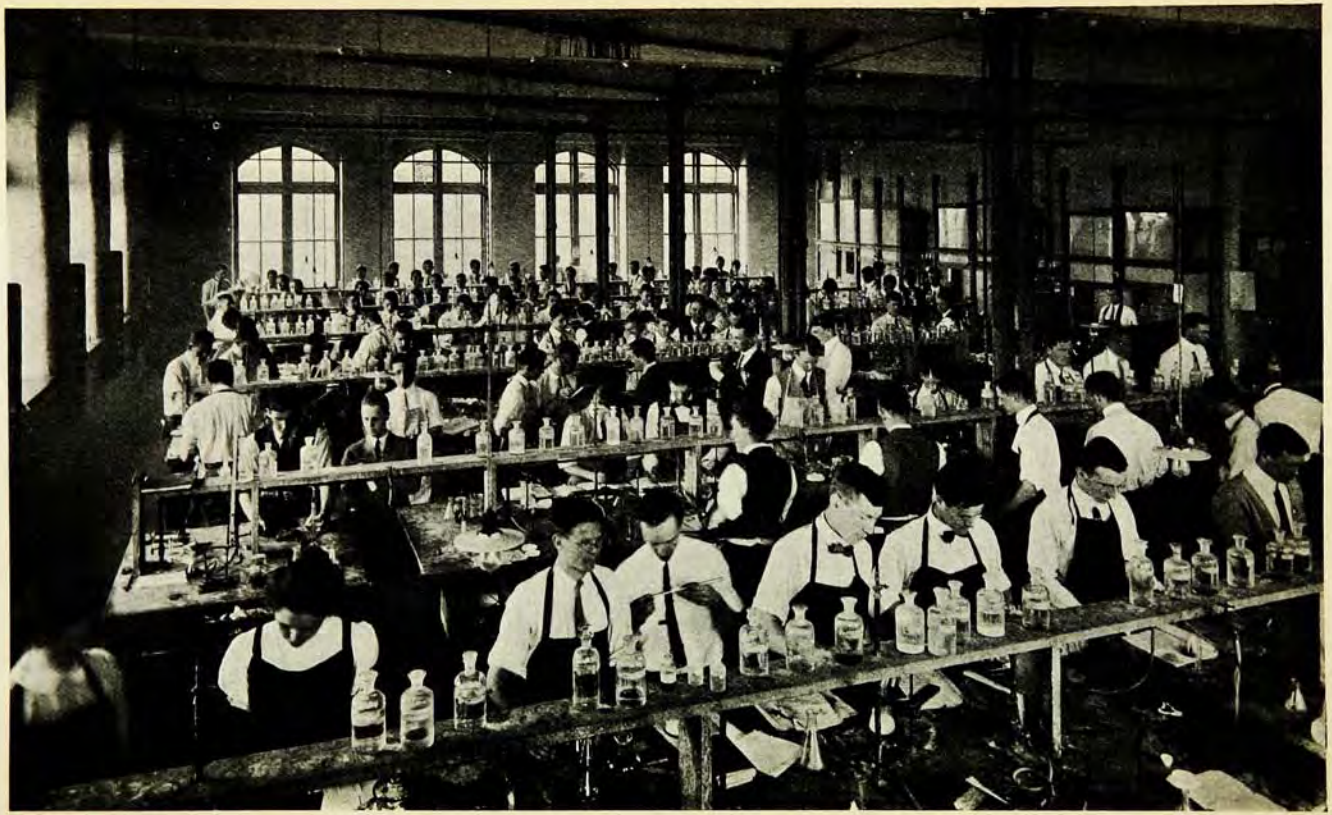
57. **Advanced Laboratory Practice.** Either term or throughout the year. Credit, one to six hours a term. Prerequisite courses determined in each case by the professor in charge. Professor BANCROFT, Dr. WHITE, and Messrs. BENNETT and KOERNER. Hours and work to be arranged. Morse.

Students may elect work in mass law, reaction velocity, or efficiency measurements with special reference to course 52; in photochemistry or photography with special reference to course 53; in conductivity or electrometric determinations with special reference to course 55; in electrolytic or electric furnace products with special reference to course 56; in metallography; in the application of physical chemical methods to organic chemistry.

MICROCHEMISTRY AND MICROCHEMICAL ANALYSIS

65. **Microchemical Methods.** Second term, credit two hours. Prerequisite courses 6, or 7 and 12. Professor CHAMOT and Dr. RATHJEN. Laboratory practice at hours to be arranged.

The use of the microscope and its accessories, and microchemical methods and apparatus as applied to chemical investigations.



LABORATORY OF QUALITATIVE ANALYSIS

66. **Microchemical Analysis.** First term, credit three hours. Prerequisite course 65. Professor CHAMOT and Dr. RATHJEN. Laboratory practice at hours to be arranged, Morse.

Practice in the examination and analysis of inorganic substances containing the more common elements with reference to rapid qualitative methods and the analysis of minute amounts of materials.

67. **Microchemical Analysis.** First term, credit two or more hours. Prerequisite course 66. Professor CHAMOT. Laboratory practice, Morse.

This course may be arranged so as to comprise the analysis of inorganic substances containing the rarer elements or of organic compounds.

SANITARY CHEMISTRY

[70. **Foods, Beverages, and Food Accessories.** First term, credit two hours. Prerequisite course 6, or 7 and 12. Professor CHAMOT.

The source, preparation for use, and the chemistry of foods, beverages, and food accessories; the individual and relative assimilability, digestibility, and nutritive value of food products; the relation of pure and adulterated foods to the public health; the adulteration, sterilization, and preservation of foods; dietary standards, and the methods for carrying on nutrition investigation.] Not given in 1910–11.

[71. **Food Analysis.** First term. Prerequisite course 6, or 7 and 12. Professor CHAMOT and Mr. REDFIELD.

The examination of foods by chemical and optical methods, with reference to adulteration, imitation, and alteration; the examination of foods for artificial coloring matters, preservatives, and poisonous substances; a study of milk, comestible fats and oils, cereal products and starchy foods, canned goods, jellies, etc. This course may be extended so as to include the analysis of alcoholic beverages]. Not given in 1910–11.

72. **Microscopical Examination of Foods.** First term, credit two hours. Prerequisite course 66. Professor CHAMOT and Dr. RATHJEN. Hours to be assigned.

The use of the microscope in the examination of foods and condiments for the purpose of detecting adulterations and admixtures.

75. **Potable Water.** Second term, credit two hours. Prerequisite courses 6, or 7 and 12. Professor CHAMOT. T Th, 11, Morse L. R. 2.

Sources of potable water; how polluted; agencies at work leading to the natural or self purification of streams, etc., and what they accomplish; the data necessary for a decision as to the fitness of a water for household use, and for use in steam generators; the interpretation of the results of water analysis, chemical, microscopical, and bacteriological. Modern methods of water purification.

76. **Water Analysis.** Second term, credit three hours. Prerequisite course 6, or 7 and 12. Professor CHAMOT and Mr. REDFIELD. Hours to be arranged, Morse.

The methods employed for the examination of waters with reference to their fitness for household purposes, steam boilers, etc; the testing of filters and water purifying devices for efficiency.

80. **Toxicology.** First term, credit two hours. Prerequisite course 30. Professor CHAMOT. W F, 12, Morse L. R. 2.

A review of the present methods for the separation and identification of the common poisons, together with a brief review of the classification, cause of action, and method of elimination of poisonous substances.

81. **Toxicology.** First term, credit two hours. Prerequisite course 30, and open only to those who are taking 80. Professor CHAMOT. M W F, 2–5, Morse.

AGRICULTURAL CHEMISTRY

85. **Agricultural Chemistry.** Second term, credit four hours. Prerequisite course Chemistry 1. Professor CAVANAUGH and Messrs. HEDGES, CROSS, and RICE. Lectures T Th S, 11. One recitation a week M, 8 or 9; W, 8 or 9; F, 8 or 9. Morse L. R. 1.

A general course treating of the relation of chemistry to agriculture and dealing with the composition and chemical properties of plants, soils, fertilizers, feed-stuffs, insecticides, and fungicides.

85a. **Agricultural Chemistry, Laboratory Course.** Repeated in second term, credit two hours. Prerequisite courses 1, 6, 85. Professor CAVANAUGH and Messrs. HEDGES and RICE. T Th, 2–4.30, W F, 8–10.30, Morse, Quantitative Laboratory. Designed to accompany course 85.

[86. **Agricultural Chemistry, Advanced Course.** Credit two hours. Prerequisite course 87 or 88, or may be taken at same time with 87 or 88. Professor CAVANAUGH. T Th 9, Morse L. R. 4.] Not given in 1910-11.

87. **Agricultural Analysis.** First term, credit three hours. Prerequisite courses 1, 6, 85a, 86, or may be taken with 86. Professor CAVANAUGH and Mr. CROSS. T Th, 2–5, S, 9–12, Morse 57. The methods of the A.O.A.C. are studied, in the analysis of fertilizers, soils, and insecticides.

88. **Agricultural Analysis.** Second term, credit three hours. Prerequisites, 87, 89. Professor CAVANAUGH and Mr. CROSS. T Th, 2–5, S, 9–12, Morse 57. Methods of examining foods, feed-stuffs, and dairy products.

89. **Dairy Chemistry.** First term, credit two hours. Prerequisite courses 85, 85a. Professor CAVANAUGH. T Th, 9, Morse L. R. 4.

90. **Advanced Agricultural Analysis.** Repeated in second term. Prerequisite courses 86 or 89, 87, 88. Professor CAVANAUGH. Credit and hours by appointment, Morse 57. Designed to meet the needs of those who are doing research in agricultural chemistry.

SEMINARY

95. **Seminary.** Throughout the year. Morse L. R. 3.

One hour every other week throughout the year.

This is a general seminary in which graduate students with major subjects in chemistry, and seniors that are specializing in chemistry are expected to take part.

RESEARCH

96. **Research for Undergraduate Students.** Throughout the year. Morse.

Seniors that are specializing in chemistry are expected to elect at least four hours a term in research under the direction of some member of the staff of instruction.

SPECIAL COURSE IN CHEMISTRY

Objects

The four year course in chemistry and allied subjects that is outlined below is offered for students that plan to follow chemistry as a profession, and serves to prepare them either for teaching or for commercial work. The course affords a broad and thorough training in each of the great subdivisions of chemical science, and also comprises instruction in the allied sciences of mathematics, physics, mineralogy, and economic geology. Courses in mechanical drawing, in mechanics of engineering and in the mechanical and electrical engineering laboratories are included in order that the student may gain some acquaintance with the principles of construction, design, and power transmission.

Requirements for Admission

This special course is open to all students registered in the College of Arts and Sciences, but those intending to pursue it are strongly advised to defer the study of chemistry until after they have entered the University, and to take before entrance, solid geometry, advanced algebra, plane and spherical trigonometry, three years of preparatory German, three years of preparatory French and four years of preparatory English instead of three. Failure to comply with this recommendation will necessitate the completion of the unfinished work after the student has entered the University, and may result in the prolongation of his course beyond the usual four years, unless the deficiencies be made up during the Summer Session at Cornell or at some other University.

Requirements for Graduation

Students registered in the special course in chemistry will be excused from the requirement mentioned in paragraph 12, page ii, of the Announcement of the College of Arts and Sciences for 1910–1911, but they will be certified by the Department as having met the requirements for the degree of Bachelor of Arts only upon the completion of the special four year course outlined below. Under no circumstances will deviation from this course be allowed without the approval of Professor Dennis.

OUTLINE OF COURSES

First Year.	No. Course	First Term	Second Term
Introductory Inorganic Chemistry	1	6	–
Qualitative Analysis	7	–	6
Mathematics: Analytic Geometry, Differential Calculus, Integral Calculus	3	5	5
Physics	1	4	–
Physics	6	–	4
Physics	10	–	2
Drawing (Sibley College)	D3	3	–
Second Year.			
Organic Chemistry	30	6	6
Quantitative Analysis	12	6	–
Spectroscopic Chemical Analysis	17	–	2
Mechanics of Engineering (Civil Engineering)	20	5	5
Physics	14	1	3
Third Year.			
Introductory Physical Chemistry	50	3	3
Physical Chemistry Laboratory	51	3	3
Microchemical Methods	65	–	2
Gas Analysis	19–20	3	–
Mineralogy	11	3	3
Advanced Quantitative Analysis	14	–	4
Quantitative Analysis—Lectures	15	2	–
Assaying	18	3	–
Mechanical Laboratory (Sibley College)	X11	–	3
Fourth Year.			
Electrochemistry	56a	3	–
Electrochemistry	56c	4	–
General Economic Geology	32	3	3
Electrical Engineering Laboratory (Sibley College)	E13	1	3
Mechanical Laboratory (Sibley College)	X20	3	–
Potable Water	75	–	2
Water Analysis	76	–	3
Research	96	4	4

Seminary, once every other week throughout the year.

In filling out the remainder of his time the student may elect advanced courses either in chemistry, or in other departments of the College or Arts and Sciences, or, under the regular restrictions, in Sibley College.

REQUIRED COURSES TAKEN OUTSIDE OF THE DEPARTMENT BY STUDENTS IN THE SPECIAL COURSE IN CHEMISTRY

MATHEMATICS

3. **Analytic Geometry and Calculus.** Throughout the year, credit, five hours a term.

3a. **Analytic Geometry.** Credit, four hours first term.

3b. **Differential Calculus.** Credit, one hour first term, two hours second term.

3c. **Integral Calculus.** Credit, three hours second term.

Sec. 1. Daily except S., 10, White 24. Professor TANNER.

Sec. 2. Daily except S., 8, White 6. Professor SNYDER.

PHYSICS

1. **Introductory Experimental Physics.** Repeated in second term, credit four hours. Lectures. Professors NICHOLS, MERRITT, and SHEARER. M T W Th, first term 9 or 12, second term 12, Rockefeller A.

Entrance physics is not accepted as an equivalent for this course.

6. **Introductory Physics.** Class room work. Repeated in second term, credit four hours. Messrs. GIBBS, SOMERVILLE, MURDOCK, and FORMAN. M T W Th, Rockefeller, as assigned.

Examinations for those who were unavoidably absent from either term examination in courses 1, 5, or 6, and for those who have conditions to make up, will be held on registration day, September 29, 1910, at 2 p.m.

10. **Introductory Physical Experiments.** Either term or throughout the year, credit one to four hours a term. Especially for students taking 1 and 6, but open to those who are taking or have completed 1, 1 and 5, 6, or the equivalent. Assistant Professor BLAKER and Messrs. DORSEY, RODGERS, and MAYER. M W S, 8–10.30, M T W Th F, 2–4.30. Rockefeller 220–232.

A shorter course of two hours covering properties of matter, heat, light, sound, magnetism, and electricity may be taken for one term, the student electing two laboratory periods a week or the course may be extended over a year, one period a week being taken. A longer course of three or four hours may be elected covering the same ground as the two hour course but more in detail, the work being done in one term or distributed over two terms.

14. **Physical Experiments.** Either term or throughout the year, credit one to eight hours a term. Prerequisite courses 1 and 6, or 1 and the two hour course in 10, or the equivalent. May be taken by students that are taking courses 8 and 9. Assistant Professor BLAKER and Messrs. RICHTMYER, FISHER, DORSEY, GALAJIKIAN, MOLBY, RODGERS, TAYLOR, GOLDBERG, HARRINGTON and WING. M T Th, 9–12, W S, 8–11, M T W Th F, 2–5. Rockefeller 250–257.

Physical measurements, properties of matter, mechanics, heat, light, sound, magnetism, and electricity; the adjustment and use of instruments of precision. Results and errors are carefully discussed. Students that are specializing in chemistry are required to take four hours. Other students may elect the desired number of hours.

LABORATORY OF QUANTITATIVE ANALYSIS

GEOLOGY

11. **Mineralogy.** Throughout the year, credit three hours a term. Prerequisite at least the equivalent of Chemistry 1; more chemistry and some physics desirable. Professor GILL and Mr. GALPIN. Lectures, T Th, 8. Laboratory sections to be arranged. McGraw Geological Lecture Room.

For beginners who desire a general knowledge of the commoner minerals and their uses, or who intend to pursue advanced work in mineralogy or petrography. Elementary crystallography is a part of the course.

32. **General Economic Geology.** Throughout the year, three hours a term. Prerequisite, sufficient preparation in geology and mineralogy. Professor RIES, Mr. STEWART, and ———. Lectures M W, 10; laboratory T, 2, F, 9, or Th, 2, McGraw.

The origin, nature, distribution, and uses of the non-metallic, and metallic products of the earth's crust. First term, the non-metallics, including coal, oil, gas, clays, salt, fertilizers, etc. Second term, the metallic products, including the ores of iron, copper, lead, zinc, gold, silver, etc. Students may take lectures without laboratory only by special permission. A portion of the laboratory work may be replaced by field trips.

DRAWING (SIBLEY COLLEGE)

D. 3. First term, credit, three hours. Nine hours a week. Mechanical drawing; working drawings, including conventions, standards, etc., following the best practice of commercial drafting rooms. Messrs. WILLIAMS and ———.

MECHANICAL LABORATORY (SIBLEY COLLEGE)

X. 11. **Mechanical Laboratory:—Introductory Experimental Engineering.** Junior year. Second term, credit, three hours. Requires M. 5 and M. 6, or C.E. 20, Chem. 6, and Physics 1 and 5. One laboratory period per week as assigned, one written report per week. Calibration of indicator springs, steam gauges, thermometers and dynamometers; practice and tests of various computing machines; viscosity and friction tests of lubricants on various testing machines; tests of heating values of coals; steam quality tests, with various forms of calorimeter; measurement of water; efficiency tests of steam engines and pumps, steam heaters and condensers. Reports are required which must include all data and results of the various tests, together with the conclusions. The preparation of the report is considered an important part of the laboratory course.

Text-book: Carpenter's "Experimental Engineering." Professor DIEDERICHS, Assistant Professor UPTON, Messrs. PUTNAM, HOOK, WIGLEY and WING.

X. 20. **Mechanical Laboratory:—General Experimental Engineering** Senior year. First term, credit, three hours. Requires X. 10, 11, P. 10. One laboratory period per week. Efficiency tests of Corliss compound engine, steam injector, centrifugal blowing fan, Ericsson hot air engine, Rider hot air engine, gas engine with city gas, gas engine with gasoline and oil engine; tests on hydraulic machinery; pyrometers of various types; and valve setting on automatic and Corliss engines.

Reports are required to be full and complete, to include data and results of each test under consideration and all information necessary to understand completely the machine tested and the methods used. Carpenter's Experimental Engineering is used as text-book. Professor DIEDERICHS, Messrs. GAGE, BIERMA, TORRANCE, WILSON, CURRENT.

ELECTRICAL ENGINEERING LABORATORY (SIBLEY COLLEGE)

E. 13. **Electrical Engineering for Chemists.** Required of senior chemists. One hour credit, first term. Three hours credit, second term. The purpose of this course is three-fold: (1) To review and emphasize the fundamental physical principles applied to electrical engineering; (2) to familiarize the student with the phraseology of current electrical engineering literature; (3) to enable the student to choose the proper type of apparatus for any particular service demanded in ordinary elementary practice. The course consists of one lecture each week during the first term and one recitation and one laboratory experiment with report each week during the second term. Assistant Professor MACOMBER, Messrs. KROGER, PETTITT, TAPPAN, and HOLCOMB.

MECHANICS OF ENGINEERING (COLLEGE OF CIVIL ENGINEERING)

20. **Mechanics of Engineering.** For sophomores in Civil Engineering and for students specializing in chemistry. Credit, five hours for each term. Preparation required: mathematics, course 1. A study of the principles, and applications to engineering, of the mechanics of solids; as relating to the mutual action, motions, pressures, strength, stiffness, and resilience of the members of structures of machines. Original problems form a prominent feature. Statics of a material point and of rigid bodies. Centers of gravity. Chains and cords. Dynamics, (Kinetics) of a material point. Impact. Virtual velocities. Centrifugal and centripetal forces. Pendulums. Moments of inertia of plane figures and of rigid bodies. Dynamics (kinetics) of rigid bodies. Work. Power. Energy. Fly-wheels. Friction. Graphical statics of mechanism. Dynamometers. General theorem of work and energy applied to machines. Stresses and strains. Tension. Shearing. Compression. Torsion. Flexure. Elastic curves. Safe loads. Columns. Text-books: Church's Mechanics of Engineering, and Notes and Examples in Mechanics, supplemented by other printed notes and problems. Lectures and recitations, daily except S, throughout the year. Professor CHURCH, Assistant Professors GEORGE, RETTGER, and SEERY. Eight sections.

COURSES IN CHEMISTRY OF GENERAL INTEREST TO STUDENTS NOT REGISTERED IN THE SPECIAL COURSE IN CHEMISTRY

The following partial list of courses, which are described in detail elsewhere in this pamphlet (pages 19-25), are required of, or are in general elected by, students in the various colleges as indicated below. For more specific and more extended information concerning the conditions under which these or other courses in chemistry may be elected, the student should refer to the announcement of the college in which he is registered.

Chemistry 1. Introductory Inorganic Chemistry. Required of freshmen in Sibley College, in the College of Agriculture, in the College of Civil Engineering, and in the College of Veterinary Medicine. Frequently elected by students in the College of Arts and Sciences and fulfills the six-hour requirement in the science group (see paragraph 12, p. ii, Announcement of the College of Arts and Sciences, 1910–11).

Chemistry 6. Qualitative and Quantitative Analysis. Required of freshmen in the College of Agriculture as a prerequisite to course 85a, and of sophomores in Sibley College and in the College of Civil Engineering.

Chemistry 32. Elementary Organic Chemistry. Required of first year students in the Medical College, and suggested as an elective for students in the College of Agriculture who are specializing in Home Economics.

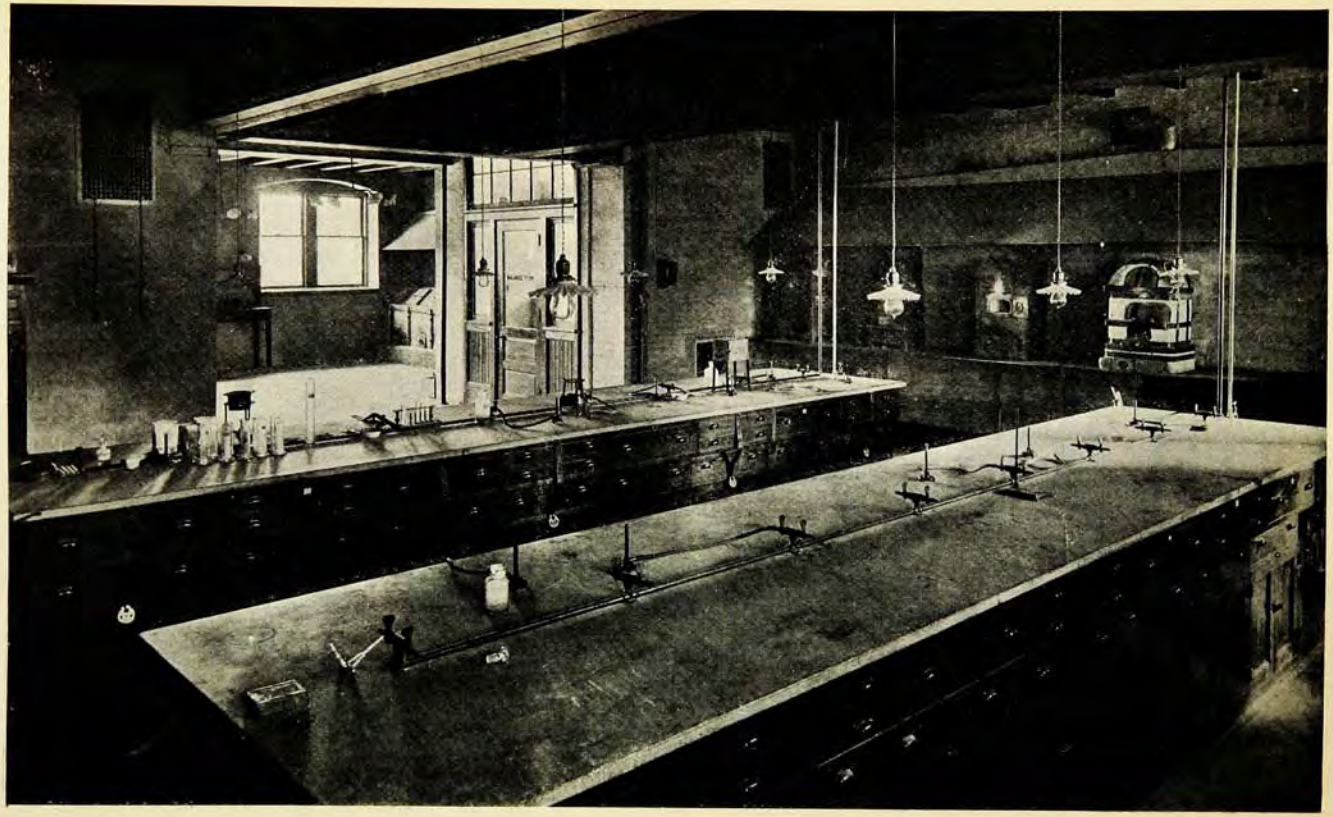
Chemistry 14, 15, 19, 20, 21, 49, and 56 b. Suggested as electives for Sibley students who have had the necessary preparation in chemistry.

Chemistry 75 and 76. Suggested as electives for suitably prepared students in the College of Civil Engineering and in the Medical College.

Chemistry 85. Required of freshmen in the College of Agriculture.

Chemistry 85a, 86, 87, 88, 89, and 90. Suggested as electives for students in the College of Agriculture who have taken the prerequisite courses.

Juniors and seniors in the College of Arts and Sciences who have chosen chemistry as their group in fulfillment of the requirement mentioned in paragraph 13, p. ii, Announcement of the College of Arts and Sciences, 1910–11, usually choose their electives in chemistry in the order prescribed for students in the special course.



ASSAY LABORATORY

COURSES IN CHEMISTRY OFFERED DURING THE SUMMER SESSION 1910

The courses briefly listed below correspond as follows with regular University courses given during the year:

A with Course 1; C and E with 6; C and D with 7; E (with part of F) with 12; F with 14; G with 17; H with 19; I with 20; J partly with 30; K partly with 31; L with 37; R with 65; S with 66; T with 70; U with 71; V with 75; W with 76.

The recitation and laboratory work will be arranged, within reasonable limits, to meet the individual requirements of teachers and of industrial chemists registered in the respective courses. For students wishing to obtain University credit the requirements for admission to the courses will be the same as during the regular University sessions. For teachers or industrial chemists not intending to have their work apply toward a Cornell degree these requirements will not be rigidly enforced.

Further information concerning summer work in general, or concerning the courses in chemistry may be obtained by consulting the Announcement of the Summer Session, or by corresponding with the Director of the Summer Session, Professor G. P. Bristol, Ithaca, N. Y.

A. **Introductory Inorganic Chemistry.** Credit, six hours. a. Lectures, daily except Sat., 12, Ch. L. R. 1. Professor BROWNE and Mr. SUTHERLAND. b. Laboratory work. M W F, 8–12, and T Th, 9–12. Mr. WELSH and Mr. HOULEHAN. c. Recitations, T Th, 8, Ch. L. R. 4. Mr. WELSH.

C. **Qualitative Analysis.** Elementary. Credit, six hours. Lectures, M W F, 11, Ch. L. R. 4. Mr. LEMON. Laboratory. Daily except Sat., 1.30–4.30. Mr. LEMON and Mr. HOULEHAN.

D. **Qualitative Analysis.** Credit, one, two, or three hours. Lectures and recitations, T Th, 8, Ch. L. R. 2. Dr. LUNDELL. Laboratory as arranged. Mr. LEMON.

E. **Quantitative Analysis. Elementary Course.** Credit, two hours. Lectures, T Th, 11, Ch. L. R. 4. Laboratory, M W F, 8–11. Dr. LUNDELL and Mr. HOLLINGSHEAD.

F. **Quantitative Analysis. Advanced Course.** Credit, one, two, three, or four hours. Laboratory as arranged. Dr. LUNDELL.

G. **Spectroscopic Chemical Analysis and Colorimetry.** Credit, two hours. Lectures, M W F, 12, Ch. L. R. 3. Laboratory as arranged. Dr. SHETTERLY.

H. **Qualitative and Quantitative Gas Analysis.** Credit, one hour. Lectures, M W F, 10. Ch. L. R. 3. Dr. SHETTERLY.

I. **Technical Gas Analysis.** Credit, two hours. Laboratory as arranged. Dr. SHETTERLY and Mr. ANDERSON.

J. **Organic Chemistry.** Credit, four, five, or six hours. Lectures and recitations. Except Sat., 8, Ch. L. R. 3. Laboratory as arranged. Mr. NICHOLS and Mr. E. F. HITCH.

K. **Organic Chemistry.** Credit, two hours. Lectures and recitations. Except Sat., 8, Ch. L. R. 3. Mr. NICHOLS.

L. **Methods of Organic Analysis.** Credit, two or more hours. Laboratory practice with occasional lectures. Mr. NICHOLS.

R. **Microchemical Methods.** Credit, two hours. Laboratory as arranged. Dr. RATHJEN.

S. **Microchemical Analysis.** Credit, three hours. Laboratory as arranged. Dr. RATHJEN.

(T. **Foods, Beverages and Food Accessories.** Credit, two hours. Lectures. Mr. REDFIELD. Not given during the summer of 1910.)

(U. **Food Analysis.** Credit, three hours. Laboratory as arranged. Mr. REDFIELD. Not given during the summer of 1910.)

V. **Potable Water.** Credit, two hours. Lectures. Except Sat., 12, Ch. L. R. 2. Mr. REDFIELD.

W. **Water Analysis.** Credit, three hours. Laboratory as arranged. Mr. REDFIELD.

GRADUATE WORK IN CHEMISTRY

For information concerning the requirements for admission to the Graduate School, concerning the Sage Fellowship and the University Graduate Scholarship in Chemistry, or concerning graduate work in departments of instruction other than chemistry, reference should be made to the Announcement of the Graduate School, which may be obtained from the Registrar.

A graduate student who desires to take either a major or a minor subject in chemistry may select any one of the following six branches: inorganic chemistry, analytical chemistry, organic chemistry, physical chemistry, sanitary chemistry, agricultural chemistry. Under the present procedure both the major subject and the one minor subject required for the degree of Master of Arts or the major subject and the two minor subjects required for the degree of Doctor of Philosophy may be selected from the six divisions mentioned above, but it is desirable that candidates for the degree of Doctor of Philosophy select at least one minor subject outside of the Department of Chemistry.

A graduate student who desires to take a minor subject in chemistry with the major subject in some department other than that of chemistry will be required to offer introductory inorganic chemistry and elementary qualitative and quantitative analysis as preliminary to his graduate work in chemistry. The work upon his minor subject in chemistry may be taken in any branch of the subject that he is qualified to pursue. Candidates for the degree of Master of Arts or for that of Doctor of Philosophy with the major subject in chemistry will be expected to have a reading knowledge of French and German and will be required to offer as preliminary to their graduate work in chemistry the following subjects; introductory inorganic chemistry, elementary qualitative and quantitative analysis, advanced quantitative analysis, spectroscopic chemical analysis, gas analysis, elementary organic chemistry, microchemical methods, and elementary physical chemistry. Courses in these subjects, if taken in another university should be substantially equivalent to the courses offered in this Department. Graduate students entering from other universities may take during their residence for the advanced degree such of the above courses as they have not already pursued. If a graduate student lacks at entrance several of these preliminary courses, longer residence may be necessary.

The following courses, which are described in detail in this pamphlet, may be taken in partial fulfillment of the requirements for an advanced degree: Analytical chemistry, course 14; organic chemistry, courses 33, 34, 35, 36, and 37; inorganic chemistry, courses 46, 47, 48, and 49; physical chemistry, courses 52, 53, 55, 56, and 57; microchemistry, courses 66 and 67; sanitary chemistry, courses 70, 71, 72, 75, 76, 80, and 81; agricultural chemistry, courses 86, 87, 88, 89, and 90.

HOLDERS OF THE SAGE FELLOWSHIP IN CHEMISTRY SINCE 1903

William Chauncey Geer, A.B.,	1903–04
James Munsie Bell, B.A. (University of Toronto),	1904–05
Helen Isham, A.B.,	1905–06
Frank Curry Mathers, A.B. (Indiana University), A.M. (same),	1906–07
Carl George Schluederberg, M.E.,	1907–08
Ellen S. McCarthy, A.B.,	1908–09
David Shepard Pratt, A.B.,	1909–10
David Shepard Pratt, A.B.,	1910–11

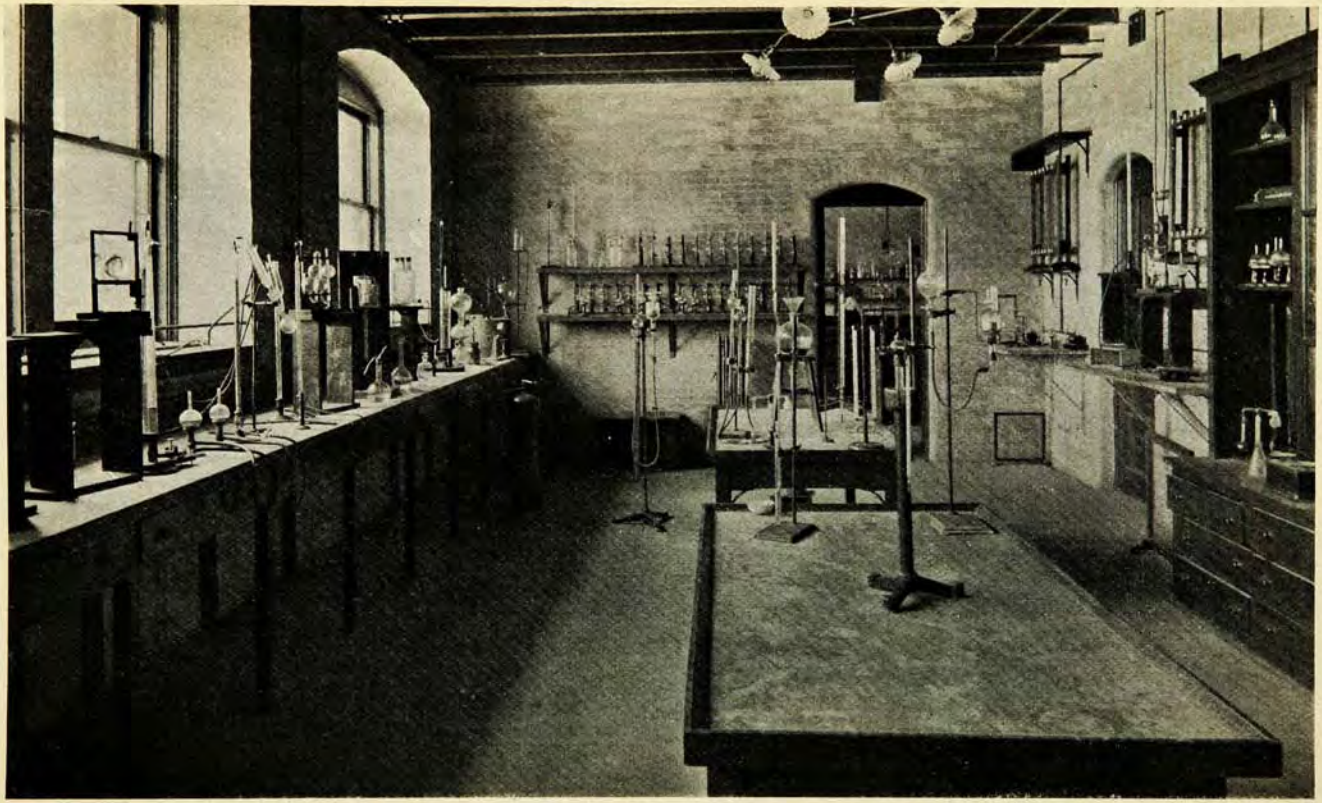
LABORATORY OF SPECTROSCOPIC CHEMICAL ANALYSIS

HOLDERS OF THE UNIVERSITY SCHOLARSHIP IN CHEMISTRY SINCE 1903

James Munsie Bell, B. A.(University of Toronto), - - 1903–04
Helen Isham, A.B., - - - - - - 1904–05
Frank Curry Mathers, A.B. (Indiana University), A.M. (same), 1905–06
Carl George Schluederberg, M.E., - - - - 1906–07
Ellen S. McCarthy, A.B., - - - - - - 1907–08
Clarence Frederick Hale, B.S (Wesleyan University), M.S. (same), 1908–09
James Kemp Plummer, B.S. (North Carolina A. & M. College), M.S., (same), - - - - - - - 1909–10
Louisa Stone Stevenson, A.B. (Vassar), - - - 1910–11

ADVANCED DEGREES AWARDED SINCE 1903 TO STUDENTS TAKING THEIR MAJOR SUBJECT IN CHEMISTRY.

James Munsie Bell, B.A. (Univ. of Toronto), 1902.
Dineric Equilibria (Ph.D., 1905)
James Adrian Bizzell, B.S. (North Carolina Coll. of Ag. and Mech. Arts), 1895; M.S. (same), 1900.
Behavior of Phosphoric Acid in the Soil (Ph.D., 1903)
John Alexander Black, A.B. (Univ. of Chicago), 1903.
Tetra-chlor-phenolphthalein and some of its Derivatives (A.M., 1908)
Arthur Wesley Browne, B.S. (Wesleyan Univ.), 1900: M.S. (same), 1901.
Contribution to the Chemistry of Hydronitric Acid and the Trinitrides (Ph.D., 1903)
Hari Singh Chima, B.S. (Oregon Agr. Coll.), 1907.
The Microchemical Detection of Nitric Acid (A.M., 1909)
Thomas G. Delbridge, A.B. (Union Coll.), 1903.
Tetrachlorgallein and some of its Derivatives (Ph.D., 1907)
William Chauncey Geer, A.B., 1902.
Contributions to the Chemistry of Indium (Ph.D., 1905)
Horace Wadsworth Gillett, A.B., 1906.
The Carborundum Furnace (Ph.D., 1910)
Clarence Frederick Hale, B.S. (Wesleyan Univ.), 1903; M.S. (same), 1907.
Contributions to the Chemistry of Hydrazine (Ph.D., 1909)
Lee Fred Hawley, A.B., 1903.
Some New Compounds of Thallium (A.M., 1905)
Contributions to the Chemistry of Thallium. II. (Ph.D., 1907)
Major Edward Holmes, B.S. (Valpariso Univ.), 1904; A.B. (Indiana Univ.), 1908.
On the Electrolysis of Certain Liquid Ammonia Solutions (A.M., 1910)
Helen Isham, A.B., 1903.
A Contribution to the Chemistry of Hydronitric Acid (Ph.D., 1906)
Jacob Goodale Lipman, B.S. (Rutgers Coll.), 1898; A.M. (Cornell Univ.), 1900.
Nitrogen-Fixing Bacteria (Ph.D., 1903)
Gustav Ernst Frederick Lundell, A.B., 1903.
Anhydrous Hydronitric Acid (Ph.D., 1909)



LABORATORY OF GAS ANALYSIS

Ellen S. McCarthy, A.B., 1907.
The Determination of Benzene in Illuminating Gas (Ph.D., 1909)
John Peter Magnussen, B.A. (Gustav Adolphus Coll.), 1908; M.A. (Univ. of Minn.), 1902.
Equilibrium between Hydrogen Sulphide and Ammonia (Ph.D., 1907)
Frank Curry Mathers, A.B. (Indiana Univ.), 1903; A.M. (same), 1905.
A Study of the Atomic Weight of Indium (Ph.D., 1907)
Arthur Renwick Middleton, A.B. (Univ. of Rochester), 1891.
The Determination of Acetylene (Ph.D., 1904)
George Arthur Perley, B.S. (New Hampshire Coll.), 1908.
Experiments on Solarization (A.M., 1910)
Edwin Frederick Rathjen, A.B. (Univ. of Wisconsin), 1905; A.M. (same), 1906.
Picrates of the Rare Earths (Ph.D., 1910)
Burton Justice Ray, A.B. (Wake Forest Coll.), 1904.
Some Trisazo-Compounds of Resorcin (Ph.D., 1909)
Carl George Schluederberg, M.E., 1902.
Actinic Electrolysis (Ph.D., 1908)
Fred Floyd Shetterly, A.B. (Indiana Univ.), 1906.
On the Oxidation of Hydrazine (Ph.D., 1910)
Ralph Cuthbert Snowdon, A.B., 1904.
The Electrolytic Deposition of Metals (A.M., 1906)
The Electrolytic Reduction of Nitrobenzene (Ph.D., 1909)
John Edgar Teeple, B.S., 1899.
On Bilirubin, the Red Coloring Matter of the Bile (Ph.D., 1903)
John William Turrentine, Ph.B. (Univ. of North Carolina), 1901; M.S. (same), 1902.
Contributions to the Chemistry of Hydrazine (Ph.D., 1908)
Gorrell Robert White, A.B., 1905.
The Electrolytic Corrosion of Some Metals (Ph.D., 1910)
John Anderson Wilkinson, B.Sc. (Ohio State Univ.), 1903.
The Phosphorescence of Some Inorganic Salts (Ph.D., 1909)

GRADUATE STUDENTS TAKING MAJOR OR MINOR SUBJECTS IN CHEMISTRY 1909–10.

(*In Summer Session. †Not Candidates for degrees.)

Allen, Herman Camp, Ithaca
A.B. (McPherson College) 1904; A.M. (University of Kansas) 1905,
Physical Chemistry, Organic Chemistry, Analytical Chemistry.
Committee: Bancroft, Orndorff, Chamot. (Ph.D.)
Anderson, Ross Peter, Ithaca
A.B. (Cornell) 1908,
Inorganic Chemistry, Sanitary Chemistry, Agricultural Chemistry.
Committee: Dennis, Chamot, Cavanaugh. (Ph.D.)
*Behnken, Henry Emile, Brooklyn
A.B. (Cornell) 1904,
Physics, Analytical Chemistry.
Committee: Shearer, Chamot. (A.M.)

Bennett, Charles William, Hartford, Ky.
B.S. (Vanderbilt University) 1908; M.A. (same) 1909,
Physical Chemistry, Inorganic Chemistry, Organic Chemistry.
Committee: Bancroft, Dennis, Orndorff. (Ph.D.)

Bouyoucos, George John, Tripoltsa, Greece
B.S. (University of Illinois) 1908,
Soil Technology, Agricultural Chemistry, Plant Breeding.
Committee: Lyon, Cavanaugh, Gilbert. (Ph.D.)

Briggs, Thomas Roland, Flushing
A.B. (Cornell) 1909,
Physical Chemistry, Organic Chemistry.
Committee: Bancroft, Orndorff. (A.M.)

Conn, Harold Joel, Middletown, Conn.
Ph.B. (Wesleyan University) 1908,
Soil Technology, Plant Pathology, Sanitary Chemistry.
Committee: Lyon, Whetzel, Chamot. (Ph.D.)

Cothran, John Cleveland, Lockport
A.B. (Cornell) 1908,
Inorganic Chemistry, Sanitary Chemistry, Agricultural Chemistry.
Committee: Dennis, Chamot, Cavanaugh. (Ph.D.)

†Crawford, Frederick North, Middletown, Conn.
B.S. (Wesleyan University) 1908,
Chemistry, Inorganic Chemistry.
Committee: Dennis, Browne.

Cross, Lewis Josephus, Ithaca
A.B. (Cornell) 1909,
Agricultural Chemistry, Sanitary Chemistry, Bacteriology.
Committee: Cavanaugh, Chamot, Moore. (Ph.D.)

Dillon, Sidney Ogier, Tipton, Ind.
A.B. (Indiana University) 1907,
Inorganic Chemistry, Physical Chemistry, Analytical Chemistry.
Committee: Dennis, Bancroft, Lundell. (Ph.D.)

Doyle, Clarence Morton, Ithaca
A.B. (Cornell) 1902,
Physics, Chemistry.
Committee: Blaker, Dennis. (A.M.)

Elliott, Fred Leslie, Gueydan, La.
B.S. (Louisiana State University) 1909,
Sanitary Chemistry, Agricultural Chemistry, Organic Chemistry.
Committee: Chamot, Cavanaugh, Orndorff. (Ph.D.)

Fink, Gail J., Crawfordsville, Ind.
A.B. (Wabash College) 1909,
Inorganic Chemistry, Sanitary Chemistry, Organic Chemistry.
Committee: Dennis, Chamot, Orndorff. (Ph.D.)

Frank, Joseph Julius New York City
A.B. (Columbia University) 1905,
Physical Chemistry, Analytical Chemistry.
Committee: Bancroft, Chamot. (A.M.)

Frear, Henry North, Ithaca
A.B. (Cornell) 1908,
Inorganic Chemistry, Physical Chemistry, Agricultural Chemistry.
Committee: Dennis, Bancroft, Cavanaugh. (Ph.D.)

French, George Talbot, Geneva
B.Sc. (Massachusetts Agricultural College) 1906,
Plant Pathology, Plant Physiology, Agricultural Chemistry.
Committee: Whetzel, Duggar, Cavanaugh. (Ph.D.)

Gaub, John, New Brunswick, N. J.
B.Sc. (Rutgers College) 1905,
Agricultural Chemistry, Sanitary Chemistry, Bacteriology.
Committee: Cavanaugh, Chamot, Stocking. (Ph.D.)

Gillett, Horace Wadsworth, Penn Yan
A.B. (Cornell) 1906,
Physical Chemistry, Organic Chemistry, Analytical Chemistry.
Committee: Bancroft, Orndorff, Chamot. (Ph.D.)

†Graham, Samuel Herbert, Ithaca
A.B. (Cornell) 1909,
Chemistry, Geology, Mechanics.
Committee: Dennis, Ries, Diederichs.

Guthrie, Edward Sewell, Ithaca
B.S.A. (Iowa State College) 1908,
Agricultural Chemistry, Dairy Bacteriology.
Committee: Cavanaugh, Stocking. (M.S. in Agr.)

Harding, Harry Alexis, Geneva
B.S. (University of Wisconsin) 1896, M.S. (same) 1898,
Plant Physiology, Agricultural Chemistry, Pathological Bacteriology.
Committee: Duggar, Cavanaugh, Moore. (Ph.D.)

Harris, Franklin Stewart, Logan, Utah
B.S. (Brigham Young University) 1907,
Soil Technology, Plant Physiology, Physical Chemistry.
Committee: Lyon, Duggar, Bancroft. (Ph.D.)

Hedges, Charles Cleveland, Ithaca
B.S. (Kentucky State University) 1906; A.B. (Cornell) 1908,
Agricultural Chemistry, Sanitary Chemistry, Bacteriology.
Committee: Cavanaugh, Chamot, Moore. (Ph.D.)

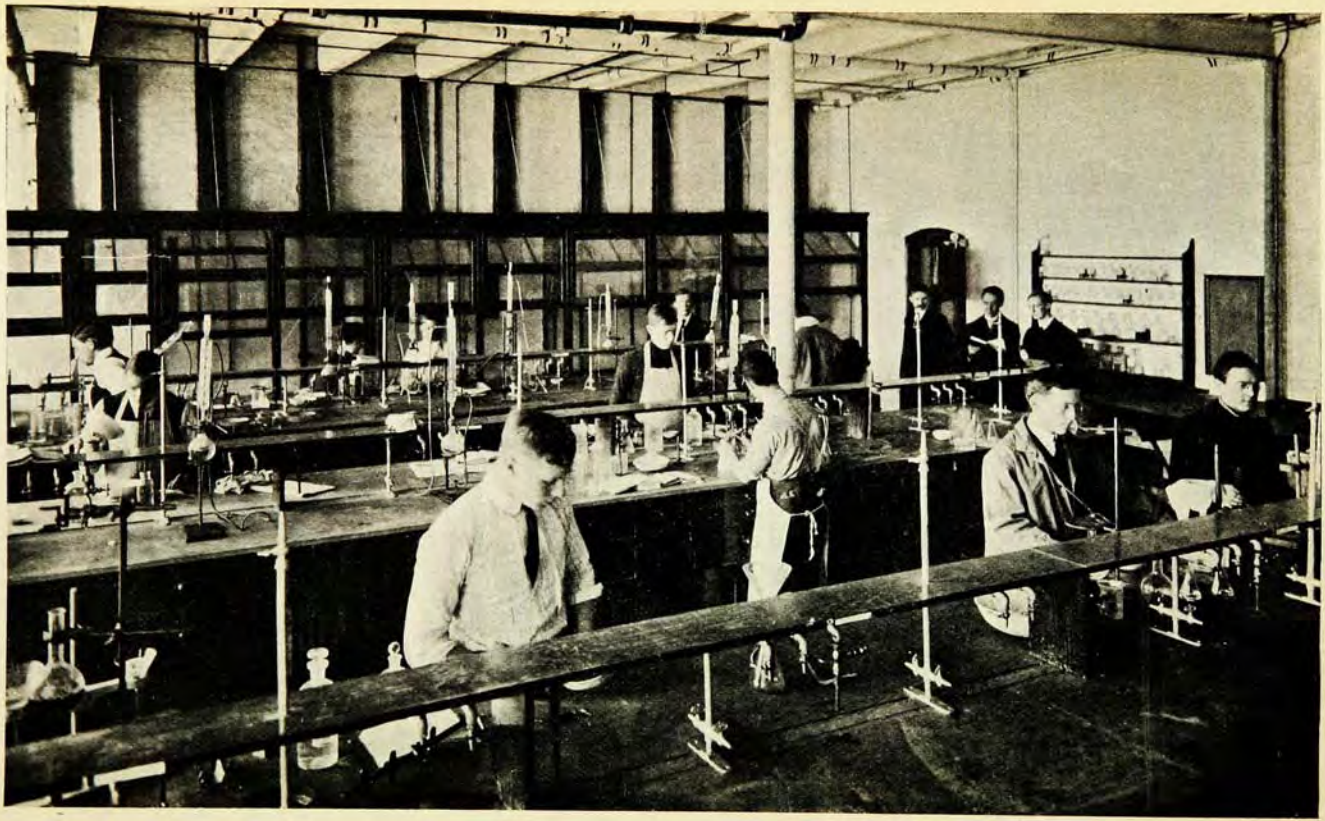
Hill, George Richard, Jr., Springville, Utah
B.S. (Utah Agricultural College) 1908,
Plant Physiology, Horticulture, Organic Chemistry.
Committee: Duggar, Craig, Orndorff. (Ph.D.)

Hitch, Emmet Francis, Seaford, Delaware
A.B. (Washington College) 1904; A.M. (same) 1907,
Organic Chemistry, Inorganic Chemistry, Sanitary Chemistry.
Committee: Orndorff, Dennis, Chamot. (Ph.D.)

Hollingshead, Robert Sullivan, Augusta, Georgia
A.B. (Cornell) 1910,
Sanitary Chemistry, Analytical Chemistry, Agricultural Chemistry.
Committee: Chamot, Lundell, Cavanaugh. (Ph.D.)

Holmes, Major Edward, Kempton, Ind.
B.S. (Valparaiso University) 1904; A.B. (Indiana University) 1908,
Inorganic Chemistry, Physical Chemistry.
Committee: Browne, Bancroft. (A.M.)

Houlehan, Arthur Earl, Crawfordsville, Ind.
A.B. (Wabash College) 1908,
Inorganic Chemistry, Organic Chemistry, Sanitary Chemistry.
Committee: Dennis, Orndorff, Chamot. (Ph.D.)



LABORATORY OF ORGANIC CHEMISTRY

*†Keitt, Thomas Ellison, Clemson College, S. C.
B.Sc. (Clemson College) 1906,
Organic Chemistry.
Committee: Orndorff.

Knudson, Lewis, Milwaukee, Wis.
B.S. in Agr. (University of Missouri) 1907,
Plant Physiology, Botany (Histology), Physical Chemistry.
Committee: Duggar, Rowlee, Bancroft. (Ph.D.)

Lemon, Burton Judson, Ithaca
A.B. (Cornell) 1908,
Inorganic Chemistry, Physical Chemistry, Agricultural Chemistry.
Committee: Dennis, Bancroft, Cavanaugh. (Ph.D.)

†Lohr, James Martin, Clear Spring, Md.
A.B. (Franklin and Marshall) 1905.
Chemistry, Physics, Mechanics.
Committee: Dennis, Blaker, Church.

deLorenzi, Joseph Higgins, Mishawaka, Indiana
A.B. (Wabash College) 1909,
Organic Chemistry, Analytical Chemistry, Physical Chemistry.
Committee: Orndorff, Chamot, Bancroft. (Ph.D.)

Marsh, William Judson, Corning
A.B. (Amherst) 1908,
Inorganic Chemistry, Physical Chemistry, Analytical Chemistry.
Committee: Dennis, Bancroft, Chamot. (Ph.D.)

Martin, John Gordon, LaPort, Indiana
A.B. (Cornell) 1910,
Physical Chemistry, Analytical Chemistry.
Committee: Bancroft, Chamot. (A.M.)

Miller, Carleton Friend, Wallingford, Conn.
B.S. (Wesleyan University) 1909,
Physical Chemistry, Sanitary Chemistry, Agricultural Chemistry.
Committee: Bancroft, Chamot, Cavanaugh. (Ph.D.)

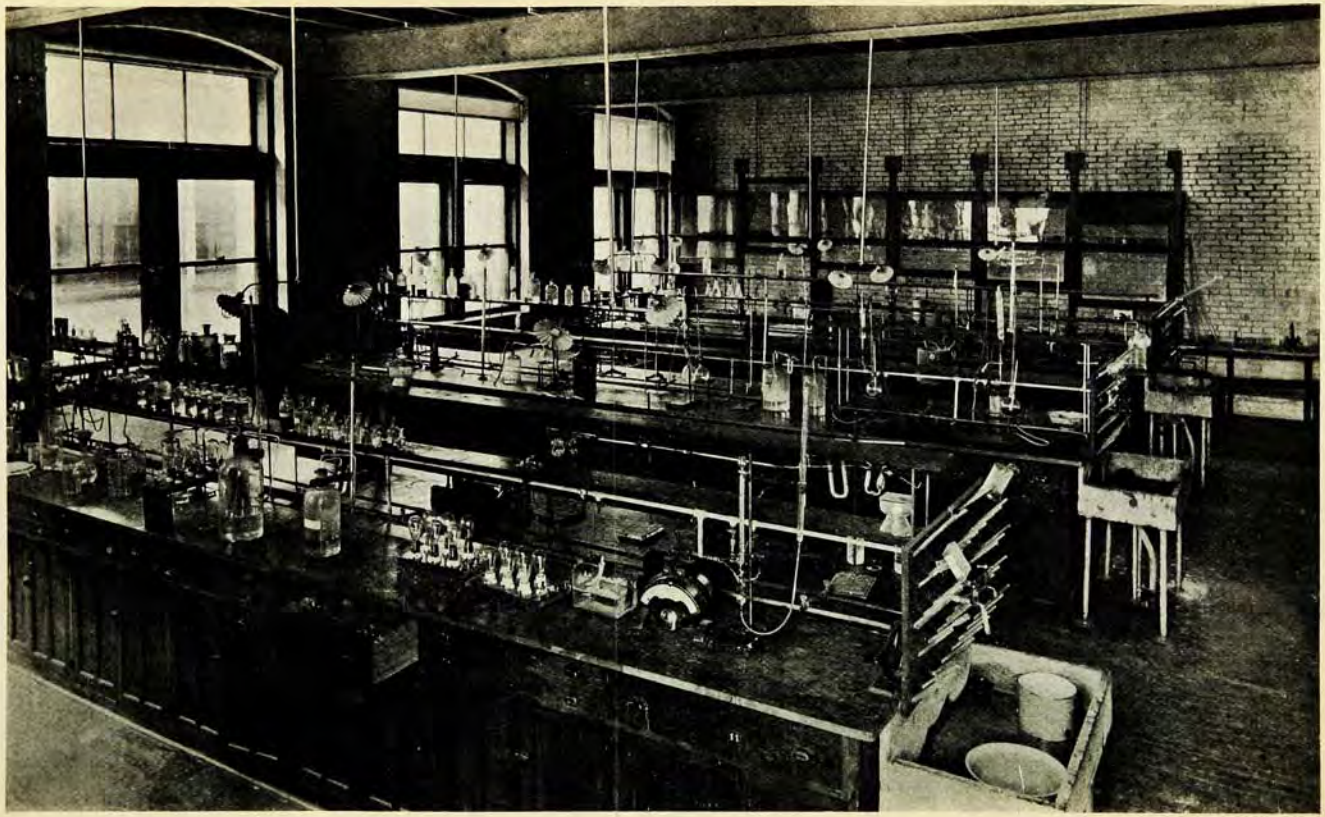
Nichols, Edson Hoyt, Camden, N. J.
A.B. (Cornell) 1908,
Organic Chemistry, Sanitary Chemistry, Inorganic Chemistry.
Committee: Orndorff, Chamot, Browne. (Ph.D.)

Peck, Melville Canby, Enid, Okla.
A.B. (Colgate) 1908,
Organic Chemistry, Analytical Chemistry, Economic Geology.
Committee: Orndorff, Chamot, Ries. (Ph.D.)

Perley, George Arthur, Goffstown, N. H.
B.S. (New Hampshire College) 1908,
Physical Chemistry, Analytical Chemistry.
Committee: Bancroft, Chamot. (A.M.)

Petry, Edward Jacob, Seventeen, Ohio
B.Sc. (Agr.) (Ohio State University) 1907,
Botany (Mycology), Plant Physiology, Organic Chemistry.
Committee: Atkinson, Duggar, Orndorff. (Ph.D.)

Plummer, James Kemp, Middleburg, N. C.
B.S. (N. C. A. & M. College) 1907; M.S. (same) 1909,
Agricultural Chemistry, Organic Chemistry, Analytical Chemistry.
Committee: Cavanaugh, Orndorff, Chamot. (Ph.D.)



LABORATORY OF PHYSICAL CHEMISTRY

Pratt, David Shepard, Towanda, Pa.
A.B. (Cornell) 1908,
Sanitary Chemistry, Analytical Chemistry, Organic Chemistry.
Committee: Chamot, Dennis, Orndorff. (Ph.D.)

Rathjen, Edwin Frederick, Ithaca
A.B. (University of Wisconsin) 1905; A.M. (same) 1906,
Inorganic Chemistry, Physical Chemistry, Analytical Chemistry.
Committee: Dennis, Bancroft, Chamot. (Ph.D.)

Redfield, Harry Westfall, Ithaca
B.S. (Cornell) 1900,
Sanitary Chemistry, Inorganic Chemistry, Agricultural Chemistry.
Committee: Chamot, Browne, Cavanaugh. (Ph.D.)

Rhodes, Frederick Hoffmann, Rochester, Ind.
A.B. (Wabash College) 1910,
Inorganic Chemistry, Physical Chemistry, Organic Chemistry.
Committee: Dennis, Bancroft, Orndorff. (Ph.D.)

Rice, Frank Elmore, Spencer, Ind.
A.B. (Indiana University) 1909,
Physical Chemistry, Sanitary Chemistry, Agricultural Chemistry.
Committee: Bancroft, Chamot, Cavanaugh. (Ph.D.)

Sargent, George Jackman, Concord, N. H.
B.S. (New Hampshire State College) 1909,
Physical Chemistry, Agricultural Chemistry, Analytical Chemistry.
Committee: Bancroft, Cavanaugh, Chamot. (Ph.D.)

Shetterly, Fred Floyd, Ithaca
A.B. (Indiana University) 1906,
Inorganic Chemistry, Physical Chemistry, Analytical Chemistry.
Committee: Browne, Bancroft, Chamot. (Ph.D.)

Smith, Raymond Templeton, Pittsburgh, Pa.
A.B. (Cornell) 1910,
Sanitary Chemistry, Political Science.
Committee: Chamot, Jenks.

Stevenson, Louisa Stone, Lowell, Mass.
A.B. (Vassar) 1901,
Physical Chemistry, Organic Chemistry, Physics.
Committee: Bancroft, Orndorff, Nichols. (Ph.D.)

Sutherland, Leslie Thompson, Yonkers
A.B. (Cornell) 1909,
Inorganic Chemistry, Sanitary Chemistry, Agricultural Chemistry.
Committee: Browne, Chamot, Cavanaugh. (Ph.D.)

Talbot, Hugh Ward, Edmeston
B.S. (Colgate University) 1908,
Chemistry.
Committee: Dennis. (A.M.)

Ulrich, Lawrence J., Kokono, Indiana
A.B. (Wabash College) 1908,
Inorganic Chemistry, Analytical Chemistry, Sanitary Chemistry.
Committee: Browne, Lundell, Chamot. (Ph.D.)

Walker, Lester Vincent, Babylon
A.B. (Cornell) 1908,
Physical Chemistry, Sanitary Chemistry, Analytical Chemistry.
Committee: Bancroft, Chamot, Dennis. (Ph.D.)

†Weed, Randolph Woodruff, Jr., Brooklyn
M.E. (Cornell) 1909,
Gas Engineering Designs, Physics, Assaying.
Committee: Hirshfeld, Bedell, Lundell.

Welsh, Thomas Whitney Benson, Ithaca
A.B. (Cornell) 1908,
Inorganic Chemistry, Analytical Chemistry, Economic Geology.
Committee: Browne, Chamot, Ries. (Ph.D.)

White, Gorrell Robert, Auburn
A.B. (Cornell) 1905,
Physical Chemistry, Inorganic Chemistry, Mineralogy.
Committee: Bancroft, Dennis, Gill. (Ph.D.)

Wilson, Arthur John, Knoxville, Ill.
B.S. (N. C. A. and M. Coll.) 1907; M.S. (same) 1908,
Agricultural Chemistry, Analytical Chemistry, Sanitary Chemistry.
Committee: Cavanaugh, Dennis, Chamot. (Ph.D.)

UNDERGRADUATES REGISTERED IN THE SPECIAL COURSE IN CHEMISTRY.

1909–10.

(The figures 1, 2, 3, 4, directly following the name, indicate freshman, sophomore, junior, and senior year, respectively.)

Andrews, Joseph Church, (4) ..... New Britain, Conn.
Beagle, Nathan Robert, (2) ..... Sidney, N. Y.
Beakes, Henry Lewis, (3) ..... Middletown, N. Y.
Bennett, Harold Selden, (2) ..... Ithaca, N. Y.
Boies, Orlow William, (4) ..... Woodhaven, N. Y.
Boulter, Lewis Henry, (1) ..... Auburn, N. Y.
Bryce, James Richard, (2) ..... Schenectady, N. Y.
Bunce, Earl Hamlin, (1) ..... Lyndonville, N. Y.
Conklin, Alfred Wilkinson, (4) ..... Marquette, Michigan.
Conlin, Henry Joseph, (1) ..... Glens Falls, N. Y.
Cooper, Ellis Bush, (1) ..... Ithaca, N. Y.
Crown, Harry Abraham, (4) ..... Brooklyn, N. Y.
Crumrine, Ralph Milton, (4) ..... Akron, Ohio.
Currie, Robert Henry, (1) ..... Little Falls, N. Y.
Davies, Earl Lee, (2) ..... Knoxville, Pa.
Davis, Richard Foster, (3) ..... Franklin, Pa.
Deutsch, Armand Samuel, (1) ..... Chicago, Ill.
Eastwood, Harry, (3) ..... Auburn, N. Y.
Elsenbast, Arthur Simon, (2) ..... New York City.
Engelder, Carl John, (1) ..... Wellsville, N. Y.
Evans, Durand Randall, (4) ..... Norwich, N. Y.
Finch, Leon, (1) ..... Alpine, N. Y.
Flumerfelt, Olin France, (2) ..... Newark Valley, N. Y.
Flynn, William Francis, (1) ..... Johnstown, N. Y.
Fry, John Martin, (3) ..... Ephrata, Pa.
Georger, Edwin Louis, (1) ..... Buffalo, N. Y.

Gibson, Jr., Richard, (1) . . . . . Medford, Mass.
Glück, Harry James, (4) . . . . . Brooklyn, N. Y.
Goldberg, Harry, (2) . . . . . Riverhead, L. I.
Gordon, Marcus Acheson, (2) . . . . . Brookville, Pa.
Grant, George Edwin, (2) . . . . . New York City.
Gundlach, Henry Ralph, (3) . . . . . Baltimore, Md.
Hart, Arthur Marshall, (2) . . . . . Baldwinsville, N. Y.
Henry, Frank, (1) . . . . . Water Valley, N. Y.
Herrera, Carlos Manuel, (2) . . . . . Gautemala City, C. A.
Hooey, William Charles, (2) . . . . . Corning, N. Y.
Hopp, George Sol, (2) . . . . . New York City.
Hovey, Edward A., (3) . . . . . Glens Falls, N. Y.
Huckle, Clarence, (1) . . . . . Clyde, N. Y.
Isett, Robert Tussey, (2) . . . . . Philadelphia, Pa.
Joachim, Samuel, (1) . . . . . Newark, N. J.
Joachim, William, (2) . . . . . Newark, N. J.
Kennedy, John Joseph, (1) . . . . . Poughkeepsie, N. Y.
Kennedy, Robert Phelps, (2) . . . . . Buffalo, N. Y.
Kenny, Herman Carlyle, (1) . . . . . Wakefield, Mass.
King, Jr., James Stevens, (4) . . . . . Montclair, N. J.
Kneeland, Malcolm Chase, (1) . . . . . Pittsburgh, Pa.
Koerner, Walter Ernest, (4) . . . . . Troy, N. Y.
Koller, Joseph, (2) . . . . . Johnstown, N. Y.
Kratz, George Davenport, (3) . . . . . Akron, Ohio.
LaTourette, Harry, (3) . . . . . Monticello, N. Y.
Little, William Thorburn, (2) . . . . . Little Falls, N. Y.
Lowary, Ralph Cornelius, (3) . . . . . Wellsville, Ohio.
Lyman, George Stuart, (1) . . . . . Davenport, Iowa.
McCoy, Harold Glidden, (2) . . . . . Watertown, N. Y.
Maider, Joseph Plaisted, (3) . . . . . Clay, N. Y.
Mason, Archie Osborn, (2) . . . . . Highland Park, Ill.
van der Meulen, Peter Andrew, (1) . . . . . Dunkirk, N. Y.
Montgomery, John Henry, (2) . . . . . Buffalo, N. Y.
Mowry, Leland Bertley, (3) . . . . . N. Adams, Mass.
Newman, Floyd Roy, (2) . . . . . Churchville, N. Y.
Newman, Henry Otis, (1) . . . . . Ithaca, N. Y.
Norton, Allen Bullard, (1) . . . . . Salamanca, N. Y.
Norton, Frederick Errol, (1) . . . . . Syracuse, N. Y.
Nunez, Vasco Emilio, (4) . . . . . Felts Mills, N. Y.
O'Brien, William James, (3) . . . . . Kingston, N. Y.
Osborne, Harold Hollenbeck, (1) . . . . . Luzerne, Pa.
Osborne, John Leslie, (1) . . . . . Oneida, N. Y.
Patterson, Romney Clayton, (3) . . . . . Glens Falls, N. Y.
Pawel, George Washington, (3) . . . . . Sandy Hill, N. Y.
Peterkin, Albert Gordon, Jr., (Special) . . . . . Bloomfield, N. J.
Popoff, Stephen J., (2) . . . . . Fredonia, N. Y.
Pratt, William Henry, (3) . . . . . Hackensack, N. J.
Ralph, William McMillan, (1) . . . . . Buffalo, N. Y.

LABORATORY OF ELECTROCHEMISTRY

Rankin, Everett Horace, (2) . . . . . Ithaca, N. Y.
Rekate, Edward Albert, (3) . . . . . Lancaster, N. Y.
Riegger, Harold Eaton, (4) . . . . . New York City.
Ritter, Horace Sheldon, (3) . . . . . Oneonta, N. Y.
Rose, Clifford Contant, (2) . . . . . Kingston, N. Y.
Rosenberg, Arthur David, (1) . . . . . New York City.
Rosenwald, Lessing Julius ,(2) . . . . . Chicago, Ill.
Rossbach, Walter Lemon, (1) . . . . . New York City.
St. John, Henry Mark, (4) . . . . . Canajoharie, N. Y.
Schagrin, Harry, (2) . . . . . Yonkers, N. Y.
Scharschu, Charles Alton, (3) . . . . . Kingston, N. Y.
Schwartzmann, Julius, (2) . . . . . Brooklyn, N. Y.
Sidebottom, Herbert Graff, (1) . . . . . Philadeiphia, Pa.
Silver, Charles, (3) . . . . . Odenton, Maryland.
Staley, Vinton Logan, (4) . . . . . New York City.
Story, Austin Putnam, (1) . . . . . Chillicothe, Ohio.
Stuart, Mary, (3) . . . . . Batavia, N. Y.
Underwood, Elbert Victor, (1) . . . . . Buffalo, N. Y.
Walker, Harold Wehle, (3) . . . . . New York City.
Warner, Richard James, (1) . . . . . Candor, N. Y.
Wilbur, David Truxton, (4) . . . . . Binghamton, N. Y.
Wilson, Thomas Joseph, (3) . . . . . Amsterdam, N. Y.

TABLE SHOWING THE NUMBER OF STUDENTS REGISTERED IN THE DEPARTMENT OF CHEMISTRY SINCE 1903

YEAR	TERM	SIBLEY COLLEGE		COLLEGE OF ARTS AND SCIENCES		COLLEGE OF AGRICULTURE		COLLEGE OF CIVIL ENGINEERING		COLLEGE OF MEDICINE		VETERINARY COLLEGE		GRADUATES		TOTAL	
		Registration by Courses	Individual Students	Registration by Courses	Individual Students	Registration by Courses	Individual Students	Registration by Courses	Individual Students	Registration by Courses	Individual Students	Registration by Courses	Individual Students	Registration by Courses	Individual Students	Registration by Courses	Individual Students
1903–04..	1	338	321	264	126	37	27	61	61	64	62	35	35	76	23	875	655
	2	292	276	266	128	43	35	59	59	152	53	30	30	73	20	915	601
1904–05..	1	288	278	257	168	45	33	36	36	53	53	38	38	90	33	807	639
	2	312	270	298	148	65	48	78	57	198	76	35	35	83	25	1069	659
1905–06..	1	295	272	302	152	84	66	61	61	62	34	15	14	90	24	909	623
	2	301	296	285	131	82	76	78	78	110	39	6	2	86	26	948	648
1906–07..	1	236	225	302	195	107	98	69	69	101	70	27	27	91	54	933	738
	2	304	277	305	145	133	113	64	64	86	38	0	0	120	39	1012	676
1907–08..	1	334	306	353	205	136	134	35	35	79	50	27	27	107	38	1071	795
	2	343	326	356	190	113	100	150	148	74	34	4	4	84	45	1124	847
1908–09..	1	385	344	392	199	241	209	145	145	20	9	49	43	99	48	1331	997
	2	399	360	331	202	173	146	148	140	4	4	5	5	195	57	1255	914
1909–10..	1	391	320	463	256	270	180	132	105	12	12	34	34	290	67	1592	968
	2	348	335	391	216	373	304	179	168	22	14	9	8	191	89	1513	1134
Total registration by Courses		4566		4565		1902		1295		1037		314		1675			
Total individual students			4206		2461		1569		1226		548		302		588		

Total Registration by Courses from all Colleges, 1903–10 15354

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OFFICIAL PUBLICATIONS OF CORNELL UNIVERSITY

Issued at Ithaca, N. Y., monthly from July to November inclusive, and semi-monthly from December to June inclusive.

(Application for entry as second class matter at the post office at Ithaca, N. Y., pending.)

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General Circular of Information for prospective students,
Announcement of the College of Arts and Sciences,
Courses of Instruction in the College of Arts and Sciences,
Announcement of Sibley College of Mechanical Engineering and the Mechanic Arts,
Announcement of the College of Civil Engineering,
Announcement of the College of Law,
Announcement of the College of Architecture,
Announcement of the Medical College,
Announcement of the New York State College of Agriculture,
Announcement of the Winter Courses in the College of Agriculture,
Announcement of the New York State Veterinary College,
Announcement of the Graduate School,
Announcement of the Summer Session,
The President's Annual Report,
Pamphlet on prizes, samples of entrance and scholarship examination papers, special departmental announcements, etc.

Correspondence concerning the publications of the University should be addressed to
The Registrar of Cornell University,
Ithaca, N. Y

OFFICIAL PUBLICATIONS OF CORNELL UNIVERSITY

VOLUME 1 NUMBER 4

ANNUAL REPORTS OF THE PRESIDENT AND THE TREASURER 1909-10

NOVEMBER, 1910
PUBLISHED BY CORNELL UNIVERSITY
ITHACA, NEW YORK

OFFICIAL PUBLICATIONS OF CORNELL UNIVERSITY

VOLUME I NUMBER 4

EIGHTEENTH ANNUAL REPORT
OF
PRESIDENT SCHURMAN
1909-10

WITH THE TREASURER'S REPORT, AND REPORTS OF THE DEANS OF FACULTIES, DIRECTORS OF COLLEGES, THE REGISTRAR, THE LIBRARIAN, AND OTHER OFFICERS

NOVEMBER, 1910
PUBLISHED BY CORNELL UNIVERSITY
ITHACA, NEW YORK

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PRESIDENT'S REPORT

FOR 1909–10

THE PROBLEM OF RESEARCH

The American University is a composite organization: it consists of the college, the professional and technical schools, and the graduate department. Originally the college was all there was of the American University; subsequently schools of law and medicine were incorporated in the expanding institution; in comparatively recent times technical and other professional schools were added; and in the last twenty or thirty years a number of our largest and best universities have also taken on departments of graduate study and research. These several parts or elements of the typical American university of to-day need to be separately distinguished in any discussion of university development or reform.

The charter of Cornell University requires it to provide liberal and practical education for the industrial classes in the several pursuits and professions of life. The aim undoubtedly was to secure for the educationally neglected classes of the community—and these were the overwhelming majority—the same opportunities of higher education, the same possibilities of scientific training for their pursuits and callings in life, as the older type of classical college and university already offered to the future lawyer, doctor, preacher, and teacher. In mental equipment and in training for practical life, in expert preparation for their several modes of earning a livelihood, the industrial classes were to have all the assistance which modern science could bestow upon them. This mandate of the charter is the authorization of the great departments of engineering, agriculture, and other similar practical and industrial courses in Cornell University. In the eyes of the older and conservative institutions—the advocates of the classic monopoly of "liberal" culture—these things branded Cornell as a utilitarian, if not even a Philistine institution. But experience has

amply justified the new and democratic departure, and Cornell is to-day honored as a leader in that great movement of agricultural and technical education which has not only won universal recognition, but which is the best approved and most widely popular service of our American universities. If Cornell is now in need, as she is sorely in need, of additional endowments to expand and improve her work in technical and industrial education—to secure a larger number of able and well-trained teachers for her overcrowded classes of students and to provide them with laboratories and apparatus for instruction and investigation—she may rightfully feel that her past record justifies a confident appeal to the generosity and philanthropy of men and women who desire to invest their wealth for the greatest good of their fellow-men.

Industrial and technical education has the great merit, not merely of not alienating young men from manual labor, but of keeping them in constant touch and sympathy with it, requiring them to practise the simpler mechanical operations as a part of their curriculum, and training them meanwhile to take up more complex varieties as a life-work after graduation. They go out naturally to the shops, the factories, the railways, the mines, and similar arenas of labor. In these latter days too, large numbers of them adopt some form of farming, which is becoming every year a more popular pursuit for young men, and women too, who have had the advantages of scientific training in raising crops or fruit or stock or making butter, cheese, or other products of the farm. There can be no manner of doubt that practical and technical education, while giving the individual student an excellent mental discipline, has also stimulated the agricultural and manufacturing industries of the country. And at the same time, by binding together the skilled hand and the educated brain, it has wrought powerfully for the maintenance and diffusion of the spirit of social and political democracy.

While the technical departments of the university fit men by scientific training to engage in industrial pursuits, "the college," or academic department, takes no account of the future careers or purposes of its undergraduates. This is at once the source of its greatest strength and its greatest weakness. Of its greatest strength, because it encourages men who love knowledge to devote themselves to study without regard to ulterior purposes; of its greatest weakness, because it permits men who have no intellectual

tastes or interests, if they can find a sufficiency of easy courses or easy-going teachers, to spend four years without much immediate profit to their minds and with ultimate serious damage to their characters in consequence of the formation of habits of idleness, listlessness, and perhaps deception, sham, and "grafting." The ideal for the college is not difficult to formulate. No student should be permitted to remain in it who does not love the arts and sciences for their own sake and who does not show that love by devoted study, unless indeed, he is earnestly pursuing courses with the definite object of preparing himself for some practical work or professional career.

To apply the ideal in practice is more difficult because of the number and variety of intermediate cases. Yet no one can deny that in American "colleges" in general, there are far too many students without serious purpose. They are there because their fathers are alumni, or because their mothers recognize the social value of a degree, or because the boys themselves regard "college" as a place for "a good time." Now the colleges of the country were never designed for such persons; and from the point of view of the public interest and American civilisation there is no reason whatever why they should be admitted, or, if admitted, suffered to remain. Fortunately Cornell has not a social prestige which attracts this class of students in any considerable numbers and the Dean and Faculty are inexorable in their insistence on full satisfaction of the requirements for admission and advancement. And this is the one hopeful course to pursue at the present time. Hard work is the solution of most of the college problems which educators are nowadays discussing. Given an able faculty and capable and studious undergraduates, and neither the preceptorial system (with its danger of coddling) nor the "elective system" (with its danger of snap courses and easy-going professors) would be of the slightest consequence. It is possible to approximate to that ideal situation by classifying students according to their ability and attainments and having those who excel taught in groups by themselves. Like most other reforms this would call for new endowments to secure additional teachers who of course should be of the very highest rank and standing. But no money is so well spent as that used for the education of young men of markedly superior intellectual power and of exceptional diligence and devotion to study.

So much for "the college" and the technical departments of Cornell University. The professional schools of law and medicine, which have been especially considered in recent Reports, and which are now on a very satisfactory basis, call for no further discussion in this connection. It is enough to repeat that the Medical College is now open only to graduates in arts or science, and that the members of the Faculty are devoting much of their energy to research in physiology, pathology, bacteriology, and the other medical sciences. In this respect the Medical College has become a most promising ally of the Graduate School.

The future of the American university is with the graduate school or department of research. It is by the enlargement of human knowledge that progress in civilisation and improvements in the life and condition of mankind are rendered possible. The scientific investigator who discovers new laws of nature does more for the relief, assistance, and uplifting of his fellow-men than all the politicians who deafen the world's ear with their panaceas,—too often, alas, mere sounding brass and tinkling cymbals. And the infallible lessons of human experience for thousands of years—does not the scholar by patient research spell them out and write them down for our instruction? These two—the scientist with his fruitful experiments, the scholar with his productive research—are the seers and accredited leaders of mankind in this twentieth century. In their light we shall see light, otherwise we walk in darkness. And it is such scientists and scholars who constitute the research department of the university.

This crowning glory of the university is not yet a fact in America; it is only an expectation, or at most a promise. When the realization comes—and come it certainly will, at Cornell or elsewhere—it will mark the final and culminating stage in the development of the university idea. At present the graduate schools of American universities have not been so much departments of research as colleges for the advanced training of prospective teachers and professors. Here and there a university or a department has risen above this routine and recognized its call to make explorations beyond the verge of existing knowledge. But little has been accomplished for two reasons. First, the investigator is burdened with teaching students and comes jaded and distracted to the task of research, which in a superlative degree calls for a mind in the freshness and plenitude of its powers. And secondly, while a

great graduate school and division of research really needs as much money as the present total endowment of the richest of American universities, the investigator to-day finds available for research only such driblets of funds as are appropriated to his department primarily for the purpose of instructing students. Both evils could be remedied by special endowments for research.

Here is the multi-millionaire's opportunity for the greatest and best investment in America! By means of a large endowment for research (say $20,000,000, which might be given at once or spread over a period of years) he would make it possible for at least one American university to enter upon the highest stage of university life and activity and to discharge its supreme function to the American public and human civilisation. A university dedicated by such an endowment to advanced work and research would challenge comparison with the best European universities and set an example which would prove contagious among the other leading universities of the United States.

It is essential to the success of the enterprise that productive scholarship and scientific investigation shall have as organ a genuine university. The alternative is either a corporation holding funds which it doles out in such ways for such purposes to such investigators and in such places as its managers deem expedient, or a truncated institution called a university which consists only of professors and graduate students. Johns Hopkins University has renounced the latter character and taken on a college of arts and sciences for undergraduates; and so has Clark University; and in view of their experience, no other institution is likely to essay occupying the ground which they have abandoned. Experience has also demonstrated insuperable objections to the plan of conducting research by agreement or contract between the investigator and a more or less foreign corporation chartered for the sake of holding funds. The true place for research is in the university; for the essential members of the university are professors and students. The men who conduct the investigations are themselves, to all intents and purposes, the very organization which also controls the funds. The work of these men is the very object and function of the institution. That work in its highest form is research and productive scholarship.

If the members of the university are animated by the spirit of science and scholarship, large numbers will be a decided advantage

to the cause of research. The attitude of the faculty of Cornell University towards research is well known and it is once more attested by the important report adopted by the Graduate School in May, 1910, to which reference will hereafter be made. As regards numbers at Cornell the enrollment of students in the University for the last twenty-five years has been as follows:

Year	Attendance	Year	Attendance
1885	649	1898	2543
1886	829	1899	2766
1887	1022	1900	2980
1888	1229	1901	3293
1889	1329	1902	3457
1890	1390	1903	3423
1891	1670	1904	3841
1892	1883	1905	4122
1893	2040	1906	4225
1894	2042	1907	4465
1895	2057	1908	4859
1896	2105	1909	5194
1897	2120		

Of this body of students there were registered as graduates engaged in research since the opening of the twentieth century the following numbers:

Year	Number	Year	Number
1901	189	1906	239
1902	201	1907	249
1903	197	1908	310
1904	211	1909	309
1905	232		

The great and rapid growth in the number of undergraduates and of graduates is sufficiently striking. But far more important than these figures even of graduate students, is the attitude of the University towards investigation and research. The weighty report adopted by the Graduate School last spring, on the occasion of the general reorganization, (printed in full in the Dean's report, Appendix III) puts the Faculty clearly and emphatically on record; and the sentiments of the Faculty are heartily endorsed by the President, and, as he believes, approved by the Board of Trustees. The following extracts from that report show the large place which productive scholarship and research occupies in the hearts and interests of the members of the Faculty, and the determination of these scholars and scientists, even though overburdened by teaching undergraduates and hampered by inadequate apparatus and other facilities, to stimulate and "maintain increased

activity in those lines of work which distinguish a true university from a large college, to the end that Cornell may retain the honorable position which she has held in the past, and now holds, among the universities of the country":

"A Graduate School is preëminently a school of research. Its purpose is to contribute to the advancement of knowledge, both by the training for productive scholarship which it offers to its students, and through the investigations carried on by the members of its faculty. . . . . .

"In this country, recognition of the fact that graduate work and research are essential features of a true university has come only gradually. But the appreciation of the importance of such work is now widespread, both in university circles and among the public generally. Of especial significance is the position taken by the Association of American Universities, which now makes membership in the Association conditional upon the possession of a strong graduate department. This University was among the first to recognize the importance of advanced work, and opportunities for advanced study have been offered almost from the opening of the University in 1868. The first Doctor of Philosophy received his degree in 1872, and since that time more than a thousand advanced degrees, over three hundred of them being doctorates, have been conferred. The high standing attained by the holders of our advanced degrees as teachers and investigators, and in other lines of professional work, is sufficient evidence of the success of our graduate department in the past."

"It must not be forgotten that an increase in the number of undergraduates brings with it an additional burden of administrative work, and that this burden, together with the responsibility of planning the work of instruction so as to handle such large numbers, must fall upon the *permanent* members of the staff. Unless the permanent staff is increased in the same ratio as the whole teaching staff, the time of the members of our Faculty will be increasingly occupied by administrative routine, and advanced work and research must necessarily suffer."

"It is a relatively simple matter for a teacher to drop his advanced work in order to give instruction to elementary classes. But it is a different thing for a man whose time has been occupied by the routine of administration and elementary work to change suddenly to graduate instruction and the direction of research. Again, from the standpoint of a graduate student, the attractiveness of a university is determined either by the excellence of its facilities for experimental work, or by the standing of the members of its faculty as investigators and progressive scholars. Unless our Faculty contains men eminent in their fields of knowledge and prepared to give graduate students the special training and the

inspiration that they seek, and unless the University already possesses the material equipment that is required, graduate students will not come to us. Provision for graduate students must be made years in advance, and not after the need of it has been shown by the returns from the Registrar's office."

"The University is unable to provide the expensive material equipment which is absolutely essential in many lines of advanced work; the time which the members of the teaching staff can give to graduate instruction is restricted; and worst of all, the pressure of administrative work and elementary instruction compels the members of our Faculty to reduce greatly the time devoted to investigation and other scholarly work."

"One of the most effective means of strengthening the Graduate School, and at the same time of maintaining a high standard of undergraduate teaching, is for the members of this Faculty to use their influence, both individually and as a body, to encourage scholarly work among all members of the instructing staff. Let it be understood that each member of our staff is expected to contribute in some way to the advancement of knowledge, and not merely to teach what he has received from others. If there are any who are overburdened with routine teaching, the load should be lightened to such an extent as to make research possible."

"It seems clear, therefore, that if the University is to achieve its highest purpose it must first of all demand of all its teachers those characteristics which are recognized as essential to membership in this Faculty; and having done so, it should assist in maintaining their activity and enthusiasm by encouraging all teachers, young and old, to contribute to progress in their fields of knowledge by scholarly work and investigation. Those who are sufficiently mature should further be given the opportunity of taking part in the direction of graduate work."

"It is important for the interests of the Graduate School and of the University as a whole that the work of teaching be so distributed that all members of the instructing staff may have a reasonable amount of time for scholarly work and research. And it is recommended that all members of this Faculty use their influence, both collectively and individually, to encourage such work by all members of the teaching staff."

"So far as practicable each member of the staff should be given the opportunity of taking part in advanced instruction as well as in elementary teaching."

"Recommendation for appointment and promotion should be contingent upon the possession of ability and activity in scholarly work and investigation, and not merely upon success in teaching."

"May it not be that we can do more good for the cause of education by directing our efforts toward making Cornell the best university in the country, rather than the largest?"

As an indication of the work which the Graduate School, in spite of all the limitations imposed by the entire lack of special endowments for research, has been able to accomplish, reference may be made to the publications of the professors given at the end of this Report. The other function of the School is to train specially qualified college graduates to become independent investigators. The extent of this function is indicated from year to year by the number of doctor's degrees conferred. Of these there were 35 at the Commencement in June, which is the largest figure ever reached.

In *Science* for August 19 last, there are comparative tables showing the number of doctor's degrees granted by the graduate schools of the universities of the United States for a series of years. The seven universities occupying the foremost place in these tables with the figures are as follows:

TABLE I
Doctorates Conferred

	Average of 10 Years 1898–1907	1908	1909	1910
Chicago	35.6	54	38	42
Columbia	32.2	55	59	44
Harvard	33.8	42	38	35
Yale	31.8	32	44	27
Johns Hopkins	30.5	28	27	23
Pennsylvania	22.5	32	29	26
Cornell	18.1	22	34	35

TABLE II
Doctorates Conferred in the Sciences

	Average of 10 Years 1898–1907	1908	1909	1910
Chicago	16.4	37	20	24
Johns Hopkins	16.8	17	20	15
Columbia	13.4	21	23	11
Yale	12.4	16	27	12
Harvard	14.1	13	14	10
Cornell	10.4	15	24	27
Pennsylvania	9.0	18	13	12

The first table comprises doctorates in all the liberal arts and sciences; the second table is limited to doctorates in the sciences. It will be seen that in the year 1910 Cornell conferred more doctorates in science than any other university in America, and also that the total number of doctorates conferred by Cornell both in the sciences and in the liberal arts was exceeded only by those of Chicago and Columbia (in which a considerable number of city school teachers give a portion of their time to studying for advanced degrees). There is also another very striking and encouraging feature of this tabular exhibit. The number of young investigators earning doctor's degrees at Cornell was twice as great in 1910 as it was on the average for the decade from 1898 to 1907, and furthermore, the increase since 1907 has been steady and uninterrupted.

With the spirit of research animating the members of the Faculty who have already accomplished great things with small resources, with the large and constantly growing body of students and especially of graduates who desire to devote themselves to advanced study and original investigation, there is no reason in the world why Cornell, with adequate endowment for research, should not quickly take rank with the foremost of European universities. But this endowment must be measured in terms of millions of dollars. And, as already stated, the need of it gives the multi-millionaire the best opportunity that exists to-day in America for an investment to promote the higher intellectual life and civilisation of the nation. In occupying this field, the man of large wealth will render an invaluable service to society which no other individual is able to discharge and which neither the state nor national governments can be expected to undertake.

THE PROBLEM OF THE PROFESSOR

The fact that there is in American universities a professorial problem itself shows that something is seriously wrong. The university began as a guild of scholars, and throughout the seven or eight hundred years of its history the faculty essentially constituted the university. If here and now other elements of the organized university have pushed the faculty from its controlling position, this illustrates on the one hand, the universal tendency of an organization to suppress the free play of personality and, on the other hand, the human and specially American disposition to entrust the highest interests of mankind—intellectual, moral, and spiritual—to a corporate body whose mechanism and operations easily usurp the place of the ends it was designed to subserve.

Whatever organization may be necessary in a modern American university the institution will not permanently succeed unless the faculty as a group of free individual personalities practically control its operations. This is said with a full consciousness of the fact that there is a large amount of business ancillary to the main object of the university which members of the faculty ought not to be asked to perform. Why should they pretermit their function as high priests of knowledge merely "to serve tables"? The point is that the men who attend to this business shall not use their position to subject the faculty to extrinsic control or influence.

As American universities are now organized the faculty has a partner in the board of trustees, which, if legal rights be asserted, is undoubtedly predominant; it has its own administrative officer or dean who of necessity gathers up its business in his own hands and may, therefore, be suspected of arrogating to himself the functions of his colleagues; and both faculty and trustees have a representative in the president who as head of the university with powers and duties and responsibilities impossible to define may, especially if he succeeds in gaining public confidence, acquire and exercise functions which properly belong to the trustees or to the faculty and of which they have been deprived, either by unchallenged acts of usurpation on his part or perhaps merely by the natural gravitation of human affairs under the influence of the activity of an individual and the inertia of a multitude. At any rate American professors have come to feel that their independence is imperilled and their proper influence in the university organization seriously impaired by the activity of deans, presidents, and trustees. And if the complainant is a junior teacher over whom there is a departmental head he may declare that the domination of his colleague is more intolerable than any other form of tyranny practised in the university. It seems that in universities, as in states and municipalities, whoever has power tends to magnify it and is liable to abuse it. And the offender may be a trustee, president, dean, or director—or even the professor who denounces *their* invasion of his just rights!

Unless state legislatures are ready to make the scholars and scientists who are the soul of the university its corporate body also—as is the case, for example, with the ancient colleges of Oxford and Cambridge—there will be no way of legally establishing the faculty as the controlling power of the university. There seems no likelihood of this revolutionary change in the State of New York, whose laws now actually prohibit a professor becoming a trustee in the institution of which he is a member. But the end in view can readily be accomplished without state legislation or even without institutional reorganization. Let the faculty recommend what after due consideration it deems important for the university to do or not to do, and so far at any rate as Cornell University is concerned, not only the President but the Board of Trustees will be too thankful for the recommendations to think of raising any question of jurisdiction or prerogative. The welfare, the best interest,

the advancement of Cornell University as an organ of higher education and research is the supreme object in every mind and heart, and the Faculty should know better than any other body or than any individual how this end is to be attained. No greater good could come to Cornell University than a quickening and deepening of the Faculty sense of responsibility for its welfare. Too often the faculties of American universities have rolled all responsibility on the president and trustees.

A faculty will not be dominated or over-ridden which justly asserts itself. Yet not only trustees but administrative officers are likely to remain; the positions are necessary or at any rate appropriate organs of the institution. Possibly the headship of the department may disappear, and a committee consisting of all the members of the department take its place, as has now been done in several of the departments of Cornell University. Probably the office of director will be abolished as the colleges having such heads become firmly established and democratically organized, and the work of the head is less largely devoted to non-academic objects. But the dean as executive agent of the faculty is indispensable; and it will be due to the laches of the members of the faculty themselves if the dean ever exercises their powers. It is for them to keep the institution democratic. And nowhere else is democracy so important as in the university. For the professor's function is an intellectual one, and freedom is the law and life of the spirit.

There remains the office of president. Of course the university must have a head. And a large American university composed of a board of trustees which conducts its business and invests its funds, and of a half a dozen or a dozen faculties knowing nothing of one another's affairs engaged in instruction and research, and of different and largely segregated groups of students and graduates—an institution which spends from $1,000,000 to $2,000,000 a year and has a corresponding volume of business, much of it complex, some of it delicate, all important—an institution having vital and varied relations and obligations to the public to whom also, in a democracy, its work should be made known and its aims constantly re-stated and re-interpreted—such a university needs not merely a head but a permanent head as a condition of harmonious co-operation, effective work, and continuous progress. And this head, while of course he need not control, must participate in all phases of the life and activity of the university, not only

because the university as a whole is entitled to his service but also in order that he may have the knowledge and experience qualifying him to be a faithful exponent and representative of the institution both in the academic community and in the larger world beyond.

Now, if stress is laid on duty and service and not on rights and prerogatives, if the university is conceived not as a monarchy or aristocracy or "mobocracy" but as a genuine brotherhood in which the president is merely the first servant of the institution, there would seem to be little difficulty, given a reasonable amount of tact and forbearance, of administering the American university as at present organized to the satisfaction of all parties. One danger indeed lurks in the disposition of some presidents to identify themselves with the board of trustees, to adopt an exclusively administrative attitude, to become merely men of business and men of affairs, and to lose touch with the work and sympathy with the aims and ideals of the faculty, which, of course, constitute the supreme object of the institution. If by any kind of reorganization this danger can be averted, the reorganization should be cordially welcomed. A university whose president does not embody and faithfully interpret the spirit of the scholars and scientists who essentially constitute the institution, is to all intents and purposes without a head. It is doubtful, however, whether any kind of organization will save our universities from occasional disasters of this sort. The one remedy is cultivation by the faculty of a sense of responsibility for the welfare and advancement of the institution and a readiness to advise on all matters directly or indirectly connected with the essential functions of the university of which they are the constituted organs and guardians. And so far as Cornell University is concerned, the President, and he doubts not, the Trustees also, would welcome recommendations on any subject affecting the welfare of the institution in regard to which the Faculty after calm discussion and careful deliberation believed they could offer pertinent and helpful advice. The report of the Faculty of the Graduate School published at the end of the year 1909–10 is an admirable example of faculty co-operation in determining fundamental policies for the university. By such action the faculty asserts itself, even under the present corporate organization of the university, as a potent element in its government. And the feeling that the university is *their* university, that *they* are influential in its control and that they themselves are free and

independent in their several positions, enhances the happiness of professors and stimulates them to their largest and best endeavors as teachers and investigators.

Respect for personality, the spirit of brotherhood, devotion to scholarship and science, and zealous co-operation in making Cornell University a worthy organ of their dissemination and advancement will ensure harmony, efficiency, and progress even under the present form of university organization and administration. But that is not all. In proportion as a university advances to the highest forms of its activity, it leaves behind the sphere of organization and officialdom and is embodied in the personality of its productive scholars and scientists. A Kelvin, or a Pasteur, or a Mommsen represents in his field the whole university; his work is beyond the reach of officers of government and administration; in his library or laboratory, surrounded with the facilities requisite for research, this solitary spirit, unvexed by rules and ordinances, broods creatively over the mysteries of nature and the life of man. The problems of government and administration that harass our universities in their caterpillar stage disappear in the highest phase of their development. At Cornell, for example, a well-endowed Graduate School and Division of Research would know nothing of them. All that is needed is that the different departments of science and scholarship shall have a certain portion of the income of the endowment assigned to them. That done, the investigator is his own board of trustees, faculty, and staff of administrative officials! Alone he "intends his mind" (in Newton's phrase) to wrest some new discovery from the vast sphere of the unknown.

This same development of the university through a reinforcement and new vitalization of the work of research will also solve another problem which now worries the professor. This is the problem of salary. Undoubtedly the teaching profession is falling into disrepute in America, and in consequence of the smallness and meanness of the salary or reward which prevails, it fails to attract a fair share of the best brains of the country. Now here as elsewhere, reform must begin at the top. And a man who has the rare ability and prolonged training requisite to qualify him to become an original investigator will surely be recognized by the public (if teachers are not) as entitled to a compensation at least as high as the lowest salaries for State judges in New York. As Bacon said in his "Advancement of Learning":

It is necessary to the progression of sciences that readers be of the most able and sufficient men; as those which are ordained for generating and propagating of sciences, and not for transitory use. This cannot be, except their condition and endowment be such as may content the ablest man to appropriate his whole labour and continue his whole age in that function and attendance; and therefore must have a proportion answerable to that mediocrity or competency of advancement, which may be expected from a profession or the practice of a profession.

THE PROBLEM OF THE STUDENT

This is a problem at once of numbers and of quality. So far as numbers are concerned it has been created by the great and rapid expansion of the University in recent years. The following table shows the enrollment of students since the opening of the present century, the first column of figures including the Summer Session and the Winter School in Agriculture, the second excluding them:

Year	Total Number of Students	Total Number of regularly matriculated Students
1900–1901	2980	2521
1901–1902	3293	2845
1902–1903	3457	3022
1903–1904	3423	3091
1904–1905	3841	3318
1905–1906	4122	3461
1906–1907	4225	3523
1907–1908	4465	3734
1908–1909	4859	3985
1909–1910	5194	4227

The number of persons who received instruction in the University in 1909–10 was 5194, an increase of 335 over the total attendance for the preceding year. And the number of regularly matriculated students, which did not reach 2000 till the nineteenth century was closing, in 1909–10 not only passed 4000 but touched 4227, an increase of 242 in a single year.

These 4227 regular students were distributed among the courses indicated in the following table, which for purposes of comparison covers five years:

YEAR	Graduate School	Arts and Sciences	Law	Medicine	Veterinary Medicine	Agriculture	Architecture	Civil Engineering	Mechanical and Electrical Engineering	Total exc. duplicates
1905–1906	232	705	222	394	88	230	81	425	1096	3461
1906–1907	239	748	211	348	86	278	82	466	1081	3523
1907–1908	249	820	206	320	82	348	100	511	1127	3734
1908–1909	310	902	225	221	94	415	133	569	1162	3985
1909–1910	309	970	264	201	100	539	140	559	1186	4227

The increase of regularly matriculated students is very marked in Arts and Sciences, in Law, and in Agriculture. The restriction of the Medical College in the City of New York to graduates in arts or sciences continues of course to deplete the attendance as was foreseen and assumed. The increase in the number of engineering students is inconsiderable. But the article giving the registration statistics of the leading universities of the United States published in *Science*, December 24, 1909, shows that "a general depression is noticeable in the case of the engineering schools," a few, indeed, recording insignificant gains but the great majority showing losses, in the case of several "quite marked." The article goes on as follows:

Cornell continues to maintain its lead in the number of scientific students, Michigan and Illinois being the only other institutions to attract over one thousand students to their schools of engineering; these are followed by Yale, Ohio, Pennsylvania, California, Wisconsin, Columbia, Minnesota, Missouri, and Nebraska, each of these universities attracting over five hundred students to their scientific schools.

Of the 4227 regular students 397 were women. In 1908–09 out of 3985 regular students 401 were women; and in 1907–08 out of 3734 regular students 403 were women. Although the total attendance of regular students has increased from 2845 in 1901–02 to 4227 in 1909–10 the number of women has remained stationary; it was 400 in 1901–02 and 397 in 1909–10. The enrollment of these 397 women was as follows: in the Graduate School, 34; in Arts and Sciences, 274; in Law, 1; in Medicine, 25; in Agriculture, 57; in Veterinary Medicine, 1; and in Architecture, 5.

What is now called a university was originally designated a *studium generale*: a place of study, not merely for students of the locality, but for students from other and all localities. Cornell continues to exhibit in a marked degree this cosmopolitan character of the historic university. It draws about half its students from the State of New York, and the other half from all the other States of the Union, from North, Central, and South America, and from Europe, Asia, Africa, and Australia. The following table shows in detail the geographical distribution of the student body in 1909–10:

New York	2289	Kentucky	12	India	5
Pennsylvania	338	Maine	12	Ecuador	4
New Jersey	234	New Hampshire	11	Nicaragua	4
Ohio	175	Delaware	10	Russia	3
Illinois	129	South Carolina	10	Turkey (Europe)	3
Massachusetts	104	West Virginia	9	Turkey (Asia)	3
Maryland	88	Hawaii	9	Australia	3
Connecticut	59	Alabama	9	Transvaal	3
Dist. of Columbia	48	North Dakota	7	Sp. Honduras	2
Indiana	42	Oklahoma	7	Brazil	2
Missouri	40	Louisiana	7	Peru	2
Michigan	37	Mississippi	7	Costa Rica	2
Colorado	31	Montana	7	South Africa	2
California	32	Arkansas	7	Switzerland	2
Wisconsin	29	South Dakota	7	England	1
Iowa	25	Rhode Island	4	France	1
Virginia	24	Wyoming	2	Greece	1
Utah	21	Florida	2	Bulgaria	1
Minnesota	20	Idaho	2	Germa y	1
North Carolina	19	Arizona	1	Uruguay	1
Washington	19	Nevada	1	St. Lucia (W. I.)	1
Texas	18	Alaska	1	Panama	1
Nebraska	17	Yukon Territory	1	New Foundland	1
Porto Rico	17	China	37	Guatemala	1
Tennessee	14	Cuba	20	British W. I	1
Georgia	13	Canada	12		
Oregon	13	Mexico	11	Total	4227
Kansas	12	Argentine Rep	9		
Vermont	12	Paraguay	6		
Philippines	12	Japan	5		

The facts and figures given above indicate the student problem so far as numbers are concerned. Cornell University is undertaking to educate several thousands of students every year and its resources are now inadequate to the task laid upon it. And the numbers of students go on increasing in spite of successive advancements made in the requirements for admission and graduation and marked and growing strictness in administering them.

The solution of the problem is difficult. If the endowments of the university were augmented as numbers increase, and in

somewhat the same proportion, the embarrassment would be happily disposed of; but wealthy philanthropists, perhaps because ignorant of the splendid opportunity offered, have not yet appeared to make this large and growing investment. In some divisions of the University, notably in Agriculture, the State provides appropriations for carrying on instruction which is offered to students without charge; and the State will, it is hoped, by means of constantly increasing appropriations, enable the University to maintain these divisions on a high plane of efficiency. But under the most hopeful future outlook these State-supported departments will embrace only a small proportion of all the departments of the University. And if the others are to grow they must have additional funds, which can come only by way of gift or bequest. To raise the fees for tuition, which are already quite high enough, would tend to restrict the University to the children of the wealthy and the well-to-do; while the majority of people in the country are of narrow means and Cornell was founded primarily to help the industrial classes in the several pursuits and professions of life.

The charter of Cornell University dedicates the institution to research as well as instruction. Might the problem of over-crowding not be solved by turning the University into an institution of research? There are objections in the interest of research itself to this limitation of the institution to investigators with the exclusion of all undergraduates, which have been mentioned in an earlier section of this report. But there is another and equally serious objection. While the charter of Cornell University specifically authorizes the institution to engage in research, it also puts it under primary obligation to teach and instruct students "in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

Undoubtedly it would be possible to limit the attendance. But what criterion shall be applied for this purpose? The educational standards have already been greatly advanced, and it is a serious question how much farther in this direction, if any, it is wise to go. Shall then an arbitrary number be selected as the maximum of permissible registration of students? If so, to what courses shall these students be admitted? Shall there be 1000 students in Arts and Sciences and 1500 in Engineering and 1000 in Agriculture and 300 in Law, or what other numbers? And, again,

on what geographical areas shall the numerical restriction be imposed? The State of New York furnishes slightly more than half the students at Cornell. Shall this State be deprived of the educational advantages of the University it chartered for the liberal and practical education of its industrial classes? On the other hand, if students from other states and foreign countries are excluded, the University will forfeit that cosmopolitan character which is one of its greatest glories and which has so long made it a genuine *studium generale*. Besides, many of the best prepared and most advanced students come from outside the State of New York; to this class belong the great majority of the 222 students entering from other colleges who were admitted to advanced standing in 1909–10, and also the 3200 students who have been admitted to advanced standing from other colleges in the last twenty-four years.

This last circumstance suggests a hopeful field for the future development of Cornell University. The colleges and universities of the United States address themselves to the average student; and in a democracy there will always be a strong feeling, which is also perfectly natural and just, that higher education should be open to all the boys and girls of the country who are able to pass the requisite examinations. The practice of this theory necessarily tends to make the college and university of the country revolve about the *average* student with a strong pull in the direction of mediocrity. But the student of superior endowments is apt to be sacrificed to the general average. Now it might be possible to retain the advantage of universal higher education for all who are qualified to enjoy it without sacrificing those youth of superior or extraordinary endowments among whom will always be found the men who advance civilisation, who move the world forward in the course of progress. Those glorious "sports of nature" (to apply Darwin's botanical phrase to corresponding human beings) have in their unique endowments the possibility of higher things for their species, provided only it is developed by favorable environment and suitable training. Why might not Cornell University become the peculiar nursery of such promising spirits? A seminary for the aristocracy of talent would be the highest and noblest institution in the world. And no other service to a democracy could compare with this: for to form the mind and character of one man of marked talent, not to say genius, would be worth

more to the community which he would serve than the routine training of hundreds of average undergraduates.

A destiny and function of this high character could not be arbitrarily assigned to or artifically imposed upon any university. There could be a happy issue only when the germs of such possibility were already inherent in the organization and operative in its activities. A claim of this sort may be made for Cornell University. If it is still far from the ideal seminary for the aristocracy of talent, the beginnings of that development are visible in the membership of the Medical College and the Graduate School with their enthusiastic and untiring devotion to independent research and productive scholarship—an intellectual function which none but superior minds can successfully discharge. And, in the second place, while many and indeed the majority of undergraduates, even though hard-working students, may be intellectually torpid and remain impervious to the force of new ideas, there is a minority, a saving remnant, not only in the course of liberal arts and sciences but also in the courses in agriculture, engineering, and other technical subjects who exhibit keen intellectual interest, who become enamoured of knowledge, and who develop an ambition to distinguish themselves as scholars or scientists. Perhaps the justification of a large, even a disproportionately large student body, from the point of view of the ideal university of the future, is that the assemblage at least brings together a small number of young men of superior ability with intellectual yearnings and scholarly ambitions. At Cornell such picked men are found, not only in the liberal arts, but especially in the sciences; and, what is still more surprising, the agricultural, technical, and practical departments (which form so large and vital a part of the University) furnish at least their proportionate quota of them. These latter students come to the University to qualify themselves by scientific training to follow some industrial pursuit and earn an honorable livelihood; but science is apt to captivate those of them who possess unusual intellectual gifts and interests and to make them devotees of her own, perhaps with a sacrifice of pecuniary advantage to themselves but with obvious gains to the community and to civilisation.

Thus in the Graduate School, the Medical College, and the "saving remnant" of undergraduates one may already discern the membership of the ideal university—the seminary for the aristocracy of talent, unvexed not only by the inferior but also by the average

student. But there remains another source from which Cornell University might draw such picked youth. The University stands in relation with the school system of the State of New York; it confers one free scholarship annually on each of the 150 assembly districts of the State, in all 600 scholarships. The growing reputation of the University steadily attracts better candidates into the competitive examinations which the State Education Department holds for these Cornell scholarships. And as the University continues to improve, these scholarships are likely to be sought by the ablest youth of the State.

There is another method of securing students of superior endowment which cannot be too strongly recommended. This is by the endowment of scholarships or exhibitions to enable boys of marked ability, but of limited means, as soon as they graduate in any high school or academy of New York State to come at once to Cornell University and pursue their studies. There are some 800 or 900 high schools in the State, and by correspondence with the principals, by special examinations, and, if need be, by personal inspection, the President and Faculty of the University would be able to make a wise selection of candidates. The plan is limited to New York State, because Cornell University has special obligations to its home state and because other states may be left to the care of their own universities. The object is to catch the talented youth of the State and give them, at the earliest possible time, an opportunity to develop their talents. Through poverty, through neglect, through ignorance of opportunity, many of these promising youth, whose fathers till the soil or work in shops or factories, are to-day lost to the republic of science and letters. These endowed exhibitions would enable Cornell University to go out in quest of them to every town and hamlet, to every high school district in the State of New York.

A genuine university consists of able professors and students devoting themselves to scholarship and science. If this fact is once recognized the proposal here made will be seen to be at once important and promising. It is, in short, that students shall be selected with as much care as members of the instructing staff, at any rate for the highest division of the University. It will not be practicable, and in all probability it would not be desirable, for Cornell University to exclude the student of average ability if he can pass the prescribed examinations. But let the superior student

be regarded as the supreme object, let the men of talent be segregated and instructed by themselves. Of course, all this would involve more endowments and additional teachers. But what is better worth while in the world than provision for the instruction of the world's best minds and the moderate satisfaction of their bodily needs, that they may pursue their studies not only undisturbed, but under the most favorable and stimulating conditions?

If endowments were forthcoming to foster a qualitative development of this sort at Cornell University the problem of numbers would take care of itself. For this high spirit would gradually take possession of the entire University. The criterion of excellence would be applied to all departments. The inferior student could not stand the pace set and maintained by the superior student and he would seek elsewhere a more congenial environment. In other words, the enthronement of superiority would have, as incidental result, an automatic tendency to limit the attendance of students.

THE PROBLEM OF SUBJECTS

The act of Congress of July 2, 1862, which donated to the several States public lands for educational purposes, had for its primary object the promotion of the study of the sciences related to agriculture and the mechanic arts "in order to promote the liberal and practical education of the industrial classes." The charter of Cornell University, which is the beneficiary of that federal grant, provided that any "other branches of science and knowledge may be embraced in the plan of instruction and investigation." In this way the founder combined with the narrower purpose of the act of Congress his own comprehensive conception of a university which he had formulated in the memorable words: "I would found an institution where any person can find instruction in any study." No one before or since has ever given such a perfect definition of the true university.

The curriculum of Cornell University should aim to be as broad and all-inclusive as human knowledge itself. To cultivate adequately such an infinite domain, however, would call for an army of scholars and scientists far beyond the number of the members of the largest university faculty in the world, and for equipment, resources, and endowments which no educational administrator has ever dared, even in his most hopeful dreams, to imagine, much less to estimate. Nor is this a discouraging circumstance. There are

many universities; they should work together; and no institution alone should attempt a task which will always tax the combined energies of all. It is for each to develop along its own lines, and to work its own work. Now, by the terms of its charter, by its spirit and by its actual achievements, Cornell University is dedicated first of all to the sciences and, notably, to the fundamental sciences which lie at the base of the practical and industrial as well as the intellectual civilisation of mankind. But this primary object of the University is, according to the charter, to be accomplished not only "without excluding other scientific and classical studies" but by "embracing" them "in the plan of instruction and investigation," so that the University may provide a "liberal" as well as a "practical" education. It is obvious that such a programme necessitates provision for the liberal arts,—language, literature, philosophy, history, economics, and politics,—as well as for the sciences.

A certain primacy, however, may be claimed for the sciences. And this prerogative is recognized and illustrated in practice. The quotations made above from *Science* show that in the year 1909–10 Cornell University had more "scientific students" in its undergraduate courses than any other university in America, and also that of its graduate students engaged in research a larger number were awarded doctorates in science than any other university conferred. ("Cornell, on the other hand, conferred this year 27 degrees [doctorates] in the sciences, surpassing all other institutions.")

There are two ways of determining the rank of the sciences. On the one hand a classification may be made on the basis of abstract generality, beginning with mathematics as the science of numbers, and continuing with physics as the science of energy, chemistry as the science of elements, geology as the earth-science, biology (including botany and zoology) as the science of life, and ending with psychology as the science of mind. But the order of relative importance of the sciences in America must be inferred from the attention they receive in the universities. And figures should be given both for the undergraduate and graduate departments. The article in *Science* (August 19, 1910) gives the distribution of doctorates conferred in June last by the universities of the United States among the different sciences. There were in chemistry 48, in physics 23, in zoology and physiology 28, in mathematics 23, in psychology 20, in botany 10, and in geology 10. With the exception of mathematics and psychology, the order of this list of sciences

corresponds with the distribution of graduate students in Cornell University in 1908–09, when there were enrolled in chemistry 54, in physics 23, in zoology and physiology 18, in botany 12, and in geology 11. In 1909–10 there were enrolled of graduate students in Cornell University in chemistry 53, in botany 27, in physics 24, in zoology and physiology 19, and in geology 10. It will be observed that the order for both years is the same except that, in consequence of the recent and rapid development of the College of Agriculture, there has been a large increase in the number of advanced students specializing in botany. Of undergraduates in Cornell University the number receiving instruction in the different sciences was in 1909–10 as follows: physics 2283, chemistry 1946, geology 1540, mathematics 952, zoology and physiology 589, botany 438, and psychology 398. These numbers, it remains to be added, were furnished by the heads of the departments mentioned, and no allowance was made for duplication in the case of students registered in more than one course except in physics, although from figures submitted by some of the departments it seems fair to assume that with all duplicates excluded the numbers given would not be reduced in any case by more than one-sixth, and in most cases not by so much.

As far as the sciences are concerned, therefore, Cornell University already has a large, well-adjusted, and efficient organization by which it strives to vitalize the industries of the country, discipline the minds of students, and enlarge the boundaries of existing knowledge. The next step is to develop this scientific establishment to the highest potency of which it is capable in this twentieth century. And the means to that end are perfectly simple. Able men, free from sordid cares, enjoying abundant leisure for research, and having ample laboratories and equipment and all the delicate apparatus which modern refined methods of investigation make necessary,—such men could erect on the splendid foundations already laid at Cornell University a temple of science unequalled in America and unsurpassed in the world The demand for scientific investigators, for laboratories, and for instrumentalities of research come to the President from all departments. Some of the professors have thought out plans of development which would necessitate an expenditure of $2,000,000 or $3,000,000 in a single department. And the problem is not for one, but at least for seven fundamental sciences; namely, chemistry, physics, zoology and physiology,

botany, geology, mathematics, and psychology. The President asks for these departments of Cornell University an endowment of from $1,000,000 to $3,000,000 each, and he will undertake to satisfy any munificent and philanthropic investor with the returns which the scientists will give him on his money. To begin with, every one of these departments, with the exception of physics (for which Mr. Rockerfeller has provided), needs a large and modern laboratory which would cost from $200,000 to $500,000 each.

Besides the sciences are the humanities which can never be absent from that scheme of "liberal" education which the charter of Cornell University requires it to furnish. The College of Arts has been increasing markedly in the number of undergraduates in recent years. But there has not been a corresponding increase in the number of graduate students, though there has been a gain in philosophy, history, and economic and political science. This condition at Cornell reflects the general situation throughout the country. The article in *Science*, already quoted, on the doctorates conferred by American universities in June last, sums up this matter as follows:

> In the case of the subjects not ranked under the natural and exact sciences, most degrees have been given in English, history, economics, and philosophy. The number of degrees in the languages appears to be small, when the large number of teachers in these subjects in our colleges and schools is considered. Teachers of French and German are, however, largely foreigners, and Americans who study these subjects would perhaps be more likely than others to take their degrees abroad.

At Cornell University the sciences have a potent stimulus in the large and flourishing technical departments. The liberal arts have no such extrinsic support. Furthermore, while the old conception of liberal education has been undermined in America, no definition applicable to the new conditions has yet been formulated. If the college of liberal arts is to hold its place in the educational system, it was suggested in the Report for 1906–07 that it must train men for definite careers. The proposal was "to give the undergraduate guidance in the choice of his studies and inspiration in the pursuit of his work by having him in his arts course study, among other subjects, a goodly number of those which bear directly upon his future life-work. It may even be that American educators will recover the now obscured idea of liberal education by carefully training students for the various intellectual vocations. And it would undoubtedly

promote greater seriousness and studiousness among undergraduates in arts if, by eighteen or nineteen years of age, they were urged to select their future vocations, as prospective engineers and lawyers often do at the present time, and to pursue their studies with reference to them."

This view has recently been advocated by one of the ablest champions of liberal culture in the country. In an editorial in *The Evening Post* (April 9, 1910), it is claimed that for men of letters, critics, historians, philosophers, editors, publishers, clergymen, college presidents, diplomats, and statesmen, an education in languages, literature, history, philosophy, etc., is "the most definite kind of training for 'success in life.'" And the article concludes as follows:

> In this age of intolerance for purposeless and indolent Goodness and Beauty, perhaps the hope of future usefulness for the college of liberal arts lies in frank competition with its rivals not for the women and weaker brethren, but for the young men of ambition and promise desiring to qualify themselves for the careers, more numerous now than ever before, open to liberal scholars and gentlemen. If it would but condescend to inscribe over its portals, "We, too, train for life," it could reduce the chaos of election, form an educational policy, give what is now demanded of every college, and at the same time gain what it privately desires.

Nowhere is such a conception of the functions of the college of liberal arts more natural than at Cornell University. Of course it is not necessary that every institution in the land should accept it. But Cornell University ought not to be afraid of the new departure. It is authorized by its charter to train students not only by practical but also by "liberal education" for the pursuits and professions of life. And it is also authorized to engage in research. Here are two functions for the Faculty of Arts. The one is to train students for those intellectual careers to which liberal culture is the condition of admission and the means of success. The other is to become productive scholars, historians, critics, economists, philosophers, antiquarians, or investigators in any portion of the vast field covered by the life of mankind. In this college as elsewhere throughout the University all problems disappear before an able faculty and student body devoted to research and to studies in which they are vitally concerned. Of course this leaves ample place for the man who loves knowledge for its own sake and thinks nothing of its utility to himself or to others.

COLLEGES AND DEPARTMENTS

The report of the Secretary of the University Faculty (Professor Hammond), printed as Appendix II, records the action taken by the Faculty on football—insisting on a thorough-going and effective reform as a condition of its continuance at Cornell—and also discusses the exhaustive investigations conducted by the Faculty Committee on Student Affairs into the conduct of students as a result of which the committee estimates "that 99 per cent of the students in the University are above reproach, so far as their moral conduct is concerned. They go about their daily work regularly and in every way maintain the traditions of the University as regards good behavior. A small contingent, however, probably not in excess of one per cent of the entire student population, have, for one reason or another, false standards of living and fall into dissolute habits and waste their time until they are dropped from the University rolls by their faculties."

The important report of the Dean of the Graduate School (Appendix III) has already been freely cited and discussed. Here it is enough to add that Professor Merritt's first year's service as Dean amply confirms the wisdom of the appointment.

The report of the Dean of the Faculty of Arts and Sciences (Appendix IV) describes the principal legislation enacted by the Faculty, guided by the recommendations of its committee on Educational Policy (which held eleven meetings during the year), the Administrative Board in charge of freshmen and sophomores (which held five meetings), and the hard-worked committee on Academic Records (which held twenty-six meetings). The most important feature is the adoption of the policy of concentrated work for freshmen and the consequent substitution of five-hour and six-hour term-courses for the three-hour year-courses formerly given in the languages and in history. The intensive study of three or four subjects is bound to produce better educational results than the diffusion of the student's energy over half a dozen subjects. And it will also enable the underclassman to get an earlier and fuller knowledge of certain subjects which, like modern languages, may be regarded as the tools of further study. At the same time, the repetition of five-hour courses in the second term furnishes to mid-year matriculants, whose numbers seem to be growing, a greatly augmented schedule of studies so that, indeed, they can now begin their course in February with a facility and

advantage as great as that enjoyed by those who enter in September. Elsewhere in this Report it is claimed that Cornell University should be a place for earnest, hard-working, and especially talented students. And Dean Hull very justly observes that "the scholastic standards of the College are far more debased when a man of known capacity sinks to the passing mark than they are elevated when half a dozen incompetents are somehow driven just above it."

The report of the Dean of the Faculty of Law (Appendix V) shows that the students entering have been adjusting themselves to the new requirement of at least a year of college work for admission, so that the diminution in the attendance may not be so great as was anticipated. Mr. Fraser, the librarian, has suffered a temporary break-down from overwork, and some effective means should be found to restrain the excesses of his devoted labors, if the professors and students of law are to continue to enjoy unimpaired in the future the invaluable assistance of his scholarly services.

In the reports of the Directors of the Colleges of Architecture, Civil Engineering, and the Sibley College of Mechanical Engineering (Appendices X–XII) the burden is more room: larger class rooms, larger laboratories, larger shops and drafting rooms. There is a demand too for strengthening some of the faculties. And in mechanical engineering it is thought that the time has arrived for instituting a division of research. Those great schools of applied science are splendid objects for an investment of millions of dollars.

The report of the Director of the Summer Session (Appendix XIII) records an attendance of 987 persons, of whom 377 were teachers—160 in high schools, 15 in normal schools, and 26 in colleges. For summer study Cornell has certain advantages which Director Bristol summarizes as follows:

First, this is a favorable situation for living in midsummer. While we have days of considerable heat, it is seldom that more than two or three such days come together, and almost without exception the nights are cool and comfortable. The great majority of our students live on East Hill and under favorable conditions for their physical comfort. This is particularly true of the women in Sage College and Cottage. Secondly, the situation of the University is particularly favorable for all forms of field work. The country in the immediate vicinity is remarkably rich in material for illustration and demonstration in botany, zoology, geography, and geology. The importance of this can hardly be overstated. It permits systematic and serious study to be combined with out-of-door exercise and a most healthful manner of living.

The report of the University Adviser of Women (Appendix XIV) describes in some detail the problems connected with the life, health, work, and social intercourse of the women students. The subject of women's vocations is also considered, both from the point of view of the education of women students and also of the future careers which are to-day open to them. This is a matter which the Adviser has very much at heart and on which she has spent much time, thought, and energy. It only remains to add that Mrs. Martin has filled the difficult position of Adviser, to which she was so recently elected, with a success universally and emphatically recognized.

The report of the Librarian (Appendix XVI) shows that the library now contains 383,696 volumes and 57,000 pamphlets. At the present rate of increase there will be about 400,000 volumes in another year. This rapid rate of growth is creating a serious housing problem. The Librarian says:

The overcrowding of the shelves has again begun to be felt. More shelf room is urgently needed and, unless some steps are promptly taken to provide it, we shall soon have to resort again to the unsatisfactory and inconvenient expedient of packing away large numbers of our books in boxes, or removing them to some other building, and thus decreasing the usefulness of the library. I, therefore, respectfully urge that immediate provision be made for additional shelf room to relieve the congestion.

The condition, work, and prospects of the Infirmary are described succinctly in the following report from Mr. C. D. Bostwick, chairman of the Infirmary Committee:

This year has again demonstrated the increased usefulness of the Infirmary, and the success of the operation of the fixed fee plan. During the two years this plan has been in operation, while the total University registration, excluding the Summer Session, has increased only 5%, the number of patients admitted to the Infirmary has increased 76%, and the total number of days' service 51%. I do not think these figures mean that the privilege of free care is being abused, but that students are taking advantage of the care there received, rather than, when not sufficiently ill to be confined to their beds, remaining in their rooms or about their boarding places. Students are encouraged to avail themselves of the Infirmary when if it involved an extra expense they would refrain from doing so.

Plans for an addition, to occupy most of the lot west of the present building, were nearly completed, when the former home of Mr. George

W. Schuyler, a charter member of the University, and its first Treasurer, came into the market and was purchased by the University Trustees as an addition to the Infirmary grounds. This was a needed and most opportune addition, and it will permit the placing of the new building, with future additions probably sufficient for many years, north of the north line of the present building, and will preserve the lawn and the beautiful view from the home of Mr. Sage.

The following statistics for the year are of interest:

	Infirmary	Outside	Total
Number of patients	837	83	920
Total number days' service	4752	1269	6021
Average cost per day per patient	2.27	2.81	2.38
Average daily service	17.6	4.7	22.3
Average days per patient	5.6	15.3	6.5
Maximum day's service (Mar. 1st)	37	10	47

THE STATE COLLEGES

The needs of the New York State College of Agriculture and the New York State Veterinary College were presented in some detail in the President's last Report (pp. 30–36). The Trustees of the University presented to the legislature last winter a detailed plan of development of these Colleges for the next ten years calling for appropriations for buildings alone of over $2,000,000. The legislature passed a law providing that for the beginning of this development the Trustees of the University be authorized to contract for the erection of a general class-room and laboratory building at a cost of $113,000, a building for the poultry department at a cost of $90,000, and a building for the department of home economics at a cost of $154,000, and appropriated for immediate expenditures on these objects the sum of $200,000. Further, the regular appropriation, carried in the appropriation bill, for the maintenance of the State College of Agriculture was raised by action of the legislature from $175,000 for the year 1909–10 to $200,000 for the year 1910–11, and the supplementary maintenance appropriations carried in the supply bill were increased from $10,000 for 1909–10 to $12,000 for 1910–11.

The enlargement of material facilities just described will relieve the over-crowding in the State College of Agriculture in the departments mentioned, but it leaves other great departments of that college just as they are, notably animal industry, biology and entomology, plant physiology, plant pathology, plant breeding, and others, while the new buildings authorized cannot be used till

appropriations have also been made for a central heating and power plant. Furthermore, none of the improvements outlined in the Trustees' plan of development for the New York State Veterinary College were authorized by the legislature, and that College is therefore still without the hospital it needs so much for its work in animal clinics.

The College of Agriculture enrolled in 1909–10 a total of 968 students. In 1908–09 the figures were 838, and in 1907–08 they were 660. Of these 968 students, 371 were in the Winter Course and 58 were graduates. Nearly three-fourths of the students enrolled came from New York State, 706 out of 968, while 213 came from other States of the Union and 49 from foreign countries. A large and rapid increase in the number of students must be anticipated, as the people of the State are now beginning to realize what agricultural education can do for them, and the State Granges and other agricultural organizations are everywhere urging the importance of the application of science and scientific methods to agriculture. Any provision for the development of this College in the near future, however large and generous, is likely, therefore, to prove inadequate. It is a question at once of more students, more professors, and more subjects. Among the latter, forestry has hitherto had no place in the curriculum; and the importance to the farmer of the proper management of his wooded tracts makes it imperative on a good college of agriculture to furnish the necessary instruction.

The College of Agriculture lays great emphasis on extension work among the farmers of the State. As the vast majority of farmers can never come to the College, the College aims to carry instruction to farmers on their farms. To this end, reading courses and lecture courses have been established, and a large correspondence bureau maintained. During the past year special railway farm and fruit-trains were utilized more largely than heretofore for lectures and demonstrations in different parts of the State, in northern, north-western, north-eastern, and central New York. As the trains were fitted out in Ithaca, it was possible to take along for illustrative purposes, not only apparatus, but also cows, poultry, fruit, etc. These demonstrations and exhibits were accompanied by lectures on practical phases of horticulture, agriculture, dairying, stock-breeding, etc., and the work as a whole proved exceedingly instructive, and it was everywhere heartily welcomed.

The College of Agriculture is also co-operating with business concerns in the solution of agricultural problems in which they are interested. These firms furnish funds for the stipend during a period of one, two, or more years of a specially prepared graduate student who is required to undertake the investigation of a specific scientific problem. It is a species of fellowship, unendowed but salaried. And the compensation ranges from $750 to $1500 a year. As the work of the holders of these industrial fellowships is precisely that of a graduate student, carried on in the same way, and subject to the same conditions, it is of course accepted by the University in satisfaction of the research requirements for an advanced degree. It is a case in which the interests of business, of science, and of the graduate student are in complete accord. How important a part of the functions of the College of Agriculture is the work of research is evidenced by the fact that there were in 1909–10 no fewer than 58 graduate students in the college.

Professor Bailey, the Director of the New York State College of Agriculture, was absent on sabbatic leave during the year 1909–10. His place was ably and successfully filled by Professor H. J. Webber, who was appointed Acting Director. Special attention is called to his report (Appendix IX).

In the New York State Veterinary College there was disappointment that the legislature did not, as mentioned above, make an appropriation for the much-needed hospital for animal clinics. In the present temporary quarters and with the equipment now available, the teaching of clinical medicine for veterinarians is bound to be unsatisfactory. It is earnestly hoped that the legislature will not long defer the requisite relief.

The number of students enrolled in 1909–10 was 101; there were 44 freshmen, an increase of 15% over the corresponding class of the preceding year. The effect of the advance of entrance requirements in 1905 in checking the enrollment has now exhausted itself. With the extension of the north wing, for which the contract has been let, there will be laboratories and class-rooms enough in the near future for this growing body of students with two exceptions. One is the Department of Clinical Medicine, for which the legislature was last winter asked to make immediate provision. The other is the Department of Pathology which, with its multiplying experiments and investigations, will before many years need a separate building or a new wing.

On the farm provided by the University and with an annual appropriation of $10,000 provided by the State, Director Moore is developing a Veterinary Experiment Station which is now engaged in investigations into certain phases of some of the more important diseases of cattle, swine, and poultry. These embrace bovine tuberculosis, infectious abortion, granular venereal diseases of cattle, and infectious maladies of poultry. And besides this work in the Veterinary Experiment Station, findings of value have been made by members of the Faculty of the College. New data have been collected relative to rabies, glanders, and tuberculosis, the Gid parasite has been discovered in a fatal disease among sheep, and Dr. Fish has made a valuable contribution to methods of branding animals for purposes of identification.

In the extension work of the College the answering of the numerous individual inquiries received in regard to methods for preventing various diseases and disorders of animals is a function of very considerable importance. Lectures were given and exhibits made at state and county fairs and elsewhere on topics of veterinary hygiene and preventive medicine. In January a two-day conference for veterinarians was held at the College at which more than 10 per cent of the practitioners of the State were present. The State is also getting the benefit of a report on the methods employed in Europe for the control of bovine tuberculosis which was made to the State Commissioner of Agriculture by the Director of the College. In the fall of 1909, Dr. Moore was appointed a member of the International Commission on this subject.

Reference is made to the Director's report (Appendix VIII).

THE MEDICAL COLLEGE

The Medical College in New York City is in a state of transition from an institution which received matriculants fresh from the high school, immature, narrowly educated, and ignorant of science, and which drilled them in the elements of the medical sciences as their former classmates were drilled in colleges and technical schools, into an institution with doors closed to all but college graduates who have not only been disciplined in the liberal arts but who have already been trained in the fundamental sciences and who, having outgrown the stage of drill and recitation, are in the four years of their professional course not only to assimilate existing medical knowledge, but to practise in the laboratories the methods by which

it has been acquired, and perhaps themselves make some original contribution, however small, in the way of new facts, new interpretations, or even new theories or laws. It will be one year more before the Medical College is confined exclusively to these maturer students with their better general and special education and higher outlook on the medical course. During the interval it will be well to ponder over the problems which the College has to solve and the best method of grappling with them. Reference is accordingly made to the reports of Dean Polk and of Secretary Kerr printed herewith as Appendices VI and VII. And besides these documents referring to the Cornell University Medical College there is now also available a wealth of data, suggestions, and recommendations in the exhaustive, illuminating, and absolutely trustworthy report on Medical Education in America which was published last spring by the Carnegie Foundation and which immediately took its place as the standard authority on the subject. Dr. Pritchett, the President of the Foundation, in his introductory summary of the findings of the report says (pages x and xi) that the significant facts revealed by the study are:

(1) "For twenty-five years past there has been an enormous over-production of uneducated and ill trained medical practitioners."

(2) "Over-production of ill trained men is due in the main to the existence of a very large number of commercial schools."

(3) "Until recently the conduct of a medical school was a profitable business, for the methods of instruction were mainly didactic. As the need for laboratories has become more keenly felt, the expenses of an efficient medical school have been greatly increased. . . .

"Colleges and universities have in large measure failed in the past twenty-five years to appreciate the great advance in medical education and the increased cost of teaching it along modern lines. Many universities desirous of apparent educational completeness have annexed medical schools without making themselves responsible either for the standards of the professional schools or for their support."

(4) "A hospital under complete educational control is as necessary to the medical school as is a laboratory of chemistry or pathology."

The following quotations are from the body of the report itself:

"For purposes of convenience, the medical curriculum may be divided into two parts, according as the work is carried on

mainly in laboratories or mainly in the hospital; but the distinction is only superficial, for the hospital is itself in the fullest sense a laboratory. In general, the four-year curriculum falls into two fairly equal sections: the first two years are devoted mainly to laboratory sciences,—anatomy, physiology, pharmacology, pathology; the last two to clinical work in medicine, surgery, and obstetrics." (Page 57)

"The curriculum of a medical school, requiring for admission at least a competent knowledge of physics, chemistry, and biology, offers in the first two years systematic instruction in the following subjects:

First year: Anatomy, including histology and embryology; physiology, including bio-chemistry.

Second year: Pharmacology, pathology, bacteriology, physical diagnosis." (Page 61)

"A university department in one of the fundamental medical sciences, none too elaborately provided, cannot, then, on the average be effectively maintained for less than $10,000 to $15,000 per annum. At the moment, of course, the departments are not all equally expensive. Anatomy and pathology cost more than pharmacology and bacteriology. But the average is not thus seriously disturbed; for the former will extend above the line as much as the latter can be reduced below it. All of them, as they are developed, tend to cost more. Where the sum named has not yet been reached, the tendency towards it is unmistakable." (Page 129)

"We may then assume that the five departments of a properly organized medical school, capable of handling 125 students, in its first two years can hardly be properly sustained on a total budget of less than from $50,000 to $75,000 annually." (Page 129)

"Wherever a department has been acceptably cared for, the expenditure is apt to exceed our schematic estimate: Johns Hopkins now spends $16,750 a year on anatomy, $14,171 on pathology (not counting $4791 spent on the clinical laboratory), $13,246 on physiology and physiological chemistry. Columbia spends $29,259 on anatomy, $18,400 on pathology, $17,838 on physiology. Cornell (New York) spends $37,000 on pathology, histology, and bacteriology, $15,895 on anatomy, $14,940 on physiology. These appropriations are not extravagant. On the contrary, they are closely approached—sometimes exceeded—wherever modern methods are effectively employed: At Ithaca, Cornell (18 students) spends $9500 on anatomy and $13,500 on physiology and pharmacology; New York University (408 students) spends $15,000 on pathology; Washington University, St. Louis (178 students), spends $9640 for anatomy, $8550 for physiology and pharmacology; the University of Wisconsin (49 students) spends $10,000 for anatomy and $8100 for physiology.

Anatomy costs the University of Michigan $14,300 a year, and the University of Iowa $13,525." (Pages 134, 5)

"The modern medical establishment that spends $50,000 or $75,000 upon its fundamental laboratories will, if it is to be equally productive in clinical medicine, spend an equal sum on teaching and investigation during the latter two years,—quite apart from the current maintenance of hospital and dispensary. That is to say, $100,000 to $150,000 will be required at the start to pay the minimum cost of a four-year school of medicine." (Page 133)

"The initial cost of the hospital establishment may vary within large limits: a plain, but serviceable structure, capable of accommodating 200 patients, with proper teaching facilities, may be erected for a few hundred thousand dollars; or it may cost millions. The cost of maintenance also fluctuates considerably according to situation and scale of support. In the city of New York, it is roughly estimated that it takes $1000 to maintain one bed for one year; a 200 bed hospital may thus readily involve an annual expenditure of $150,000 and upwards." (Page 131)

"In what relation is the medical school to stand to its hospital if the methods above described are to be instituted? Exactly the relation which it occupies to its laboratories generally. One sort of laboratory may as well be borrowed as another. The university professor of physics can teach his subject in borrowed quarters quite as well as the university professor of clinical medicine." (Page 99)

"The control of the hospital by the medical school puts another face on its relations to its clinical faculty. What would one think of an institution that, requiring a professor of physics, began by seeking someone who had his own laboratory or had got leave to work a while daily in a laboratory belonging to someone else? That is the position of the medical school that, in order to gain even limited use of a hospital ward, has to cajole a staff physician with a professorial title! When the hospital belongs to the medical school, appointments are made on the basis of fitness, eminence, skill. A man is promoted if he deserves it; if a better man is available elsewhere, he is imported. Opportunities are his in virtue of the university's choice: it is absurd to reverse the order. The men thus freely selected will be professors in the ordinary acceptation of the term: they hold chairs in an institution resting on a collegiate basis,—a graduate institution, in other words. They will be simultaneously teachers and investigators. Non-progressive clinical teaching involves a contradiction in terms. The very cases which are exhibited to beginners have their unique features. New problems thus spring up. Every accepted line of treatment leaves something to be desired. Who is to improve matters, if not your university professor, with the hospital in which he controls conditions, with a dozen laboratories at his service for such

aid as he summons, with a staff who will be eyes and ears and hands for him in his absence? These conditions exist in Germany, and clinical science has there thriven; they are lacking here, and clinical medicine droops in consequence." (Page 101)

TRUSTEES AND FACULTIES

In the death of Walter Craig Kerr on May 8, the Board of Trustees lost an able, experienced, and faithful member, who for thirty-five years as student, instructor, and trustee, had been connected with the University. He served on many important committees of the Board, especially those concerned with technical education and with the material development of the University, and his scientific training, wide practical experience, good judgment, and sturdy common sense made his reports and recommendations unusually valuable. Mr. C. C. Dickinson died nine days after Mr. Kerr, before completing the first year of his trusteeship to which he had been elected by the alumni.

At their meeting in June the Associate Alumni elected Messrs. John H. Barr and Robert T. Morris as trustees to succeed themselves, and Mr. Ira A. Place to fill the vacancy caused by the death of Mr. Dickinson. In June also, the Board re-elected Trustees Henry R. Ickelheimer, Henry B. Lord, and Andrew D. White to succeed themselves for a further term of five years. The Governor of the State, with the advice and consent of the Senate, appointed Mr. John N. Carlisle to succeed himself as Trustee for a full term of five years. No successor to Mr. Kerr has yet been elected.

Three members of the University Faculty, Professors Wilder, Hewett, and Wait, retired in June from active service and were immediately elected to emeritus professorships, the Board of Trustees at the same time causing the following minutes to be spread upon their records:

Resolved, That on the retirement at the close of the present academic year of Burt Green Wilder, Professor of Neurology and Vertebrate Zoology, the Trustees record their appreciation of his long and devoted service, beginning with the day that the University first opened its doors to receive students and continued through two and forty years until the present time, a lifetime freely and unselfishly given to the cause of science, and an inspiring example to hundreds of his students of that eager love for truth characteristic of him as it was of his own masters, Gray, Holmes, Wyman, and Agassiz. Recalling the fact that he is the last of the original faculty in active service, the Trustees earnestly wish him many years of health and continued activity in the chosen field of his labors.

Resolved, That on the retirement of Waterman Thomas Hewett, Professor of the German Language and Literature and head of the Department, at the close of the present academic year, the Trustees place upon record an expression of their high regard for his long and faithful service extending through a period of forty years, their recognition of his broad scholarship, embracing not alone his special field but a large group of kindred studies, and their appreciation of the writer, investigator, and editor who improved and set a standard for modern language text books. Deeply do they regret that the closing year of his labors was clouded with illness, and they extend to him their sympathy and best wishes for health and continued devotion to scholarly and literary work.

Resolved, That on the retirement at the end of the academic year 1909–1910 of Professor Lucien Augustus Wait, who has faithfully served the University in the Department of Mathematics for forty years and been in charge of its administration for a third of a century, the members of the Board of Trustees hereby place upon record their high appreciation of his services to the University as a devoted professor and efficient administrator in one of its largest departments; and that this Board (many of whose members have been among Professor Wait's pupils) join with hundreds of Cornell Alumni in paying hearty tribute to his worth as an educator and a man, and in wishing for him many years of health and happiness.

The following sabbatic leaves of absence for the year 1910–1911 have been granted: Professors J. W. Jenks, G. R. McDermott, and J. E. Creighton, and Assistant Professor Northup for one year; Professor H. S. Jacoby for the first term; and Professors Kingsbury and Hutchinson and Assistant Professors Blaker and Schoder for the second term. Professor G. S. Hopkins has been relieved from his work at the Veterinary College during the second term of 1910–1911, and directed to make investigations into the methods of anatomical teaching and research work in the leading veterinary colleges of Europe.

Professor E. B. Titchener was appointed Sage Professor of Psychology in the Graduate School and relieved of undergraduate work in order to devote his time to research and the instruction of graduate students. Professor Bristol was appointed Director of the School of Education. The following promotions to professorships were made among the assistant professors of the University: J. S. Shearer, to be Professor of Physics; J. I. Hutchinson, to be Professor of Mathematics; V. Snyder, to be Professor of Mathematics; A. B. Faust, to be Professor of the German Language and Literature; E. M. Chamot, to be Professor of Sanitary Chemistry

and Toxicology; A. W. Browne, to be Professor of Inorganic and Analytical Chemistry; E. H. Wood, to be Professor of the Mechanics of Engineering; H. D. Hess, to be Professor of Machine Design; A. C. Gill, to be Professor of Mineralogy and Petrography; D. H. Udall, to be Professor of Veterinary Medicine and Hygiene; and J. P. Bretz, to be Professor of American History. Appointments to assistant professorships were made during the year as follows: A. Livingston, to be Assistant Professor of the Romance Languages and Literatures; H. L. Jones, to be Assistant Professor of Greek; G. A. Everett, to be Assistant Professor of Oratory; and A. W. Bœsche, to be Assistant Professor of the German Language and Literature.

The number of members of the instructing staff during the year was as follows:

	At Ithaca	In New York	Total
Emeritus Professors	10	1	11
Professors	93	13	106
Clinical Professors	—	21	21
Assistant Professors	73	9	82
Lecturers	—	5	5
Instructors	157	53	210
Assistants	169	32	201
	502	134	636

GOLDWIN SMITH

In the death of Goldwin Smith on June 7, Cornell University lost one of its most devoted friends, its oldest emeritus professor, and the most illustrious scholar who ever sat in its faculty. He came to Cornell University as professor at its opening in the fall of 1868 from the oldest and most famous University in the English-speaking world, and his great reputation as a man of letters, an historian, and a publicist at once reflected lustre upon the new and struggling institution just founded by Ezra Cornell.

Goldwin Smith more than once said to the President that no event in his life gave him more satisfaction than his participation in the founding of Cornell University. A generation ago, when the institution was the object of cruel attacks, he stood on this campus and defended both its founder and its management, while at the same time, dark and hopeless as the outlook then was, he prophesied for it a bright and glorious future. "I believe," he said, "it will be

a great and good institution, and one which any man will feel it an honor to serve. I have believed it an honor to serve it. My affections for it are unchanged. My hopes for it are unabated."

Through forty-two years his loyalty and devotion to Cornell University continued unabated. And in recent years the University occupied an ever increasing place in his interest and affections. His sentiments were expressed in his last will and testament, under the terms of which Cornell University as residuary legatee will receive about $700,000 out of an estate of $833,000.

This splendid legacy is enhanced by the history of the origin and growth of the estate, which, in part, Goldwin Smith inherited from his father, but, in large part also, accumulated by prudent investments and economy in expenditures. It is capital saved, and wealth created by himself and his father, that he dedicates to the advancement of liberal studies at Cornell University. And the noble and felicitous language of this testamentary disposition will be remembered as long as successive generations record the history of Cornell University. It will recall to them Goldwin Smith and Ezra Cornell, the American nation and the English speaking races, Cornell University and the highest civilisation of mankind. Here is the passage:

All the Rest and Residue of my estate I give, devise, and bequeath to Cornell University in the State of New York, United States of America, absolutely to be used by the Board of Trustees for the promotion especially of liberal studies, Languages, Ancient and Modern, Literature, Philosophy, History and Political Science, for which provision has been made in the new Hall which bears my name and to the building of which my wife has contributed.

In confirming this bequest my desire is to show my attachment to the University in the foundation of which I had the honor of taking part; to pay respect to the memory of Ezra Cornell; and to show my attachment as an Englishman to the union of the two branches of our race on this continent with each other, and with their common mother.

The following resolutions on Goldwin Smith were drafted by the Committee of the University Faculty appointed at its meeting on June tenth:

By the death of our beloved colleague, Goldwin Smith, this Faculty has lost its senior member, and Cornell University one of its truest and most sympathetic friends. From its opening, in 1868, through all its existence he has identified himself with the University's interests. During its earliest years, while he was resident with us, by his brilliant and inspiring lectures and not less by his

personality he was an inestimable influence. His very presence was a power. After his retirement to Canada he still for many years continued to return to us for his courses of lectures; and always his coming was hailed, alike by Faculty and students, as a great and inspiriting occasion. None were too mature to listen to him gladly; and, whether in the class room or in that social converse to which he so generously welcomed even his boys, he was not only a rare intellectual force but a potent inspiration to character. Who of us can ever forget that spare and stately though slightly stooping figure,—that face so eloquent of thought and of experience, so noble in its grave and lofty calm,—that mirthful and mirth-provoking smile which ever and anon broke like a sunbeam through its sadness,—that quizzical twitching of the mouth which heralded and softened his satire,—that voice, so quiet yet so expressive? These, with his pure and noble life and his loyal and unselfish services to Cornell, will be a memory long cherished by this Faculty. He will stand out in the history of the University as one of those who did most to shape and to vitalize its early career.

FINANCES

Excluding the funds for the maintenance of the Medical College in New York City, the total property of the University, including endowment, real estate, buildings, and equipment, was on August 1, valued at $15,178,174.81. The productive funds included in this total amounted at the same time to $8,687,274.05. The rate of interest received on the investments averaged a trifle over 5 per cent.

The income for the year from all sources amounted to $1,657,331.66. Of this income $281,687.59 was received from the State of New York for the regular maintenance of the State Colleges of Agriculture and Veterinary Medicine, and the receipts from and for the Medical College in New York City were $228,667.23. The receipts from students (not including the students of the Medical College in New York City and of the State Colleges) were $339,769.49 for tuition fees, $59,936.19 for laboratory fees, and $41,187.06 for incidental fees. There was received from the United States under the second Morrill Act $25,000, under the Nelson Act $15,000, under the Hatch Act $13,500, and under the Adams Act $8,775. The income from invested funds amounted to $440,546.52.

The expenditures of the University exceeded the income for the year by $33,375.79. These expenditures included among extraordinary items $34,643.80 to extinguish the debt on Goldwin Smith

Hall and $13,114.62 for the installation of a new organ in Sage Chapel. The budget of succeeding years, though relieved of these unusual expenditures, was augmented to a considerable extent by increases in the salaries of members of the instructing staff.

As has been stated, the deficit on the year's operations amounted to $33,375.79. The University, however, has carried a deficit of over $70,000 as an inheritance from the disastrous epidemic year of 1903; and this amount had been subsequently augmented to defray the cost of new buildings and reconstructions. On the other hand premiums had been received from investments sold. By a draft on these accumulated premiums to meet the adverse balance of the year it resulted that the total accumulated deficit on August 1, 1910, stood at $104,572.46.

The donations for the year aggregated $228,554.37. The largest item was $173,000 from Colonel Payne towards the maintenance of the Medical College in New York City, and $15,766.75 from the same generous benefactor for alterations in the building of the College. From the estate of Willard Fiske $15,000 was received, from the estate of Charles A. Hasbrouck $10,000, and from the Honorable Frederick C. Stevens $2,500.

Gifts made during the year, though funds have not yet been actually paid over, include $50,000 from Mr. Andrew Carnegie to defray the cost of an addition to the chemical laboratory, and a bequest of about $700,000 under the will of Goldwin Smith elsewhere mentioned in this Report. The appropriations made by the legislature of the State of New York for the State Colleges of Agriculture and Veterinary Medicine have been elsewhere described in this Report. A detailed list of donations will be found in the Treasurer's Report. Gifts of apparatus, equipment, books, etc. are mentioned in the reports of the directors of the colleges and the Librarian of the University.

Although the old students and graduates of Cornell University are on the average a youthful body, they have followed the example of the older alumni of the eastern universities in organizing and collecting funds for their Alma Mater. Their organization is known as the Cornellian Council. It has a permanent secretary who gives his whole time to the work. Although the work began comparatively late in the year, collections amounting to over $2,500 in excess of expenses have already been received. This practical interest of Cornellians in their Alma Mater is a most

helpful and encouraging circumstance. It must also be borne in mind that the alumni and former students had before the organization of the Cornellian Council already contributed $82,000 in cash for the grading and construction of the Playground and Athletic Field, besides $80,000 additional in pledges yet to be collected.

Cornell University is supported by its old students and alumni, by the State of New York and the United States, and by rich men and women who recognize the value and importance of its work. For the millions of dollars it now needs the University must look to the generosity of this latter class—the millionaires who are seeking the highest and best investments for their surplus funds.

NEEDS

The ideal university is an aristocracy of talent freely engaged in research, teaching, and learning and forming a perfectly democratic community. Its members consist of investigators, teachers, and students; buildings and equipment are the physical instrumentalities of their intellectual work or social life and intercourse. In terms of this ideal it is easy to set forth the vital needs of Cornell University. She needs superior investigators, superior teachers, superior students, and, having these, she needs superior material facilities for their life and work.

As to research, details have been given in earlier pages of this Report. The supreme importance of this function and the duty of a university like Cornell to discharge it are impressively set forth in an article in *Science* for August 26 last. The writer says:

> Our universities have often been deterred from the most effective encouragement of research or have entered only half-heartedly into it, owing to the large expense involved.
>
> The attitude of these bodies toward research is becoming of greater and greater importance to mankind, for the hope of civilisation lies in him who sees the light beyond the confines of our knowledge of today.
>
> Too many of us still believe the fostering of research to be a mere detail of secondary importance, but it is in fact of vital primary importance to each and every one of us, and its utmost advancement is a necessary and absolute duty for those who control the destinies of our colleges.
>
> I fear it will be all too apparent to those who have the highest welfare of science at heart that our colleges have not yet awakened to a sufficient realization of the importance of research or of their

heavy responsibility in the matter of its advancement. President Eliot in his recently published book upon "University Administration" presents in his masterly manner the wisdom gained through a lifetime of experience, yet not in one paragraph does he deal with the special relation of the university toward research. The American university remains to-day the overgrown college, and conservation of the old rather than the revelation of new truth is its ideal.

This is *not* the ideal of Cornell University. The quotations from the report of the Faculty given on pp. 11 and 12, show a very different ideal, the ideal of a great Division of Research and Graduate School.

But Cornell University will remain a teaching as well as an investigating institution. It is an organ for the liberal and practical education, first of the industrial classes and then of all classes ("any person in any study"). The United States is an industrial democracy, and the civilisation of the United States must develop on that foundation. Cornell University stands both for the industrialism of America, and the idealism of Athens. Its technical courses represent the one, its liberal arts the other. Human civilisation in an industrial democracy must embrace both. Concerning the proposed scheme of reform of Oxford University recently issued by the authorities a *London Times* editorial declares that the root of the problem is "the necessity of bringing our educational system into line with the national purpose." Through its departments of technology, of pure science, and of liberal arts, Cornell University is already in line not only with the purpose but with the life and work and aspirations of the American people. This comprehensive curriculum, which starts with the industries of the people and soars to the laws of nature and the historic life of mankind, is enormously expensive to maintain. That is to say, the number of teachers must be exceedingly large to cover so varied a field of subjects. And so it happens that besides endowments for research, the supreme need of the University is of endowments for a large number of professorships, especially in science and in the technical branches, affording stipends sufficient to attract the ablest men and to dignify the teaching profession.

A third great need of the University is the superior student, the youth of talents and ability decidedly above the average. It is this saving remnant of students of distinction who make the higher work of the University well worth while. And it is an incalculable loss

not only to the individuals themselves, but to the community, when youth endowed with rare gifts and capacities are suffered to grow up without receiving the highest training. These glorious sports of Nature might have been of untold benefit to society had not "chill penury repressed their noble rage, and froze the genial current of the soul." And so small a percentage of the population is born with these exceptional talents that no nation can neglect them with impunity. According to Mr. Galton, only one person in four thousand is endowed with special aptitudes, and only one in a million has a soul pregnant with that celestial fire which is called genius. No one can tell whence these exceptional children come; their appearance baffles all insight into organisms and environments; but it is certain that, as there are more cottages and hovels than there are palaces, most of them emerge among the masses of the people. Now, as with the masses of the people their daily labor merely suffices to meet their daily wants, it follows that the highest education will not be accessible to the majority of young persons who have been endowed with rich natural gifts unless special arrangements are made to supplement the efforts and stimulate the ambition of their parents and of themselves. It is the highest function of a university to catch these youths whom Nature herself has ordained to art, literature, philosophy, science, or invention, and train them for the work they are specially fitted to do. Society, too, is profoundly concerned for their intellectual nurture; for on them the progress of civilisation depends. It is to encourage and assist indigent scholars of distinguished capacity that Cornell University needs endowments for the foundation of scholarships and the establishment of loan funds, as well as for the augmentation of the general endowment of the University which will enable the administration to keep the charges for tuition within reach of the great majority of the people. On this subject of the importance of facilitating the path of higher education for students of limited means Professor Jowett of Oxford University, the foremost English educator of the last generation, spoke admirably at the Scott Centenary in Glasgow many years ago:

Scotland has reason to be proud of her universities. . . . . There is one point above others in which I think they have a claim to honour and gratitude—I mean in the manner in which they have assisted young men of merit, bringing them forward out of obscurity into the light of day. That I hold to be the greatest

glory of the Scottish Universities. I think it is a great advantage to a nation when its youth, deserting the more usual paths of trade and commerce—though, indeed, a great moralist has told us that "there are few things in which a man can be more innocently employed than in making money"—but still I venture to say that it is a great advantage to a country when that other ambition takes possession of the mind of youth, and they feel a desire for the higher education which they attain through the University. Why is it we are always complaining of the dearth of talent in politics, in literature, in the professions? Is it not because we do not draw from a sufficiently large area? Education and natural talent are not always made to meet. The precious seed is allowed to be wasted.

Lastly, the local habitations and the physical appliances of these intellectual workers, investigators, teachers, students, are sadly inadequate. New laboratories, with additional equipment and apparatus, are imperatively needed in botany, zoology, geology, chemistry, civil engineering, and mechanical engineering; there are needed also an assembly hall for convocations and for lectures and addresses to the entire university community, a gymnasium for the physical training of the great body of undergraduates who do not participate in athletic games, a new armory, an addition to the library building, and finally, a score of residential halls for the thousands of young men who, in the absence of a single hall owned by the University, are now scattered and poorly accommodated in private houses at increasingly high prices with the still more serious loss of social intercourse with fellow students and mutual education under a common roof.

JACOB GOULD SCHURMAN,
President.

REPORT

OF

THE TREASURER

OF

CORNELL UNIVERSITY

FOR THE FISCAL YEAR ENDING AUGUST 1ST,

1910

REPORT

OF THE

TREASURER OF CORNELL UNIVERSITY

To the Board of Trustees:

I have the honor to submit herewith my report as Treasurer of Cornell University for the fiscal year, ending July 31, 1910.

INCOME

The regular income for the year, after setting aside $27,130.47, for income on Special Funds, which can be used only for the purposes specified by donors of the funds and $6,862.61, to complete contracts under appropriations for the year, lacked $33,375.79 of covering the year's expenditures. To meet this deficit and to reduce accumulated deficit of August 1, 1909, $42,276.68, being a part of the profits realized on securities sold, were, by order of the Board of Trustees, transferred from Premium and Discount to Income, thus reducing accumulated deficit from $113,473.35, as reported, August 1, 1909, to $104,572.46.

STATE COLLEGES

While this report covers the appropriations of the New York State College of Agriculture, the New York State Veterinary College, and the New York State College of Forestry, these figures are not included in the general tables unless specifically mentioned. It has been the policy of the University to keep the accounts of the State Appropriations and Property, distinct from the University funds. However, as the State colleges, from an educational standpoint, are an integral part of the University, in certain schedules the accounts of the colleges are specifically stated and included in order to give accurate figures for the University as a whole. During the year the Glass Houses provided for by the $30,000 State appropriation were completed. Also the State Agricultural barn. The plans have been prepared and bids will be opened during the month of August for the addition to the north wing of the Veterinary College for which work the State has appropriated $20,000.

ENDOWMENT

The productive funds of the University were increased during the year $46,911.47. $15,000 of which were received from the executors of the estate of Willard Fiske, on account of the Library endowment, $1,000 from Mrs. Sarah L. Smith on account of a scholarship in civil engineering to be founded by her in memory of her son, Judson N. Smith, the balance from income being added to the principal of certain funds as provided under the terms of gifts, from sales of Wisconsin lands and the collections of the Cornellian Council.

CORNELLIAN COUNCIL

The Cornellian Council was organized comparatively late in the year, but collections amounting to over $2,500 in excess of expenses were made. A permanent secretary has been appointed who will give his whole time to the work and it is expected that the contributions from the alumni will be an important source of income as has been the case in several other universities where similar organizations are at work.

SECURITIES

The kind of securities in which the Productive Funds of the University are invested is shown in the following table:

CLASSIFICATIONS OF INVESTMENTS

		Aug. 1, 1909		Aug. 1, 1910
Municipal bonds	.145%	$1,259,900.00	.128%	$1,122,800.00
State of New York scrip	.079	688,576.12	.078	688,576.12
Foreign Government Bonds	.050	443,640.00	.044	389,308.00
Bank Stock	.009	78,000.00	.009	81,200.00
Steam Railroad Bonds	.153	1,332,100.00	.159	1,399,100.00
Railroad Equipment notes	.044	390,000.00	.037	325,000.00
Traction Bonds	.121	1,054,000.00	.121	1,068,000.00
Light and Power Co. Bonds	.120	1,042,000.00	.143	1,265,000.00
Miscellaneous Corporation Bonds	.072	644,500.00	.103	908,500.00
Stock other than Bank	.018	157,300.00	.040	352,300.00
Loans on Collateral	.017	144,240.00	.016	136,977.50
Real Estate Mortgages	.123	1,079,440.00	.099	870,490.00
Land Contracts	.010	92,254.77	.009	78,800.55
Real Estate	.012	104,406.51	.012	106,181.51
Special Deposits	.013	112,258.27	.000	4,998.52
Advances and Ledger Bal.	.011	101,126.00	.001	5,826.49
Cash	.003	29,876.38	.001	13,765.28
	1.000%	$8,753,618.05	1.000%	$8,816,823.97

The average rate of interest on the above is a trifle over 5% The average rate received during the past year was 5.098%. No interest was credited to the premium and discount or the foreclosure profit and loss account, which increases by that amount the average rate upon the productive funds. This rate of income was credited to all special funds except the Roberts Scholarship fund, which is invested in securities given by the donor of the fund and which securities bear 4% and produce the amount required for the scholarship. During the year the Finance Committee has sold the following securities:

$45,590 of United States of Mexico, Extension 5% bonds @ 97¾,
$29,000 Hornell Gas Light Company bonds @ par,
100 shares of Wells Fargo Company stock @ 475,
$58,000 Davenport and Rock Island Railway 5% @ 102.273,
$4,000 Grant Township, Reno County, Kans. 6% @ 110.50,
$30,000 Republic Iron and Steel Company, 1st Collateral trust 5% bonds @ 105,
$25,000 New York Central Lines 5%, equipment trust notes @ 104½, and $20,000 Agnes City Township, Kansas, 6% bonds @ 111.30, realizing a net profit upon the same of $35,098.34. By reorganization arrangements the Chicago and Great Western debenture stock held, has been converted into preferred stock, and the Cincinnati Hamilton, & Dayton, collateral trust notes, were converted into general mortgage bonds.

FORM OF REPORT

This report is somewhat changed in form from past issues, particularly in the income and expense statements, in order to follow as far as possible the recommendations and suggestions of the Carnegie Foundation. The result in the expense schedule is not wholly satisfactory. Financially the University is administered as a unit, and except by an entire change in the manner of making appropriations and of accounts, it is impossible to give accurately the college or department items. Also there is an interchange

of instruction between colleges for which credit can not be accurately estimated. This is particularly true with the College of Arts and Sciences which embraces general and scientific departments, such as Military, Physical Culture, Mathematics, Chemistry, Physics, Geology and Botany, in which probably the majority of instruction is given to students in other courses in the University. The figures in the expense schedule are carefully computed from the actual expenses as shown in the appropriation schedule, but the results do not always fairly show the true situation as between different colleges or departments.

NEW CONSTRUCTIONS AND ALTERATIONS

From the year's income we have met the balance advanced for the construction of Goldwin Smith Hall, the total cost of which was $353,550.25. Also the last payment on the rebuilding of the heating plant and steam mains made necessary by the construction of Goldwin Smith and Rockefeller Halls, and the other minor increases in buildings. It will be remembered that in the summer of 1908, Sage College and Cottage were thoroughly overhauled and redecorated. Something over $10,000 of this cost was met this year from the income on the Sage College Endowment and the surplus of income from the building. A balance of $10,879.51 still remains to be cared for. During the year a new organ was installed in Sage Chapel at a cost of $13,114.62. $11,500 was expended in the construction of macadamized roads. The most important being that to Forest Home, the improvement of which made possible, in conjunction with the United States Government, a series of tests of different varieties of road material. Other minor improvements are the addition to the Sibley foundry, the reconstruction of the roof of Cascadilla building and the re-arrangement of White Hall to meet the growth of the College of Architecture.

DONATIONS

Following is a list of gifts to the University which passed through this office. It does not include many donations made directly to the Departments.

Niagara Sprayer Co. for Fellowship	$ 1,000.00
C. W. Stuart & Co for Fellowship	500.00
Union Sulphur Company for Fellowship	1,500.00
Sarah L. Smith for Scholarship	1,000.00
J. G. Sullivan for Alumni Fund	125.00
Goldwin Smith for Reading room and Library, G. S. Hall	4,000.00
Willard Fiske Estate for Jennie McGraw Fiske Memorial	2,040.00
" " " " Willard Fiske Endowment Fund	15,000.00
A. R. Eastman for Prize in College of Agriculture	100.00
Committee on Portrait Dean Huffcut, for purchase of books	64.62
Class '97, for class '97 Fund	143.00
Col. O. H. Payne, for building changes	15,766.75
" " for Medical College, New York City	173,000.00
Charles Alfred Hasbrouck Estate, Homestead and Farm	10,000.00
Payne Whitney, Animal Hospital, Medical College, N. Y. City	1,050.00
Alumnae, Associate Alumnae Scholarship	150.00
Brooklyn Alumni, Fall Creek Gorge Improvements	60.00
Anonymous gift, Research Genito-Urinary Diseases	555.00
Frederick C. Stevens, Hackney Stallion "Volunteer"	2,500.00
	$228,554.37

SUMMARY OF INCOME

Income for the year 1909–10:		
University at Ithaca (see Schedule I)		$ 982,696.55
" " New York		228,667.23
		$1,211,363.78
Expended at Ithaca (see Schedule II)	$990,477.37	
" New York	220,269.12	
Increase in unexpended income due special funds	27,130.47	
Increase in re-appropriations necessary to complete contracts	6,862.61	1,244,739.57
Deficit of Income for year 1909–10		33,375.79
Add Accumulated deficit Aug. 1, 1909		113,473.35
Deduct profits received on securities sold, transferred		146,849.14
by instruction of Board of Trustees		42,276.68
Accumulated deficit of Income Aug. 1, 1910		104,572.46
Summarized as follows:		
Cash deficit	$ 24,054.14	
Amount due special funds	63,120.55	
" " to complete contracts	17,397.77	
	$104,572.46	
Total Income (Except State Colleges)		$1,211,363.78
Received from N. Y. State for State Veterinary College (See Schedule I)	$ 40,661.79	
Received from fees, etc	5,427.74	46,089.53
Received from New York State College of Agriculture (See Schedule I)	241,025.80	
Received from fees, sale of stock, etc	138,820.14	379,845.94
		$1,637,299.25
Received from Carnegie Foundation for pensions to retired Professors		$ 20,032.41

INCOME DUE SPECIAL FUNDS

Agricultural Experiment Station Hatch Fund	$ 1,923.04
Agricultural Experiment Station Income Fund	466.00
Guiteau Student Loan Fund	7,153.83
Cornell Infirmary Fund	29,901.46
Agricultural Student Loan Fund	45.52
Mrs. A. S. Barnes Shakespeare Prize Fund	129.28
Philo Sherman Bennett Fund	104.27
Class '94, Debate Prize Fund	16.31
Class '86, Memorial Prize Fund	101.81
Caroline Corson French Prize	21.05
Class '08 Fund	109.97
Fuertes Medal Fund	57.61
Guilford Essay Prize Fund	19.14
Luana L. Messenger Prize Fund	254.38
Carried forward	$40,303.67

Amount brought forward	$40,303.67
Polish Students Fund	11.71
W. C. Seidell Book Fund	119.98
H. K. White Prize Fund	33.38
Frances Sampson Fine Arts Fund	30.69
Woodford Medal Fund	383.20
Dean Sage Sermon Fund	1,948.50
Boardman Senior Law Scholarship Fund	18.26
Mary F. Hall Scholarship Fund	470.87
Woman's Guild Fund	633.02
Hydraulic Laboratory Commercial Account	2,012.86
Alumni Endowment Fund	6.16
American Peony Society	200.00
Musical Entertainments	358.80
N. Y. Medical College	8,916.12
Loomis Laboratory	324.61
J. M. Polk Prize Fund	84.47
Library Endowment Fund	1,044.00
Flower Library Endowment Fund	38.28
Barnes Library Endowment Fund	17.40
Lucy Harris Book Fund	3.48
W. Fiske Petrarch Book Fund	20.88
W. Fiske Icelandic Book Fund	27.84
W. Fiske Icelandic Salary Fund	29.40
W. Fiske Publication Book Fund	17.40
Sage Athletic Field	27.40
Mechanical Laboratory Commercial Account	602.36
Judson N. Smith Scholarship Fund	16.98
Town of Spencer Scholarship Fund	73.45
Classical Studies	43.83
Physical Review	537.81
Niagara Sprayer Company Fellowship	.04
Herman Frasch Fellowship	1,269.28
C. W. Stuart & Company Fellowship	83.40
Padgham Scholarship	133.84
Goldwin Smith Hall Library	3,315.24
	$63,158.61
Less amount due income Hiram Corson Browning Prize	38.06
	$63,120.55

RE-APPROPRIATIONS

To complete the contracts of last year it will be necessary to reappropriate the following amounts:

Architecture	$ 584.96
Archaeology	1,499.41
Classical Studies	634.31
School of Education	24.87
Elocution and Oratory	62.39
English	31.76
French	12.31
Greek	21.91
American History	524.74
Ancient History	21.61
Mediaeval History	39.77
Modern European History	32.52
Latin	.56
Carried forward	$3,492.12

Amount brought forward	$3,492.12	
Philosophy	322.21	
Psychology	751.35	
Political Science, Finance	13.91	
" " Statistics	58.23	
" " Publishing Studies	297.20	
Semitics	7.45	
Astronomy	5.55	
Botany	72.43	
Botany Special	67.09	
Chemical	1,847.04	
Geology	470.47	
Mathematics	101.39	
Goldwin Smith Trenches	259.74	
Preswick & Popplewell Lands	250.00	
Civil Engineering	2,550.20	
Library	2,635.68	
Medical Anatomy	358.47	
" Bacteriology	202.51	
" Histology	56.30	
" Physical Diagnosis	40.10	
Advertising and Lectures	285.39	
Beebe Dam Changes	89.38	
Memorial Tablets	535.18	
Military	10.31	
Physical Culture	122.12	
Mechanical	1,125.29	
Carnegie Filter	391.66	
Sibley Foundry Extension	800.00	
Morrill Hall changes	180.00	$17,397.77

CASH STATEMENT

Cash on hand August 1, 1909	$ 59,855.86	
Received August 1, 1909 to Aug. 1, 1910	3,154,461.98	
		$3,214,317.84
Disbursed Aug. 1, 1909 to Aug. 1, 1910		3,159,444.47
		$54,873.37
On deposit in First Nat'l Bank, Ithaca	30,739.63	
" Guaranty Trust Co., New York	8,416.12	
" First Nat'l Bank, Ithaca, on account State College of Forestry	8,983.90	
Cash and drafts in Office	6,733.72	
	$54,873.37	

PRODUCTIVE FUNDS

	Aug. 1, 1909	Additions during year	Aug. 1, 1910	Income received during year
Agricultural Student Loan Fund: Gift of the School of Practical Agriculture and Horticulture at Briercliff, N. Y., to aid students in the Agricultural College who are working their way through. Established, 1908 ...	$298.01		$298.01	$15.19
Alumni Fund: Consists of the contributions of Alumni through the Cornellian Council...		$2,550.37	2,550.37	72.60
Alumni Loan Fund: Money advanced by Alumni to guarantee expenses of the Cornellian Council		2,970.00	2,970.00	
Alumni Endowment Fund: Gift of Alumni to the Endowment fund of the University, Established 1908	125.00	125.00	250.00	12.74
Barnes Library Endowment Fund: Gift of Mrs. Harriet Barnes Newberry and A. Victor Barnes in memory of their father, the late Alfred Cutler Barnes. Established 1904	5,000.00		5,000.00	254.90
Mrs. A. S. Barnes Shakespeare Prize Fund: Gift of Mrs. A. S. Barnes, the income to be appropriated as a prize to the undergraduate student, who shall present the best essay upon the writings of Shakespeare. Established 1887	1,000.00		1,000.00	50.98
Carried forward	$6,423.01	$5,645.37	$12,068.38	$406.41

	Aug. 1, 1909	Additions during year	Aug. 1, 1910	Income received during year
Brought forward	$6,423.01	$5,645.37	$12,068.38	$406.41
Cottage Renewal Fund: Consists of the surplus income from the Campus Cottages owned by the University, in excess of 5½% of the investment value transferred annually to current income; the fund to be held to renew the cottages or replace the investment therein. Established in 1904	9,436.93	1,532.32	10,969.25	559.19
Philo Sherman Bennett Fund: Gift from the estate of Mr. Bennett the income to be used for a prize for the best essay discussing the Principles of Free Government. Established 1905	400.00		400.00	20.39
Class '86 Memorial Prize Fund: Gift of the Class of 1886, the income to be awarded annually as a prize in Junior Oratory	1,886.00		1,886.00	96.14
Class '91 Memorial Fund: Gift of Class of 1891, the income to be added to the principal until class action. Established 1891	580.54	29.59	610.13	29.59
Class '94 Memorial Prize Debate Fund: Gift of the Class of 1894, as a foundation of a prize in debate	500.00		500.00	25.49
Carried forward	$19,226.48	$7,207.28	$26,433.76	$1,137.21

	Aug. 1, 1909	Additions during year	Aug. 1, 1910	Income received during year
Brought forward	$19,226.48	$7,207.28	$26,433.76	$1,137.21
Class '96 Memorial Fund: Gift of the Class of 1896, as a nucleus for a fund which shall be used for the establishment of a University Club	869.57	44.33	913.90	44.33
Class '97 Memorial fund: Gift of Class of 1897, for furthering the the plan of a University Club	1,293.46	226.71	1,520.17	73.71
Class of '98 Memorial Fund: Gift of Class of 1898 to be added to the fund for the establishment of a University Club	376.06	19.16	395.22	19.16
Class of 1908 Fund: Established by Class of 1908 to be invested with University funds, the income less 5% transferred to University Surplus Fund to be paid over to Class Secretary. When no longer needed by the Class the fund is to revert to the University for general University purposes unless the Class at some regular meeting designate a particular University purpose for its use. Established 1908	1,480.41		1,480.41	73.47
Carried forward	$23,245.98	$7,497.48	$30,743.46	$1,347.88

	Aug. 1, 1909	Additions during year	Aug. 1, 1910	Income received during year
Brought forward	$23,245.98	$7,497.48	$30,743.46	$1,347.88
College Land Scrip Fund: Consists of the proceeds received by the State of New York from the sale of the Land Scrip apportioned to the State by the U. S. under the Morrill Act of 1862	688,576.12		688,576.12	34,428.80
Cornell Endowment Fund: Consists of the $500,000 given by Ezra Cornell, pursuant to his agreement with the State, for the founding of the University, together with the net profits derived from the sale of lands located under the scrip purchased by him under his contract with the State, of Aug. 4, 1886	4,927,936.38	2,186.45	4,930,122.83	251,474.39
Cornell Endowment Reserve Fund: Established in 1898 by setting aside the Land Contracts and proceeds from future sales of Western Lands, the principal and income to be used only for addition to Cornell Endowment Fund	522,020.00	2,480.39	524,500.39	26,612.57
Carried forward	$6,161,778.48	$12,164.32	$6,173,942.80	$313,863.64

	Aug. 1, 1909	Additions during year	Aug. 1, 1910	Income received during year
Brought forward	$6,161,778.48	$12,164.32	$6,173,942.80	$313,863.64
Cornell Infirmary Fund:				
Gift of Messrs. Dean and William H. Sage, the income to be used for the Maintenance and needs of the Cornell Infirmary, established by them as a memorial to their father, Henry W. Sage, said Infirmary being the former residence of Henry W. Sage and valued at $60,000. Established 1897	100,000.00		100,000.00	5,098.00
Caroline Corson French Prize Fund:				
Gift of Professor Hiram Corson in memory of his wife Caroline Rollin Corson, the income to be awarded as a French Prize. Established in 1902 as a Dante Prize and converted into a French Prize in 1905	1,219.11	62.14	1,281.25	62.14
Hiram Corson Browning Prize Fund:				
Gift of Professor Hiram Corson, the income to be awarded as a Browning Prize. Established 1902	1,051.80		1,051.80	53.63
Carried forward	$6,264,049.39	$12,226.46	$6,276,275.85	$319,077.41

	Aug. 1, 1909	Additions during year	Aug. 1, 1910	Income received during year
Brought forward	$6,264,049.39	$12,226.46	$6,276,275.85	$319,077.41
Daughters of the Revolution Endowment Fund:				
Gift of Miss Mary F. Hall, in honor of the N. Y. State Society of the Daughters of the Revolution, the come to be added to the fund during Miss Hall's lifetime and then, provided principal amounts to $1,000 to be used for the publication of such original studies in American History as are of permanent value, or as a suitable prize or prizes for research of superior attainments in American History. Established 1908 ..	524.65	26.71	551.36	26.71
Fayerweather Fund:				
Gift under the will of Daniel B. Fayerweather. Established 1892	323,684.59		323,684.59	16,501.41
Willard Fiske Library Endowment Fund:				
Gift under the will of Willard Fiske, to be used and expended for the uses and purposes of the Library of the University. Established 1906	427,531.00	15,000.00	442,531.00	22,145.52
Willard Fiske Iceandic Book Fund:				
Gift under the will of Willard Fiske, the income to be used for the purpose of making additions to the Icelandic Collection in the Library of the University. Established 1906 ..	8,000.00		8,000.00	407.84
Carried forward	$7,023,789.63	$27,253.17	$7,051,042.80	$358,158.89

	Aug. 1, 1909	Additions during year	Aug. 1, 1910	Income received during year
Brought forward	$7,023,789.63	$27,253.17	$7,051,042.80	$358,158.89
Willard Fiske Icelandic Salary Fund: Gift under the will of Willard Fiske, the income to be used for the purpose of paying the salary of an Icelandic amanuensis, whose time shall be given to the care of the Icelandic collection, and who shall be a native of Iceland, educated, or principally educated in Iceland, and recommended for the said work by the Rector of the Latin School of Reykjavik. Established 1906 ..	30,000.00		30,000.00	1,529.40
Willard Fiske Petrarch Book Fund: Gift under the will of Willard Fiske, the income to be used for the purpose of increasing the Petrarch and Dante collections in the Library of the University. Established 1906..	6,000.00		6,000.00	305.88
Willard Fiske Petrarch Salary Fund: Gift under the will of Willard Fiske, the income to be used in paying the salary, or a part of the salary of, a capable amanuensis, a portion of whose time shall be given to the care of the Petrarch and Dante collections. Established 1906	12,000.00		12,000.00	611.76
Carried forward	$7,071,789.63	$27,253.17	$7,099,042.80	$360,605.93

	Aug. 1, 1909	Additions during year	Aug. 1, 1910	Income received during year
Brought forward	$7,071,789.63	$27,253.17	$7,099,042.80	$360,605.93
Willard Fiske Icelandic Publication Fund: Gift under the will of Willard Fiske, the income to be used for the purposes of the publication of an annual volume relating to Iceland and the Icelandic collection in the Library of the University. Established 1906	5,000.00		5,000.00	254.90
R. P. Flower Library Endowment Fund: Established in 1901 by a gift of Mrs. Sarah M. Flower of $10,000 the income to be used for the purchase and binding of books and periodicals for the Roswell P. Flower Library, founded by Governor Flower for the Veterinary College by a gift of $5,000 in 1897. $1,000 remaining unexpended at the time of his death is added to the endowment	11,000.00		11,000.00	560.78
Fuertes Medal Fund: Gift of the late Estevan A. Fuertes, the income to provide two medals, to be awarded annually; one to the student graduating, who has maintained the highest degree of scholarship during his four years; the other to the graduate, who may write a meritorious paper on some engineering subject. Established in 1893	1,000.00		1,000 00	50.98
Carried forward	$7,088,789.63	$27,253.17	$7,116,042.80	$361,472.59

	Aug. 1, 1909	Additions during year	Aug. 1, 1910	Income received during year
Brought forward	$7,088,789.63	$27,253.17	$7,116,042.80	$361,472.59
General Fund:				
Consists of the endowment of not less than $100,000 available for maintenance of Rockefeller Hall; required as a condition precedent to John D. Rockefeller gift	106,000.00		106,000.00	5,403.88
Guiteau Student Loan Fund:				
Gift under the wills of Frederick W. Guiteau and Mrs. Nancy G. Howe ($94,689.03) the income to be used in advancing and assisting needful worthy young men in pursuing their studies in the University. Established 1904	231,078.59	3,178.38	234,256.97	11,042.36
Guilford Essay Prize Fund.				
Gift under the will of James B. Guilford to establish a prize, the object whereof shall be the promotion of a high standard of excellence in English prose composition. Established 1902	3,000.00		3,000.00	152.94
Mary F. Hall Scholarship Fund:				
Gift of Miss Mary F. Hall, the income to be paid to her during her lifetime, and at her death to be used for scholarships. Established 1902	16,500.00		16,500.00	841.17
Carried forward	$7,445,368.22	$30,431.55	$7,475,799.77	$379,812.94

	Aug. 1, 1909	Additions during year	Aug. 1, 1910	Income received during year
Brought forward	$7,445,368.22	$30,431.55	$7,475,799.77	$379,812.94
Lucy Harris Book Fund: Gift of George W. Harris, as a memorial to his wife, Lucy Thurber Harris, the income to be expended each year in the purchase of English Poetry of the Victorian Era, and of biography and criticism connected therewith. Established 1893	1,000.00		1,000.00	50.98
Law School Fund: Gift of Douglass Boardman, the income to be used for a Law Prize. Established 1887	2,000.00		2,000.00	101.96
Henry W. Sage Library Endowment Fund: Gift of Henry W. Sage for endowment of Library. Established 1891	300.000,00		300,000.00	15,294.00
Susan E. Linn Sage Professorial Fund: Gift of Henry W. Sage to endow the Chair of Ethics and Philosophy. Established 1885	50,000.00		50,000.00	2,549.00
Susan E. Linn Sage School of Philosophy Fund: Gift of Henry W. Sage to enlarge the basis of the Susan Linn Sage Foundation and establish the Susan Linn Sage School of Philosophy. Established 1891	200,000,00		200,000.00	10,196.00
Carried forward	$7,998,368.22	$30,431.55	$8,028,799.77	$408,004.88

	Aug. 1, 1909	Additions during year	Aug. 1, 1910	Income received during year
Brought forward	$7,998,368.22	$30,431.55	$8,028,799.77	$408,004.88
Loomis Laboratory Fund: Consists of the Endowment of the Loomis Laboratory turned over to the University by the Trustees at the time the Laboratory was transferred to Cornell. Established 1899	118,176.79		118,176.79	6,024.61
Luana L. Messenger Prize Fund: Gift of H. J. Messenger in memory of his mother, for an annual prize to the student writing the essay giving evidence of the best research and most fruitful thought in the field of human progress, or the evolution of civilization. Established 1902	1,000.00		1,000.00	50.98
Frank William Padgham Scholarship: Gift of Amos Padgham, to found a scholarship in Sibley College in memory of his son. Established 1892	3,000.00		3,000.00	152.94
Polish Student Loan Fund: Gift from Polish students at Cornell to be disbursed to candidates presented by members of the Polish Club of the University. Established 1909	134.00	*34.00	100.00	5.10
Carried forward	$8,120,679.01	$30,397.55	$8,151,076.56	$414,238.51

	Aug. 1, 1909	Additions during year	Aug. 1, 1910	Income received during year
Brought forward	$8,120,679.01	$30,397.55	$8,151,076.56	$414,238.51
John Metcalf Polk Prize Fund: Gift of Wm. M. Polk to found a prize in the Cornell Medical College at N. Y. in memory of his son. Established 1905 . . .	10,000.00		10,000.00	509.80
Professorial Pension Fund: Anonymous gift of $150,000 to found a pension fund for full professors, excluding professors in the Medical College in New York City, or in State or National Institutions at Ithaca or elsewhere, together with the income received thereon. Established 1903 . . .	204,936.22	10,447.63	215,383.85	10,447.63
Professorial Pension income Fund: Consists of the payments of professors admitted to the benefits of the Pension Fund, with accrued income	16,280.32	3,737.46	20,017.78	970.96
Charles H. Roberts Scholarship Fund: Gift of Charles H Roberts of Oakes, Ulster Co., New York, the income to be used in the payment of five equal annual scholarships in the College of Agriculture, and open to all races of mankind, regardless of color, or political, or religious creeds, of good moral character and required qualifications, preference to be given to intelligence, and financial inability. Established 1906	30,000.00		30,000.00	1,200.00
Carried forward	$8,381,895.55	$44,582.64	$8,426,478.19	$427,366.90

	Aug. 1, 1909	Additions during year	Aug. 1, 1910	Income received during year
Brought forward	$8,381,895.55	$44,582.64	$8,426,478.19	$427,366.90
Sage College Endowment Fund: Gift of Henry W. Sage. Established 1872	109,300.00		109,300.00	5,548.10
Dean Sage Sermon Fund: Gift of Dean Sage in 1872, as an endowment of Sage Chapel and increased by recent gifts from Mrs. Sage	75,000.00		75,000.00	3,823.50
Frances Sampson Fine Arts Prize: Gift of Professor Martin W. Sampson in memory of his wife to be awarded in books or artistic reproductions and not in money, to that student in the University who shows the most intelligent appreciation of the graphic arts and architecture. Established 1909	600.00		600.00	30.59
Wm. C. Seidell Book Fund: Gift of Mr. and Mrs. Gerritt S. Miller, the income to be used to purchase books for poor young men working their way through the College of Civil Engineering. Established 1905	1,000.00		1,000.00	50.98
Sibley College Endowment Fund: Gift of Hiram Sibley. Established 1884	50,000.00		50,000.00	2,549.00
Carried forward	$8,617,795.55	$44,582.64	$8,662,378.19	$439,369.07

	Aug. 1, 1909	Additions during year	Aug. 1, 1910	Income received during year
Brought forward	$8,617,795.55	$44,582.64	$8,662,378.19	$439,369.07
Judson N. Smith Scholarship Fund: Gift of Mrs. Sarah L. Smith to found a scholarship in the College of Civil Engineering in memory of her son, and to be awarded, under such rules as the University may enact on the basis of intelligence and financial inability, provided, however, that the student must be of good, moral character and meet the required qualifications. Interest at the rate of 4 per cent upon the fund to be paid to Mrs. Smith during her lifetime, the Scholarship taking effect at her death		1,000.00	1,000.00	16.98
Town of Spencer Scholarship for Young Women Fund: Gift of Miss Mary F. Hall, to found a scholarship for young women of the town of Spencer, N. Y., the income, however, to be paid to her during her lifetime	2,500.00		2,500.00	127.45
Surplus Fund: Consists of 5% on annual income to cover such losses as may occur through bad investments, fire or otherwise. Established 1886. Accumulations used for purchase of land and erection of buildings	3,441.34	760.80	4,202.14	175.43
Carried forward	$8,623,736.89	$46,343.44	$8,670,080.33	$439,688.93

	Aug. 1, 1909	Additions during year	Aug. 1, 1910	Income received during year
Brought forward	$8,623,736.89	$46,343.44	$8,670,080.33	$439,688.93
H. K. White Prize Fund:				
Gift of Horace K. White, the income to be awarded as prizes to meritorious students in Veterinary Science	500.00		500.00	25.49
Women's Guild Fund:				
The gift of women interested in the University, the income to be used to aid needy sick students. Established 1892	6,557.41		6,557.41	334.20
Women Student's Loan Fund:				
Consists of former Student Loan Fund, the income to be loaned to needy women students	7,068.28	568.03	7,636.31	370.36
Woodford Medal Fund:				
Gift of Trustee Stewart L. Woodford for prizes in Oratory, Established 1870	2,500.00		2,500.00	127.45
	$8,640,362.58	$46,911.47	$8,687,274.05	$440,546.52

*Decrease.

TOTAL PROPERTY

Productive Funds		$ 8,687,274.05
Income due Special Funds		63,120.55
Premium and Discount		125,316.43
Profit on Foreclosure Property sold		28,287.63
		$ 8,903,998.66
Less deficit of Income not including amount due to complete contracts		87,174.69
(See Security list Schedule X)		
		$ 8,816,823.97
Real Estate (See Schedule XVII)	$3,895,041.46	
Equipment (See Schedule XVIII)	1,819,772.98	5,714,814.44
Total property exclusive of Western lands ...		$14,531,638.41
State College Buildings	$ 471,796.67	
State College Equipment	174,739.73	646,536.40
		$15,178,174.81

Western Lands remaining unsold:

In Wisconsin	1,459.37	Acres
In Minnesota	40.	"
	1,499.37	"

Respectfully submitted,

E. L. WILLIAMS,
Treasurer.

SCHEDULE I

INCOME

UNIVERSITY AT ITHACA.

Income from students:		
Tuition, Regular	$313,463.09	
Summer Session	23,866.65	
Student notes	2,439.75	$339,769.49
Incidental Fees:		
Graduation Fees	7,774.10	
Gymnasium Fees	7,010.00	
Matriculation Fees	7,235.00	
Infirmary Fees	16,558.00	
" Extras	2,609.96	41,187.06
Laboratories:		
Botanical	2,130.00	
Chemical	27,255.76	
Civil Engineering	514.50	
Political Science	364.00	
Geological	1,090.60	
Histological	572.00	
Sibley	22,542.50	
Anatomical	442.08	
Neurological	216.00	
Physical	3,449.00	
Physical Culture	1,280.75	
Physical Geography	79.00	59,936.19
Dormitories:		
Sage College	12,895.40	
Sage Cottage	2,791.00	15,686.40
Income from Investments (See Productive Funds):		
From Invested Funds	406,117.72	
Land Grant Act, July 2, 1862	34,428.80	440,546.52
Congressional Industrial Fund:		
Morrill Act Aug. 30, 1890	25,000.00	
Nelson Act March 4, 1907	15,000.00	40,000.00
Experiment Station		
Hatch Act, March 2, 1887	13,500.00	
Adams Act, March 16, 1906	8,775.00	
Income	43.06	22,318.06
Gifts for Current Expenses:		
Agricultural Debate Prize	100.00	
Huffcutt Memorial Book Account	64.62	
Goldwin Smith Library	4,000.00	
Fall Creek Gorge Improvement	60.00	
Fiske Memorial	2,040.00	
Niagara Sprayer Co., Industrial Fellowship	1,000.00	
C. W. Stuart & Co., Industrial Fellowship	500.00	
Amount forwarded	$7,764.62	$959,443.72

Amount brought forward....	$7,764.62	$959,443.72	
Gifts for Current Expenses:			
Herman Frasch Industrial Fellowship	1,500.00		
Associate Alumnae Scholarship	150.00	9,414.62	
Rents:			
Cornell Co-Operative Society	$1,391.90		
Bovier House	120.00		
Cascadilla Building	7,053.65		
Casey Farm House	51.00		
Curran Farm House No. 1	168.00		
" " " No. 2	84.00		
" " " No. 3	110.00		
Dwyer House	120.00		
Ground Rent, Professors Cottages	42.00		
Judd Farm House	165.75		
Military Hall and Gymnasium	160.00		
Mitchell Farm House	173.50		
Morse Hall Rent	250.00		
Ostrander Farm House	72.00		
Rose Farm House	72.00		
Ryan Farm House	42.50		
Smith-Guinnip Farm House	48.00		
Hungerford Farm House	97.50		
Safe Deposit Box Rent	100.00	10,321.8	
Civil Engineering Commerical Acc't	200.00		
Mechanical Laboratory Commercial Account	912.58		
Mechanical Department	773.37		
Musical Entertainments	22.00		
Physical Review	6,140.98		
Publishing Studies, History and Political Science	63.99		
Publishing Classical Studies	43.83		
Ten Year Book	74.10		
Interest on Student Notes	869.52		
Interest on Infirmary balance	950.00	10,050.37	
		989,230.51	
Deduct transferred to Medical Acc't at New York City			
Inc. on Loomis Laboratory Endowment	6,033.96		
Inc. on J. M. Polk Prize Endowment	500.00	6,533.96	$982,696.55
UNIVERSITY AT NEW YORK.			
Income from Students:			
Tuition, Regular	$16,355.00		
Special Courses	1,471.00	$17,826.00	
Incidental Fees:			
Final Examinations	1,700.00		
Matriculation	225.00		
Hospital Quiz	950.00	2,875.00	
Amounts forwarded		$20,701.00	$982,696.55

Amount brought forward....		$20,701.00	$982,696.55
Laboratories:			
1st year	455.00		
2d "	195.00		
3d "	2,065.00		
4th "	1,750.00		
Breakage	1,140.00	5,515.00	
Income from Investments:			
Loomis Laboratory Endowment	6,033.96		
John M. Polk Prize Fund	500.00	6,533.96	
Gifts for Current Expenses:			
O. H. Payne	173,000.00		
O. H. Payne, Build g Alterations	15,766.75		
Payne Whitney Animal Hospital	1,050.00		
Research Genito Urinary Diseases	555.00	190,371.75	
Dispensary	4,793.05		
Telephone	231.40		
Loomis Laboratory	180.76		
Interest on Deposits	340.31	5,545.52	228,667.23
			$1,211,363.78
STATE VETERINARY COLLEGE.			
Income from Students:			
Tuition	$1,000.00	$1,000.00	
Laboratory Fees:			
Anatomy	576.00		
Bacteriology	446.00		
Materia Medica	247.25		
Pathology	195.00		
Physiology	235.20		
Urine Analysis	119.35		
Surgery	260.00	2,078.80	
Income from grant by State:			
For Maintenance, Chap. 432, Laws 1909	35,000.00		
Research and Extension, Chap. 433, Laws 1909	5,661.79	40,661.79	
Experimental Farm	25.30		
Rent, Grooms Cottage	25.00		
Clinics and Medicine	1,574.70		
Tuberculine, etc	614.37		
Miscellaneous	109.57	2,348.94	46,089.53
STATE AGRICULTURAL COLLEGE.			
Income from students:			
Fees:			
Agriculture	$3,682.50		
Biology	819.00		
Dairy	198.05		
Amounts forwarded	$4,699.55		$1,257,453.31

Amount brought forward	$4,699.55		$1,257,453.31
Fees:			
Entomology	416.00		
Farm Crops	101.25		
Farm Management	32.00		
Farm Mechanics	448.00		
Floriculture	10.50		
Home Economics	340.00		
Horticulture	299.00		
Plant Breeding	211.50		
" Pathology	521.25		
" Physiology	391.95		
Soils	359.50		
Vegetable Garden	16.00		
Winter Courses	5,050.30	$12,896.80	
Income from grant by State:			
Maintenance Appropriation Chap. 432, Laws 1909	175,000.00		
For extension work, Chap. 466, Laws 1908	6,505.32		
For extension work, Chap. 433, Laws 1909	8,377.62		
For Barns, Chap. 433, Laws 1909	22,481.16		
" Glass Houses, Chap. 466, Laws 1908	22,996.25		
" Equipment, Chap. 578, Laws 1907	5,665.45	241,025.80	
Income from Sales and Services:			
Animal Husbandry	29,280.42		
Dairy Industry	82,331.26		
Farm Practice	4,170.47		
Grape Rot Experimental Vineyards	3,649.07		
Horticulture	400.06		
Poultry Husbandry	4,831.35		
Miscellaneous	290.51		
Sale of old type, books, etc	970.20	125,923.34	379,845.94
			$1,637,299.25

SCHEDULE II

EXPENSES

UNIVERSITY AT ITHACA.

DEPARTMENTAL EXPENSES. (Details in Schedule III)		
College of Arts and Sciences	$322,404.68	
College of Agriculture	21,700.00	
College of Architecture	21,349.72	
" Civil Engineering	63,633.44	
" Law	26,822.84	
" Medicine (at Ithaca)	32,177.58	
Sibley College of Mechanical Engineering	116,894.23	$604,982.49
Graduate School	1,501.11	
Library	39,131.22	
Summer Session	25,000.00	
Amount forwarded	$65,632.33	

Amount brought forward		$65,632.33	$604,982.49
DEPARTMENTAL EXPENSES:			
Federal Agricultural Experiment Station, Hatch		13,540.13	
Federal Agricultural Experiment Station, Adams		11,631.51	
Federal Agricultural Experiment Station Income		37.04	90,841.01
ADMINISTRATION AND GENERAL EXPENSES.			
Salaries, President's Office		12,160.00	
" Registrar's Office		4,580.00	
" Treasurer's Office		13,175.00	
Miscellaneous		7,856.49	
Advertising and Lectures		473.15	
Attorney's Fees and Expenses		1,500.00	
Chimer		240.00	
Contingent		11,902.78	
Insurance		1,109.87	
Printing and Stationery		5,500.00	
Reading Examination Papers		600.00	
Register		5,000.00	
Sage Chapel Preachers		3,300.00	
Sage Chapel Expenses		750.00	
Infirmary	$10,776.00		
" Outside	3,562.15	14,338.15	
Sage College		10,935.71	93,430.15
FELLOWSHIPS, SCHOLARSHIPS AND PRIZES.			
Fellowships, University		11,516.65	
Scholarships, University		11,300.00	
C. H. Roberts Scholarship		1,200.00	
Associate Alumnae Scholarship		150.00	
Boardman Senior Law Scholarship		100.00	
Agriculture Debate Prize		100.00	
Mrs. A. S. Barnes Shakespeare Prize		50.00	
Class '86 Memorial Prize		86.00	
Class '94 Debate Prize		25.00	
Hiram Corson Browning Prize		50.00	
Fuertes Medals		50.00	
Guilford Essay Prize		150.00	
Francis Sampson Fine Arts Prize		29.48	
Sibley Prizes		100.00	
H. K. White Veterinary Prize		25.00	
Woodford Medal Prize		100.00	
Herman Frasch Industrial Fellowship		230.72	
Niagara Sprayer Co. Industrial Fellowship		999.96	
C. W. Stuart & Co., Industrial Fellowship		416.60	26,679.41
Amount forwarded			$815,933.06

Amount brought forward....		$815,933.06
OPERATION AND MAINTENANCE OF PLANT.		
Care of Buildings (general)	2,330.00	
Ornamentation and care of grounds	7,000.00	
Road Construction	11,500.00	
Playground	792.67	
Electric Light and Power Labor ..	3,200.00	
Electric Service	1,600.00	
Fuel	15,036.14	
Heating Labor.....	3,842.16	
Organ Repairs	25.00	
Water Works	1,896.39	47,222.36
REPAIRS:		
General.....	$13,993.10	
Extra Summer 1909	6,775.00	
Steam, Water and Sewers	4,264.63	
Beebe Dam	410.62	
Goldwin Smith Hall trenches	740.26	
Morse and Sibley Wiring	1,592.29	
Sibley College redecorating	350.00	28,125.90
NEW CONSTRUCTION AND ALTERATIONS:		
Foundry addition	1,000.00	
Carnegie Filter Plant	108.34	
Cascadilla roof and gutter	826.00	
Eddy dam bridge	250.00	
White Hall changes for Architecture	1,100.00	
Morrill Hall alterations	320.00	
Central Ave. Steam Mains 1908 bal.	1,463.86	
Sage College repairs, 1908 on account	10,298.79	
Goldwin Smith Hall, balance building account	34,643.80	
Sage Chapel Organ	13,114.62	
Memorial Tablets	364.82	63,490.23
MISCELLANEOUS:		
Mary Bartlett Hill Fund to C. U. C. A.	111.50	
Mary F. Hall, Income from scholarship funds	950.00	
Woman's Guild Fund	24.55	
Guiteau Loan Fund	8,942.50	
Contribution to American Classical School, Athens.....	250.00	
Contribution to American Classical School, Jerusalem	100.00	
Contribution to American Classical School, Rome.....	250.00	
C. U. Athletic Association rent ...	200.00	
Automatic Stoker experiment ...	399.88	
Amounts forwarded	$11,228.43	$954,771.55

Amount brought forward	$11,228.43	$954,771.55	
MISCELLANEOUS:			
Committee on Emblem	250.00		
C. U. C. A. Handbook	100.00		
Annuities under W. Fiske will,			
W. O. Fiske	404.24		
Grimsey	1,000.00		
M. Monzecchi	2,200.00		
W. L. Mitchell, Interest	225.00		
Preswick Annuity	300.00		
C. Preswick rights in Fall Creek	250.00		
Classical Studies	.45		
Philosophical Review	1,000.00		
Physical Review	5,603.17		
History and Political Science Studies	266.54	22,827.83	
		977,599.38	
Add amounts transferred to principal of fund, viz:			
5% of general income (not including income on special funds) transferred to surplus fund	37,585.37		
Less restored to Income by order Board of Trustees	37,000.00		
Balance transferred to Surplus Fund	585.37		
Alumni Fund	72.60		
Caroline Corson French Prize Fund	62.14		
Class '91 Memorial Fund	29.59		
Class '96 " "	44.33		
Class '97 " "	73.71		
Class '98 Alumni Hall Fund	19.16		
Professorial Pension Fund	10,447.63		
" " " income	970.96		
Daughters of American Revolution Prize Fund	26.71		
Woman's Loan Fund	370.36		
Surplus	175.43	12,877.99	$990,477.37
UNIVERSITY AT NEW YORK.			
Salaries of Instruction and Research Officers of Instruction	$109,143.24		
Chiefs of Clinic	1,899.84	$111,043.08	
Departmental Expenses:			
Anatomy	663.39		
Chemistry	1,653.94		
Clinical Pathology	2,172.83		
Experimental Pathology	1,521.98		
Experimental Therapeutics	4,289.18		
Gynecology	13.40		
Laryngology	32.58		
Materia Medica	422.07		
Medicine	114.97		
Amounts forwarded	$10,884.34	$111,043.08	$990,477.37

Amount brought forward....			
Departmental Expenses:	$10,884.34	$111,043.08	$990,477.37
Neurology	165.63		
Ophthalmology	10.00		
Otology	7.95		
Obstetrics	114.88		
Operative Surgery	48.61		
Orthopedics	.30		
Pathology	4,075.57		
Pharmacology	604.12		
Photography	487.73		
Pediatrics	17.24		
Physiology	8,497.19		
Surgery	101.15		
X-Ray	197.01		
Dispensary	4,266.57		
Loomis Laboratory	2,774.88		
Medical College Laboratory	368.98		
Hospital Quiz	1,500.00	34,122.15	
Administration and General Expenses:			
Salaries Clerk and Staff	4,320.00		
" Secretary and Assistant	2,400.00		
Insurance	2,217.94		
Advertising	816.64		
Announcements	1,074.94		
Contingent	234.49		
Postage	170.00		
Printing	746.52		
Breakage refunds	1,112.57		
Commencement	416.50		
Prizes	500.00		
Animal Hospital	891.22		
Animals and Food	501.77	15,402.59	
Operation and Maintenance of Plant:			
Salaries	37,253.12		
Janitor's Supplies	355.25		
Engineer's Supplies	1,693.07		
Fuel	6,236.56		
Gas	665.12		
Water	1,560.30		
Furniture	439.33		
Miscellaneous	1,375.75		
Repairs	1,271.57		
Alterations	8,851.23	59,701.30	220,269.12
STATE VETERINARY COLLEGE.			
Salaries of Instruction	$24,808.31		
Departmental Expenses	6,475.86	$31,284.17	
Administration and General Expense			
Office	909.05		
Librarian	218.50		
Advertising	601.66	1,729.21	
Amount forwarded		$33,013.38	$1,210,746.49

Amount brought forward....		$33,013.38	$1,210,746.49
Operation and Maintenance of Plant			
Salaries	3,944.78		
Electric Light	100.30		
Gas	227.10		
Fuel	358.84		
Repairs	792.74		
Miscellaneous	1,020.47	6,444.23	
Experiment Station		6,385.63	45,843.24
STATE AGRICULTURAL COLLEGE.			
Salaries for Instruction and Research Departments:	$89,331.25	$89,331.25	
Animal Husbandry	32,932.87		
Chemistry	686.54		
Dairy Industry	96,300.40		
Drawing	119.85		
Extension	5,297.98		
Entomology	3,642.07		
Farm Crops	1,158.82		
Farm Mechanics	1,027.05		
Farm Practice	18,968.07		
Farmers Reading Course	42.95		
Farmers' Wives Reading Course	1,139.50		
Home Economics	1,093.05		
Home Nature Study	2.04		
Horticulture	3,741.54		
Plant Breeding	514.94		
Plant Pathology	1,824.66		
Plant Physiology	1,638.40		
Pomology	5,804.01		
Poultry Husbandry	10,693.36		
Rural Art	548.27		
Rural Economy	229.03		
Rural School Leaflet	1,076.06		
Soils	1,231.08	189,712.54	
Administration and General Expense	34,671.12	34,671.12	
Special Extension work:			
1908 Appropriation	661.14		
1909 "	8,203.62		
1910 "	749.04	9,613.80	
New Buildings:			
Barns	22,481.16		
Glass Houses	22,996.25	45,477.41	368,806.12
			$1,625,395.85

Schedule III

DEPARTMENTAL EXPENSE

	PROFESSORS	ASS'T PROF.	INSTRS.
Arts and Sciences, College of:			
Archaeology			$1,200.00
Education	$3,500.00	$1,500.00	
English	6,500.00	7,500.00	5,000.00
French	6,500.00	2,000.00	4,199.99
German	3,000.00	5,000.00	2,000.00
Greek and Classical Archaeology	6,500.00		1,000.00
History	13,900.00	2,000.00	1,000.00
Latin	9,250.00		
Oratory		2,333.34	1,666.66
Philosophy	11,500.00		800.00
Phychology	4,000.00	2,000.00	800.00
Political Science and Economics	12,750.00		3,800.00
Semitics	2,500.00		
Botany	5,500.00		2,000.00
Chemistry	10,000.00	4,000.00	6,466.67
Entomology	500.00 (See Agric ulture)		
Geology	7,250.00	2,000.00	5,000.00
Mathematics	8,000.00	6,000.00	8,600.00
Neurology and Vertebrate Zoology	3,500.00		2,500.00
Physics	10,000.00	6,000.00	12,800.00
Music	3,000.00		
Military Science	800.00		
Physical Culture	3,000.00		2,000.00
Total Arts and Sciences	$131,450.00	$40,333.34	$60,833.32
Agriculture, College of (From University Funds)			
Architecture, College of	9,000.00	5,250.00	3,800.00
Civil Engineering, College of	19,000.00	19,700.00	14,400.00
Law, College of	17,500.00	2,000.00	
Medicine, College of (at Ithaca)	9,000.00	5,250.00	3,250.00
Sibley College	26,700.00	11,300.00	39,899.98
	$212,650.00	$83,833.34	$122,183.30

Schedule IV

	UNIVERSITY AT ITHACA	UNIVERSITY AT NEW YORK
Tuition	$315,902.84	$17,826.00
Summer Session	23,866.65	
Laboratory and other fees	101,123.25	8,390.00
Total from students	$440,892.74	26,216.00
From invested funds	399,583.76	6,533.96
College Land Scrip Fund	34,428.80	
From United States	62,318.06	
From State of New York		
Sage College and Cottage	15,686.40	
Rents of Buildings and Cottages	10,321.80	
Donations to current income	9,414.62	190,371.75
Departments (not from students)	1,885.95	4,973.81
Miscellaneous	8,164.42	571.71
	$982,696.55	$228,667.23

University at Ithaca
(See Schedule II)

ASS'TS AND DEMONSTR'S	TOTAL TEACHING STAFF	OTHER REG. EMPLOYEES	OTHER APPR'S	TOTAL
.....	.....	$1,260.00	$3,589.47	$4,849.47
.....	1,200.00	540.00	41.95	1,781.95
.....	5,000.00	.....	267.39	5,267.39
975.00	19,975.00	.....	53.82	20,028.82
.....	12,699.99	.....	112.69	12,812.68
.....	10,000.00	.....	50.00	10,050.00
.....	7,500.00	.....	33.07	7,533.07
1,299.97	18,199.97	.....	70.66	18,270.63
.....	9,250.00	.....	84.51	9,334.51
150.00	4,150.00	.....	222.61	4,372.61
*1,100.00	13,400.00	.....	97.97	13,497.97
700.00	7,500.00	.....	748.65	8,248.65
800.00	17,350.00	.....	158.04	17,508.04
.....	2,500.00	.....	53.05	2,553.05
2,000.00	9,500.00	2,820.00	1,665.15	13,985.15
9,595.18	30,061.85	4,048.00	22,111.96	56,221.81
.....	500.00	.....	.....	500.00
1,650.00	15,900.00	876.00	1,613.53	18,389.53
.....	22,600.00	420.00	102.20	23,122.20
150.00	6,150.00	540.00	1,300.00	7,990.00
4,411.04	33,211.04	5,660.00	6,000.00	44,871.04
2,050.00	5,050.00	.....	1,479.34	6,529.34
1,200.00	2,000.00	420.00	913.79	3,333.79
3,400.00	8,400.00	770.00	2,182.98	11,352.98
$29,481.19	$262,097.85	$17,354.00	$42,952.83	$322,404.68
.....	13,638.91	.....	8,061.09	21,700.00
.....	18,050.00	1,020.00	2,279.72	21,349.72
.....	53,100.00	3,366.56	7,166.88	63,633.44
2,100.00	21,600.00	780.00	4,442.84	26,822.84
3,394.44	20,894.44	3,060.00	8,223.14	32,177.58
9,190.00	87,089.98	9,372.00	20,432.25	116,894.23
$44,165.63	$476,471.18	$34,952.56	$93,558.75	$604,982.49

*Includes Lectures $700.

CONDENSED AND COMBINED INCOME STATEMENT

STATE VETERINARY COLLEGE	STATE AGRICULTURAL COLLEGE	TOTAL
$1,000.00	.....	334,728.84
.....	.....	23,866.65
2,078.80	12,896.80	124,488.85
$3,078.80	$12,896.80	483,084.34
.....	.....	406,117.72
.....	.....	34,428.80
.....	.....	62,318.06
40,661.79	241,025.80	281,687.59
.....	.....	15,686.40
25.00	.....	10,346.80
.....	.....	199,786.37
2,214.37	124,662.63	133,736.76
109.57	1,260.71	10,106.41
$46,089.53	$379,845.94	$1,637,299.25

CONDENSED AND COMBINED EXPENSE STATEMENT

	UNIVERSITY AT ITHACA	UNIVERSITY AT NEW YORK
Salaries of Instruction	$476,471.18	$111,043.08
Departments	130,012.42	34,122.15
Administration Salaries	37,771.49	6,720.00
General Expenses	120,071.21	59,032.66
Prizes, Scholarships, Fellowships and Loans	35,621.91	500.00
Sage College and Cottage	10,935.71	.....
Summer Session	25,000.00	.....
Agricultural Experiment Station	25,208.68	.....
Library	39,131.22	.....
New Buildings	35,643.80	.....
Extraordinary Repairs	14,731.81	8,851.23
Special Extension Work	.....	.....
Income transferred to principal	12,877.99	.....
Sage College Organ	13,114.62	.....
Miscellaneous	13,885.33	.....
	$990,477.37	$220.269.12

Schedule V

APPROPRIATIONS 1909–1910, EXPENDITURES ACCOUNT SAME AND BALANCES UNEXPENDED

	APPROPRIATIONS	EXPENDED	BALANCE UNEXPENDED
Agriculture:			
Congressional Industrial Fund	$16,000.00	$16,000.00	
Cornell University Contract	5,700.00	5,700.00	
Experiment Station, Hatch	15,463.17	13,540.13	$1,923.04
" " Adams	11,631.51	11,631.51	
" " Income	503.04	37.04	466.00
Income Student Loan Fund	45.52		45.52
Income Agricultural Debate Prize	100.00	100.00	
Architecture	3,224.68	2,639.72	584.96
College Arts and Sciences:			
Announcements	500.00	500.00	
Board Recommendations	628.09	447.53	180.56
Lectures	564.10	439.25	124.85
Dean's Office, Reading Room and Library	1,953.97	1,433.48	520.49
(a) Arts Departments:			
American Classical School Athens	250.00	250.00	
American Classical School Rome	250.00	250.00	
American Classical School Jerusalem	100.00	100.00	
Archaeology	2,081.36	581.95	1,499.41
Classical Studies	634.76	.45	634.31
Education, School of	292.26	267.39	24.87
Elocution and Oratory	285.00	222.61	62.39
English (Cong. Ind. Fd.)	1,000.00	1,000.00	
English	85.58	53.82	31.76
French	125.00	112.69	12.31
German	50.00	50.00	
Greek	54.98	33.07	21.91
Amount forwarded	$61,523.02	$55,390.64	$6,132.38

STATE VETERINARY COLLEGE	STATE AGRICULTURAL COLLEGE	TOTAL
$24,808.31	$89,331.25	$701,653.82
6,475.86	189,712.54	360,322.97
1,127.55	4,640.00	50,259.04
7,045.89	30,031.12	216,180.88
.....	.....	36,121.91
.....	.....	10,935.71
.....	.....	25,000.00
.....	.....	25,208.68
.....	.....	39,131.22
.....	45,477.41	81,121.21
.....	.....	23,583.04
6,385.63	9,613.80	15,999.43
.....	.....	12,877.99
.....	.....	13,114.62
.....	.....	13,885.33
$45,843.24	$368,806.12	$1,625,395.85

	APPROPRIATIONS	EXPENDED	BALANCE UNEXPENDED
Amounts carried forward ..	$61,523.02	$55,390.64	$6,132.38
Arts Departments:			
History, American	555.29	30.55	524.74
" Ancient	42.62	21.01	21.61
" Mediaeval	54.16	14.39	39.77
" Modern European	51.62	19.10	32.52
Latin	85.07	84.51	.56
Philosophy.....	420.18	97.97	322.21
Psychology	1,500.00	748.65	751.35
Philosophical Review	1,000.00	1,000.00	
Political Science and Politics ...	296.09	296.09	
" " " Finance ...	302.62	288.71	13.91
" " " Statistics ..	231.47	173.24	58.23
" " " Public Studies	563.74	266.54	297.20
Semitics	60.50	53.05	7.45
(b) Science Departments:			
Astronomy.....	90.00	84.45	5.55
Botany	3,704.67	3,632 24	72.43
Botany, Special	200.00	132.91	67.09
Chemical	28,000 00	26,152.96	1,847.04
Geology	2,540.00	2,069.53	470.47
Mathematics	203.59	102.20	101.39
Mathematics Cong. Ind. Fund ...	7.000.00	7,000.00	
Neurology	1,300.00	1,300.00	
Physical Review	6,140.98	5,603.17	537.81
Physical	10,000.00	10,000.00	
Athletics:			
Rent Athletic Office	200.00	200.00	
Buildings and Grounds:			
Care of Buildings.....	$11,400.00	$11,400.00	
Care of Grounds and Ornamentation	7,000.00	18,500.00	
Special Roads	11,500.00		
Amount forwarded	$155,965.62	$144,661.91	$11,303.71

	APPROPRIATIONS	EXPENDED	BALANCE UNEXPENDED
Amounts brought forward	$155,965.62	$144,661.91	$11,303.71
Buildings and Grounds:			
Electric Service	1,600.00	1,600.00	
Electric Light and Power, Labor	3,200.00	3,200.00	
Morse, Sibley, Wiring, etc	1,725.00	1,592.29	132.71
Fuel	16,500.00	15,036.1[illegible]	
Central Ave. Steam Main		1,463.86	
Goldwin Smith Hall	35,643.80	34,643.80	
(Includes $1,000 French covers)		740.26	259.74
Heating, Labor	4,150.00	3,842.16	307.84
Repairs	14,000.00	13,988.10	11.90
Steam, Water and Sewer Repairs	4,500.00	4,264.63	235.37
University Water Works	2,500.00	1,896.39	603.61
1909–10 Alterations and redecorations in Boardman, Franklin, Goldwin Smith, Sage Greenhouse, Stimson and Sibley	6,775.00	6,775.00	
Purchase Preswick and Popplewell Lands	500.00	250.00	250.00
College Civil Engineering:			
Regular Summer Survey and Special Appropriation	11,170.94	8,620.74	2,550.20
Hydraulic Laboratory Commercial account	2,075.36	62.50	2,012.86
Graduate School:			
Dean's Office		555.41	
Announcements	1,150.00	445.70	148.89
Guiteau Income Fund	16,096.33	8,942.50	7,153.83
Infirmary	44,239.61	10,776.00	29,901.46
City Hospital		3,562.15	
Interest and Annuities:			
Mitchell Bond Interest	225.00	225.00	
Preswick Annuity	300.00	300.00	
Fiske Annuities:			
Monzecchi	2,200.00	2,200.00	
Grimsey	1,000.00	1,000.00	
W. O. Fiske	404.24	404.24	
Law, College of	1,644.00	1,407.49	236.51
Law Library	3,651.31	3,335.35	315.96
Library	41,766.90	39,131.22	2,635.68
Medical College, Ithaca Division:			
Anatomy and General Expense	3,557.72	3,199.25	358.47
Bacteriology	439.01	236.50	202.51
Histology	1,647.73	1,591.43	56.30
Obstetrics	30.00	26.00	4.00
Physiology, etc	5,935.15	5,935.15	
Surgery	25.00	10.52	14.48
Medicine	50.00		50.00
Embryology Research	250.00	250.00	
Physical Diagnosis	60.00	19.90	40.10
Music	6,450.00	6,450.00	
Organ	13,114.62	13,114.6[illegible]	
Operating Expense:			
Advertising and Lectures	758.54	473.15	285.39
Attorney's Fees and Expenses	1,500.00	1,500.00	
Amounts forwarded	$406,800.88	$347,729.36	$59,071.52

	APPROPRIATIONS	EXPENDED	BALANCE UNEXPENDED
Amounts brought forward	$406,800.88	$347,729.36	$59,071.52
Operating Expense:			
Beebe Dam Changes	500.00	410.62	89.38
Bell Ringing	250.00	249.00	1.00
Contingent	11,902.78	11,902.78	
C. U. C. A. Handbook	100.00	100.00	
Insurance	1,200.00	1,109.87	90.13
Printing and Stationery	5,500.00	5,500.00	
Reading Entrance Examination papers	600.00	600.00	
Register	5,000.00	5,000.00	
Eddy Dam Bridge	250.00	250.00	
Automatic Stoker	399.88	399.88	
Memorial Tablets	900.00	364.82	535.18
Physical Education:			
Military Science	924.10	913.79	10.31
Physical Culture	2,305.10	2,182.98	122.12
Com. on playground	792.67	792.67	
Prizes:			
Mrs. A. S. Barnes Shakespeare	179.28	50.00	129.28
Philo S. Bennett	104.27		104.27
Class '94 Debate	41.31	25.00	16.31
Class '86 Memorial	187.81	86.00	101.81
Hiram Corson Browning	71.05	50.00	21.05
Fuertes Medal	107.61	50.00	57.61
Guilford Essay	169.14	150.00	19.14
Luana L. Messenger	254.38		254.38
Frances Sampson	60.17	29.48	30.69
W. C. Siedell Book Fund	119.98		119.98
Sibley Prize	100.00	100.00	
White Veterinary	58.38	25.00	33.38
Woodford Medal	483.20	100.00	383.20
Sage Chapel:			
Dean Sage Sermon Fund	5,248.50	3,300.00	1,948.50
Expense	750.00	750.00	
Organ	194.54	25.00	169.54
Sage College Income	21,234.50	10,935.71	
" " Repairs		10,298.79	
Salaries	483,825.00	482,143.96	1,681.04
Summer Session	25,000.00	25,000.00	
Scholarships and Fellowships	23,700.00	22,816.65	883.35
Associate Alumnae Scholarship	150.00	150.00	
Boardman Senior Law Scholarship	118.26	100.00	18.26
Mary F. Hall Scholarship	1,494.32	825.00	544.32
		125.00	
F. W. Padgham Scholarship	133.84		133.84
C. H. Roberts Agr. Scholarship	1,200.00	1,200.00	
Daughters of American Revolution	25.00		25.00
Sibley College, M. E. and M. A	20,087.85	18,962.56	1,125.29
Congressional Industrial Fund, Fac	3,000.00	3,000.00	
Congressional Industrial Fund, Salaries	13,000.00	13,000.00	
Mechanical Laboratory Com. Acc't	896.05	293.69	602.36
Amounts forwarded	$1,039,419.85	$971,097.61	$68,322.24

	APPROPRIATIONS	EXPENDED	INCOME UNEXPENDED
Amounts brought forward	$1,039,419.85	$971,097.61	$68,322.24
Polish Student Loan	11.71		11.71
Women's Guild Fund	657.57	24.55	633.02
Cornell Alumni Endowment Fund	6.16		6.16
American Peony Society Fund	200.00		200.00
Musical Entertainments Fund	438.14	79.34	358.80
Carnegie Filter	500.00	108.34	391.66
Mary Bartlett Hill Fund and Interest	111.50	111.50	
White Hall Changes	1,300.00	1,100.00	200.00
Sibley Foundry Extension	1,800.00	1,000.00	800.00
Goldwin Smith Library	4,000.00	684.76	3,315.24
Committee on Emblem and Medal	250.00	250.00	
Herman Frasch Fellowship	1,500.00	230.72	1,269.28
Niagara Sprayer Co. Fellowship	1,000.00	999.96	.04
C. W. Stuart & Co. Fellowship	500.00	416.60	83.40
Morrill Hall changes	500.00	320.00	180.00
Sibley College Redecoration	350.00	350.00	
Cas. Roof and Gutters	826.00	826.00	
Medical	222,651.28	213,735.16	8,916.12
Loomis Laboratory	6,358.57	6,033.96	324.61
J. M. Polk	584.47	500.00	84.47
	$1,282,965.25	$1,197,868.50	$85,096.75

Schedule VI

BALANCE GENERAL LEDGER AUGUST 1, 1910

Campus Cottage	$59,960.86	Income	$5,445,800.04
Sage Block	31,000.00	Productive Funds	3,863,732.67
Inc. Corson Browning Prize	38.06	Income due special Funds	12,302.29
Gym. Addition	2,325.38	Sage College Room Rent Deposit	1,955.00
Morse Hall Addition	1,214.50	Civil Eng. Com. acc't	2,012.86
Bonds & Mortgages	870,490.00	Mechanical Laby. Com. Acc't	602.36
Securities	7,599,784.12	Civil Eng. Survey Camp	792.54
Bennett Fd. Mtgs.	1,620.00	Goldwin Smith Hall Library	3,315.24
Bills Receivable	136,977.50	Amer. Peony Society	200.00
Warren States Cont.	400.00	Jennie McGraw Fiske Memorial	2,040.00
Foreclosure	15,220.65	Agr. Exp. Sta. Hatch	1,923.04
Cash	54,873.37	State App. Agri. Col. Main	22,203.52
Agr. Exp. Station, Adams	473.20	Cong. Industrial Fd.	45,000.00
State Appro. Exten. Work No. 1	1,233.18	Agr. Exp. Sta. Income	466.00
State Appro. Exten. Work No. 2	749.04	State Income	1,064.61
State Appro. Enlargement of Vet. Col.	49.28	State Col. Forestry Inc	8,983.90
State Col. Forestry Lumbering Acc't	288.53	State Vet'y Col. Inc.	5,852.63
State App. Vet'y Col. Extension	1,003.60	State Vet'y Col. Maintenance	1,043.54
Students	1,366.46		
Student Notes	30,371.30		
Amount forwarded	$8,809,439.03	Amount forwarded	$9,419,290.24

Amt. brought forw'd	$8,809,439.03	Amt. brought forw'd	$9,419,290.24
Columbia Trust Co.	1,497.92	Agricultural Income	5,283.52
Equitable Trust Co	481.30	Bills Payable	6,500.00
Ithaca Trust Co	1,358.81	Cornell Infirmary	29,901.46
Mercantile Trust Co.	448.08	Med. Col. N. Y. City.	8,916.12
Metropolitan Trust Co.	123.04	Premium & Discount	125,316.43
Morton Trust Co	570.88	Profit and Loss Foreclosure	28,287.63
Union Trust Co	373.30	Western Lands	4,963,702.97
U. S. Trust Co	145.19	Sundry Persons	202.90
Inventories	1,819,772.98	Sundry Accounts	71.23
Real Estate	3,895,041.46	Herman Frasch Fellowship	1,269.28
Farm Land Purchase	25,873.00	Niagara Sprayer Co. Fellowship	.04
Suspense Acc't	4,873.30	C. W. Stuart & Co. Fellowship	83.40
Sage College Repairs	10,879.51	Musical Entertainments	358.80
Cash Advances	9,135.60	Physical Review	537.81
Departments	1,889.37		
Expenses	4,706.58		
Sundry Persons	3,092.48		
	$14,589,721.83		$14,589,721.83

Schedule VII

CORNELL UNIVERSITY MEDICAL COLLEGE AT NEW YORK CITY

TRIAL BALANCE, JULY 30, 1910

Tuition	$ 290.00	Registration	$225.00
1st Year Laboratory	70.00	Tuition	16,645.00
2d Year Laboratory	35.00	1st Year Laboratory	525.00
3d Year Laboratory	35.00	2d YearLaboratory	140.00
Hospital Quiz	1,500.00	3d Year Laboratory	2,100.00
Special Courses	900.00	4th Year Laboratory	1,750.00
Breakage	1,112.57	Final Exams	1,700.00
Prizes	500.00	Hospital Quiz	950.00
Insurance	2,217.94	Special Courses	1,471.00
Advertising	816.64	Breakage	1,140.00
Advertising, Announcements	1,074.94	Interest	340.31
Expenses, Incidental	165.07	Prizes	500.00
" Travelling	69.42	Donations	173,000.00
Supplies, Janitor	355.25	" Animal Hosp.	1,050.00
" Engineer	1,693.07	Dispensary Receipts	4,793.05
Fuel	6,082.12	Research, G-U Diseases	555.00
Lighting, Gas	665.12	Telephone	231.40
Water	1,560.30	Alterations to Building	15,766.75
Telephone	716.93	Salaries, Profs & Insts	205.54
Laundry	103.58	" Clerk and Staff	182.20
Ice	73.43	Drugs and Medicines	21.05
Repairs to Building	1,271.57	Chemistry	1.04
Alterations to Building	8,851.23	Medicine	5.75
Furniture	439.33	Pathology	3.15
Postage	170.00	Photography	7.75
Printing	364.92	Physiology	22.83
Uniforms	45.45	Loomis Laboratory	6,214.72
Alcohol	436.36	Cash in Bank July 31, 1909 $ 18.01	
Commencement	416.50	Cash Dr. Polk, Dean 500.00	518.01
Salaries, Profs. Insts.	108,448.78		
Amount forwarded	$140,480.52		$230,064.55

Amt. brought forw'd		$140,480.52	$230,064.55
Salaries, Clerk and Staff		34,114.76	
Sec'y and Assistants		2,400.00	
" Chiefs of Clinic		1,899.84	
Supplies, Dispensary ..		157.77	
Printing		306.55	
Drugs and Medicine ...		3,767.00	
Dermatology, Dispensary		9.00	
Genito-Urinary, Dispensary		47.30	
Gynecology.....		13.40	
Laryngology		9.70	
Medicine		.20	
Neurology		23.80	
Ophthalmology		10.00	
Otology		7.95	
Surgery		101.15	
Anatomy.....		663.39	
Chemistry		1,654.98	
Clinical Pathology		2,172.83	
Laryngology		22.88	
Materia Medica		422.07	
Medicine		120.52	
Neurology		141.83	
Obstetrics		114.88	
Operative Surgery		48.61	
Orthopedics		.30	
Pathology		3,055.32	
Photography		495.48	
Library, Pathology		1,023.40	
Publications		381.60	
Animals and Food		501.77	
Pediatrics		17.24	
Physiology		2,126.94	
Physiology, Equipment		6,393.08	
X-Ray		197.01	
Salaries, Exp. Therap...		2,842.96	
Loomis Laboratory		2,774.88	
Exp. Therapeutics		1,802.86	
" " Equip.		2,486.32	
Salaries, Loomis		4,197.60	
Pharmacology		604.12	
Exp. Pathology		1,521.98	
Animal Hospital		891.22	
Medical College Lab'y .		368.98	
Salaries, Med. Col. Lab'y		600.00	
Fuel " " "		154.44	
Cash in bank	$8,416.12		
Cash Dr Polk, Dean	500.00	8,916.12	
		$230,064.55	$230,064.55

Schedule VIII

STATE COLLEGE FORESTRY BALANCE SHEET, AUG. 1, 1910

Contingencies	$4,723.84	New York State	$50,000.00
Clerk	1,222.58		
Stationery	2,129.08		
Lectures	1,825.00		
Salaries	36,274.96		
Lib. & Demonstrations	2,608.64		
Equipment	689.06		
Forest Nursery	526.84		
	$50,000.00		$50,000.00

STATE COLLEGE FORESTRY LUMBERING ACCOUNT BALANCE SHEET, AUG. 1, 1910

	Exp. Aug. 1, 1909, to Aug. 1, 1910	Balance Aug. 1, 1910		Receipts Aug. 1, '09, to Aug. 1, 1910	Receipts to Aug. 1, 1910
Maintenance	$108.22	$17,188.55	N. Y. State		$60,000.00
Improvement		22,533.99	Maintenance		2,458.40
Equipment		4,457.33	Improvement		16,765.26
Building		6,151.62	Equipment		1,182.73
Sur'y & Est'g		5,297.22	Building		.25
Pordwood		54,119.36	Sur'y and Est'g		298.20
Lulpwood		16,275.47	Cordwood		50,977.29
Cogging		86,870.76	Pulpwood		28,881.26
Telegraph poles		511.31	Logging		57,460.08
Ties and Posts		1,958.07	Telegraph poles		1,099.40
Fire Fighting		580.47	Ties and Posts		2,280.50
Contr. R. R. Main Line		3,000.00	Tuition		2,660.00
		108.22	Interests		1,125.73
			Rents		2,821.02
Income		159,994.04	Income		159,994.04
McDonald & Son		18,114.37	McDonald & Son		18,114.37
Brook'n Cooperage Co		94,234.16	Brook'n Cooperage Co		93,986.83
Santa Clara Lumber Co		27,805.36	Santa Clara Lumber Co		27,790.31
State Col. For. Bank Acc't	8,983.90				
Due C. U. from State	288.53	8,695.37			
		$527,895.67			$527,895.67

Schedule IX

BALANCE SHEET JULY 31, 1910

NEW YORK STATE VETERINARY COLLEGE

State of New York		$550,000.00
State of New York Insurance Recovery		13,308.64
Income Veterinary College		60,561.43
Building and Equipment Exp	$150,000.00	
Fire Loss Exp	13,308.64	
Departments Exp	77,625.06	
Expense	346,021.02	
Experimental Work	6,684.57	
North Wing	49.28	
Amount forwarded	$593,688.57	$623,870.07

Amount brought forward	$593,688.57	$623,870.07
C. U. Income Unexpended	5,852.63	
C. U. Maintenance Unexpended	1,043.54	
Amount forwarded	$600,584.74	$623,870.07

SCHEDULE X

NAME	WHEN DUE	RATE
Agnes City T'p, Lyon Co. Ks., (R. R. Aid)	1917	6
Aurora T'p, Cloud Co. Kan., (Refunding)	1909–1916	5½
Beatrice, Nebraska (Water Works)	1916	4
Beatrice, Nebr., Sch. Dist. (Sch. House)	1910–1916	6
Belleville T'p, Chaut. Co., Kan. (Refunding)	1911–1923	4½
Blue Rapids T'p, Marshall Co., Kans. (Refunding)	1910–1929	5
Burlingame City (Funding)	1919–1924	5
Burr Oak T'p, Jewell Co., Kan. (R. R. Aid)	1910	8
Caldwell City, Sumner Co., Kan. (Water Works)	1920	4½
Center T'p, Dickinson Co., Kan. (Refunding)	1909–1920	5
Centerville T'p, Linn Co., Kan. (Refunding)	1909–1920	4¾
Chase Co., Kan. (R. R. Aid)	1922	6
Chase Co., Kan. (R. R. Aid)	1922	6
Chautauqua Co., Kan. (Refunding)	1910	5
City of Fairbury, Neb. (R. R. Aid)	1911	6
Clarks Creek T'p, Morris Co., Kan. (Refunding)	1911–1919	5
Clay County, Kan. (Refunding)	1914–1929	5
Crook Co., Wyoming (C. H. & J.)	1911	6
Crow Wing Co., Minn. (R. R. Aid)	1912	6
Crow Wing Co., Minn. (R. R. Aid)	1912	6
Delight T'p, Custer Co., Nebr. (R. R. Aid)	1910	5
Diamond Valley T'p, Morris Co. (Refunding)	1911–1919	5
Eden T'p, Sumner Co., Kan. (Refunding)	1912–1917	4¾
Edwards Co., Kan. (R. R. Aid)	1916	6
Elk T'p, Cloud Co., Kan. (Refunding)	1911–1921	4½
Elk T'p, Republic Co., Kan. (Refunding)	1910–1914	5
Escambia Co., Fla. (Armory)	1911–1915	6
Eureka T'p, Barton Co., Kan. (R. R. Aid)	1916	6
Fairmont, Nebr. (Ref. Water)	1912	5
Fargo, North Dakota (Refg.)	1913	6
Glynn Co., Ga. (Refunding)	1925	5
Graham Co., Kan. (Refunding)	1918	6
Grant T'p, Jewell Co., Kan. (Refunding)	1911–1915	5
Grant T'p, Reno Co., Kan. (R. R. Aid)	1917	6
Great Bend T'p, Barton Co., Kan. (R. R. Aid)	1917	6
Green Garden T'p, Ellsworth Co., Kan. (Rfdg.)	1911–1919	5
Henderson Co., N. C. (Refunding)	1925	6
Hickory T'p, Butler Co., Kan. (R. R. Aid)	1908–1912	4¾
Highland T'p, Morris Co., Kan. (Refunding)	1911–1915	5
Houston Heights Municipality (Sch. Bldg.)	1933	5
Iola T'p, Allen Co., Kan. (Refunding)	1911–1918	4½
Kiowa Co., Kan. K. P. & W. (R. R. Aid)	1917	5
Kiowa Co., Kan. (R. R. Aid)	1917	5
Lane T'p, Greenwood Co., Kan. (Refunding)	1910–1924	5
Liberty T'p, Dickinson Co., Kan. (Refunding)	1909–1920	5

Carried forward

Amount brought forward	$600,584.74	$623,870.07
C. U. Appr. for Exp. Work Unexpended	3,334.61	
C. U. Appr. for North Wing Unexpended	19,950.72	
	$623,870.07	$623,870.07

SECURITIES—MUNICIPAL BONDS

COST	BALANCE AUG. 1, '09	PURCHASED DURING YEAR	SOLD OR PAID DURING YEAR	BALANCE AUG. 1, '10
100	$20,000.00	.....	*20,000.00	.....
106	7,500.00	.....	1,000.00	6,500.00
100	7,000.00	.....	.....	7.000 00
100¼	8,000.00	.....	1,000.00	7,000.00
100	11,000.00	.....	2,000.00	9,000.00
101½	11,500.00	.....	1,500.00	10,000.00
4.60b	6,000.00	.....	.....	6,000.00
112¾	5,000.00	.....	5,000.00	.....
100	1,600.00	.....	1,600.00	.....
101	8,000.00	.....	2,000.00	6,000.00
100	12,000.00	.....	3,000.00	9,000.00
104¼	20,000.00	.....	.....	20,000.00
113½	45,000.00	.....	.....	45,000.00
4½b	5,000.00	.....	.....	5,000.00
97	5,000.00	.....	3,000.00	2,000.00
100	4,000.00	.....	1,000.00	3,000.00
4.40b	8,000.00	.....	.....	8,000.00
100	4,000.00	.....	2,000.00	2,000.00
115.53	25,000.00	.....	.....	25,000.00
100	30,000.00	.....	.....	30,000.00
102	5,000.00	.....	5,000.00	.....
101	10,000.00	.....	1,000.00	$9,000.00
4.60b	8,000.00	.....	3,000.00	5,000.00
99	16,000.00	.....	.....	16,000:00
100	9,500.00	.....	1,000.00	8,500.00
4½b	3,000.00	.....	.....	3,000.00
108¼	5,500.00	.....	3,000.00	2,500.00
112.39	12,000.00	.....	.....	12,000.00
4½b	7,500.00	.....	.....	7,500.00
105½	20,000.00	.....	.....	20,000.00
100	4,000.00	.....	.....	4,000.00
100	10,000.00	.....	.....	10,000.00
4½b	5,000.00	.....	.....	5,000.00
4.80b	4,000.00	.....	†4,000.00	.....
112.58	7,000.00	.....	.....	7,000.00
4⅝b	10,000.00	.....	1,000.00	9,000.00
107½	20,000.00	.....	.....	20,000.00
100	2,000.00	.....	1,500.00	500.00
4⅝b	4,000.00	.....	1,000.00	3,000.00
4.65b	10,000.00	.....	.....	10,000.00
100	6,500.00	.....	1,000.00	5,500.00
100	11,000.00	.....	.....	11,000.00
98	40,000.00	.....	.....	40,000.00
4⅝b	16,000.00	.....	1,000.00	15,000.00
4⅝b	7,000.00	.....	1,000.00	6,000.00
	$496,600.00		$66,600.00	$430,000.00

*Sold at 111.30
†Sold at 110.50

NAME	WHEN DUE	RATE
Amounts brought forward		
Lincoln T'p, Cloud Co., Kan. (Refunding)	1910–1920	4½
Lost Springs T'p, Marion Co., Kan. (Refunding)	1905–1914	5
Luverne Ind. Sch. Dist., Minn. (Sch. House)	1910	6
Lyon T'p, Dickinson Co., Kan (Refunding)	1915–1921	5
Marquette City, McPherson Co., Kan. (Rfdg.)	1911–1925	5
*Mound City T'p, Linn Co., Kan. (Refunding)	1910–1930	5
Mound T'p, McPherson Co., Kan. (R. R. Aid)	1916	6
Neosho T'p, Coffey Co., Kan. (Refunding)	1911–1912	5
Ness County, Kan. (Refunding)	1910–1924	5
New York City (Corp. Stock)	1958	4
Nevada T'p, Ness Co., Kan. (Refunding)	1911–1917	5
Newton City, Kan. (R. R. Aid)	1915	6
Oak T'p, Smith Co., Kan. (Refunding)	1911–1918	5
Oskaloosa T'p, Jefferson Co., Kan. (Refunding)	1910–1926	5¼
Parsons City, Kan. (R. R. Aid)	1916	6
Payne T'p, Sedgwick Co., Kan. (Refunding)	1913–1923	5
Pierce Village, Pierce Co., Nebr. (Water Works)	1922	5
Plumb T'p. Phillips Co., Kans. (Refunding)	1909–1915	4¾
Plum Grove, T'p Butler Co., Kan. (Refunding)	1912–1915	4¾
Reno Co., Kan. (Refunding)	1918–1928	4½
Richland T'p, Rooks Co., Kan. (Refunding)	1910–1921	5
Rock Creek T'p, Nemaha Co., Kan. (Refunding)	1911–1924	5
Rolling Prairie T'p, Morris Co., Kan. (Refunding)	1910–1927	5
Saline Co., Kan. (R. R. Aid)	1916	6
San Antonie, Texas (Pub. use)	1910–1920	5
Scandia T'p, Republic Co., Kan. (Refunding)	1911–1929	5
Sch. Dist. No. 58, Allen Co., Kan. (School)	1911–1919	5
Sch. Dist. No. 3, Carbon Co., Wyoming (Rfdg.)	1925	6
Sch. Dist. No. 73, Lincoln Co., Wash. (School)	1914–1924	5½
Sch. Dist. No. 1, Sheridan Co., Nebr. (Sch. House)	1913	7
Sch. Dist. No. 61, Spokane Co., Wash. (School)	1914–1924	5½
Shell Rock T'p, Greenwood Co., Kan. (Refunding)	1910–1918	5
Sheridan County, Kan. (Funding)	1910	7
Sheridan T'p, Sheridan Co., Kan. (Refunding)	1917–1918	5
Shoshone Co., Idaho (Refunding)	1910	7
Silverdale T'p, Cowley Co., Kan. (Refunding)	1911–1923	5
Smoky Hill T'p, McPherson Co., Kan. (Rfdg.)	1911–1929	5
So. Haven T'p, Sumner Co., Kan. (Refunding)	1911–1915	5
So. Stillwater, Minn. (Elec. Lt.)	1911–1920	6
Spring Creek T'p, Coffey Co., Kan. (Refunding)	1910–1919	5
Spring Creek T'p, Coffey Co., Kan. (Refunding)	1910–1913	4½
St. Louis County, Minn. (R. R. Aid)	1913–1923	5
St. Louis County, Minn. (R. R. Aid)	1913–1923	5
State of New York (Land Scrip)		5
Stranger T'p, Leavenworth Co. (Refunding)	1908–1920	4½
Stromsburg City, Nebr. (Ref. Water)	1910–1911	5
Sumner T'p, Osborne Co., Kan. (R. R. Aid)	1909	8
Sumner T'p, Sumner Co., Kan. (Rfdg.)	1909–1917	4¾
Tacoma, Wash. (Water and Light)	1913	5
Tacoma, Wash. (Water and Light)	1913	5
Thomas County, Kan. (Refunding)	1914	5
Tonganoxie T'p, Leavenworth Co., Kan. (Rfdg.)	1910–1925	4½
Union T'p, Jefferson Co., Kan. (Refunding)	1929	5
Valley Center, Sedgwick Co., Kan. (Refunding)	1910–1920	4½
Amounts forwarded		

COST	BALANCE AUG. 1, '09	PURCHASED DURING YEAR	SOLD OR PAID DURING YEAR	BALANCE AUG. 1, '10
	$496,600.00		$66,600.00	$430,000.00
100	15,000.00	.....	.....	15,000.00
100	10,000.00	.....	.....	10,000.00
108	20,000.00	.....	20,000.00	.....
101	8,000.00	.....	1,000.00	7,000.00
4.60b	7,500.00	.....	.....	7,500.00
4½b	6,000.00	.....	.....	6,000.00
100	14,000.00	.....	.....	14,000.00
4½b	3,000.00	.....	1,000.00	2,000.00
103¼	67,000.00	.....	2,000.00	65,000.00
100	.....	25,000.00	.....	25,000.00
103¼	6,000.00	.....	1,000.00	5,000.00
99	34,000.00	.....	.....	34,000.00
100	15,000.00	.....	2,000.00	13,000.00
4¾b	18,000.00	.....	.....	18,000.00
101	11,000.00	.....	.....	11,000.00
103½	6,000.00	.....	.....	6,000.00
4½b	8,800.00	.....	2,000.00	6,800.00
100	8,000.00	.....	1,000.00	7,000.00
100	7,500.00	.....	.....	7,500.00
100	6,000.00	.....	.....	6,000.00
4⅝b	6,000.00	.....	.....	6,000.00
4⅝b	5,000.00	.....	1,000.00	4,000.00
4⅝b	16,000.00	.....	.....	16,000.00
103½	50,000.00	.....	.....	50,000.00
100	25,000.00	.....	.....	25,000.00
4.70b	18,000.00	.....	.....	18,000.00
4½b	7.000.00	.....	500.00	6,500.00
105	19,000.00	.....	.....	19,000.00
4⅞b	7,000.00	.....	.....	7,000.00
105.26	4,000.00	.....	.....	4,000.00
4¾b	7,000.00	.....	.....	7,000.00
4⅝b	11,000.00	.....	2,000.00	9,000.00
102	5,000.00	.....	.....	5,000.00
100.56	7,000.00	.....	5,000.00	2,000.00
113.22	10,500.00	.....	10,500.00	.....
100.56	12,000.00	.....	1,000.00	11,000.00
101½	9,000.00	.....	1,000.00	8,000.00
101½	5,000.00	.....	.....	5,000.00
4¾b	12,000.00	.....	2,000.00	10,000.00
100	5,000.00	.....	3,000.00	2,000.00
100	4,000.00	.....	500.00	3,500.00
100	54,000.00	.....	.....	54,000.00
102.04	12,000.00	.....	.....	12,000.00
	688,576.12	.....	.....	688,576.12
100.	5,000.00	.....	.....	5,000.00
4½b	3,000.00	.....	1,000.00	2,000.00
112¼	7,000.00	.....	7,000.00	.....
4.60b	1000.00	.....	1,000,00	.....
102	26,000.00	.....	.....	26,000.00
100	25,000.00	.....	.....	25,000.00
101½	28,000.00	.....	.....	28,000.00
100	15,000.00	.....	.....	15,000.00
4⅝b	15,000.00	.....	.....	15,000.00
100	10,000.00	.....	3,000.00	7,000.00
	$1,901,476.12	$25,000.00	$135,100.00	$1,791,376.12

*A gift

NAME	WHEN DUE	RATE
Amounts brought forward		
Walnut T'p, Brown Co., Kan. (Refunding)	1914–1918	5
Waring T'p, Ness Co., Kan. (Refunding)	1911–1917	5
Washington T'p, Rice Co., Kan. (Refunding)	1911–1921	5
Wichita Sch. Dist. Kan. (Schools)	1910	5
Wood River T'p, Custer Co., Nebr. (R. R. Aid)	1910	5
FOREIGN GOVERNMENT BONDS		
Argentine Republic (Internal)	1909–1945	5
Imperial Japanese Government (1st 4½'s)	1910–1925	4½
Imperial Japanese Government (1st 4½'s)	1910–1925	4½
Imperial Japanese Government (2d 4½'s)	1910–1925	4½
Republic of Cuba (Ext. Loan)	1910–1944	5
Republic of Cuba (Ext. Loan)	1910–1944	5
San Paulo, Brazil (Treasury Notes)	1919	5
U. S. of Mexico (Loan of 1904)	1954	4
U. S. of Mexico (Ext. Loan)	1945	5
RAILROAD BONDS		
Atchison, Topeka & Santa Fe Ry. (Gen'l Mtg)	1995	4
Atchison, Topeka & Santa Fe Ry. (1st Mtg.)	1958	4
Atlanta, Birmingham & Atlantic (Rec. Certif)	1911	5
*Atlantic City R. R. Co. (Gold Mtg.)	1919	5
*Baltimore & Ohio R. R. Co. (Prior Lien)	1925	3½
*Baltimore & Ohio R. R. Co. (1st Mtg.)	1948	4
Baltimore & Ohio R. R. Co. (1st Mtg.)	1948	4
Canada Southern Ry. Co. (1st Mtg. Extension)	1913	6
Carolina, Clinchfield & Ohio Ry. (1st Mtg.)	1938	5
*Central Branch Ry. Co. (1st Mtg.)	1919	4
*Chesa. & Ohio Ry. (1st Con. Mtg.)	1939	5
Chicago Great Western R. R. Co. (Deb.)		4
Chicago Great Western R. R. Co. (Deb.)		4
Chicago, Rock Island & Pac. Ry. Co. (1st & Rfd.)	1934	4
Chicago, Rock Island & Pac. Ry. Co. (1st & Rfd.)	1934	4
*Chicago, Rock Island & Pac. Ry. Co. (1st Mtg.)	1917	6
†Cin. Ham. & Day. Ry. Co. (Col. T'st)	1908	4½
†Cin. Ham. & Day. Ry. Co. (Col. T'st)	1959	4½
Colorado, Utah Con. Co. (Guar. Col. Tr.)	1911	6
Delaware & Hudson Co. (Conv. Bonds)	1916	4
Delaware & Hudson Co. (Conv. Bonds)	1916	4
Delaware & Hudson Co. (Conv. Bonds)	1916	4
*E. Tennessee, Va. & Georgia Ry. (Con. Mtg.)	1956	5
Galveston, Har'g & San. An. (M & P Ext)	1931	5
Galveston, Har'g & San. An. (M & P Ext)	1931	5
Galveston, Har'g & San. An. (M & P Ext)	1931	5
*Ga. Car. & North. Ry. (1st Mtg.)	1929	5
*Knoxville & Ohio Ry. Co. (1st Mtg.)	1925	6
Lake Shore & Mich. So. Ry. Co. (Deb.)	1931	4
*Lehigh Valley Ry. Co. (1st Mtg.)	1940	4½
*Long Island R. R. Co. (1st Con. Mtg.)	1931	5
Macon Dub. & Sav. Ry. Co. (1st Mtg.)	1947	5
Carried forward		

*A gift

†Exchange in reorganization

COST	BALANCE AUG 1, '09	PURCHASED DURING YEAR	SOLD OR PAID DURING YEAR	BALANCE AUG. 1, '10	
	$1,901,476.12	$25,000	$135,100	$1,791,376.12	
4½b	5,000.00	.....	.....	5,000.00	
103¼	9,000.00	.....	5,000	4,000.00	
4⅝b	12,000.00	.....	1,000	11,000.00	
99	16,000.00	.....	16,000	.....	
102	5,000.00	.....	5,000	.....	$1,811,376.12
	$1,948,476.12	$25,000	$162,100	$1,811,376.12	
99	9,730	.....	.....	9,730	
88	24,350	.....	.....	24,350	
92	48,700	.....	.....	48,700	
88	73,050	.....	.....	73,050	
100½	50,000	.....	.....	50,000	
105½	50,000	.....	.....	50,000	
6½b	48,600	.....	5,832	42,768	
93½	49,000	.....	.....	49,000	
96½	90,210	.....	*48,500	41,710	389,308.00
	$443,640		$53,332	$389,308	
100¼	.....	25,000	5,000	20,000	
4½b	50,000	.....	.....	50,000	
99	25,000	.....	.....	25,000	
112	10,000	.....	.....	10,000	
95½	4,000	.....	.....	4,000	
103	500	.....	.....	500	
99	.....	25,000	.....	25,000	
100	23,000	.....	.....	23,000	
95	25,000	.....	.....	25,000	
95¼	11,000	.....	.....	11,000	
118½	25,000	.....	.....	25,000	
93¾	60,000	.....	60,000	.....	
92½	40,000	.....	40,000	.....	
88⅞	25,000	.....	.....	25,000	
89½	25,000	.....	.....	25,000	
121½	25,000	.....	.....	25,000	
97⅝	25,000	.....	25,000	.....	
91⅝	.....	25,000	.....	25,000	
100	25,000	.....	.....	25,000	
95	25,000	.....	.....	25,000	
100	2,000	.....	.....	2,000	
102½	.....	23,000	.....	23,000	
120¾	15,000	.....	.....	15,000	
108	30,000	.....	.....	30,000	
109	10,000	.....	.....	10,000	
111⅜	10,000	.....	.....	10,000	
109½	5,000	.....	.....	5,000	
122½	10,000	.....	.....	10,000	
94½	.....	25,000	.....	25,000	
108	10,000	.....	.....	10,000	
117½	10,000	.....	.....	10,000	
97	25,000	.....	.....	25,000	
	$550,500	$123,000	$130,000	$543,500	$2,200,684.12

*$45,590.00 sold at 97¾.

NAME	WHEN DUE	RATE
Amounts brought forward		
Michigan Central Rd. Co. (Deb. of 1909)	1929	4
Mo. Kans. & Eastern Ry. (1st Mtg.)	1942	5
Mo. Kans. & Oklahoma R. R. Co. (1st Mtg.)	1942	5
Mo. Kans. & Oklahoma R. R. Co. (1st Mtg.)	1942	5
*Mo. Kans. & Texas Ry. Co. (1st Mtg.)	1990	4
Mo. Kans. & Texas of Texas (1st Mtg.)	1942	5
Mo. Pacific Ry. Co. (Cons'l 1st Mtg.)	1920	6
Mo. Pacific Ry. Co. (Cons'l 1st Mtg.)	1920	6
New York Central & Hudson R. R. Co	1934	4
New York, Chic. & St. Louis Rd. Co. (Deb. of '06)	1931	4
N. Y., New Haven & Hartford (Conv. Deb.)	1948	6
N. Y., N. Haven & Hartford R. R. Co. (3 yr. note)	1910	5
*N Y.., Ont. & West. Ry. (Refunding)	1992	4
*N. Y., Ont. & West. Ry. (Refunding)	1992	4
N. Pac. & Gt. Nor. Ry. (C. B. & Q. Col.)	1921	4
N. Pac. & Gt. Nor. Ry. (C. B. & Q. Col.)	1921	4
N. Pac. & Gt. Nor. Ry. (C. B. & Q. Col.)	1921	4
*Ohio River R. R. Co. (Gen. Mtg.)	1937	5
*Oregon Rd. & Nav. Co. (Con. Mtg.)	1946	4
Pennsylvania Rd. Co. (Conv.)	1915	3½
Pennsylvania Rd. Co. (Conv.)	1915	3½
*Richmond & Peter'g Ry. Co. (Con. Mtg.)	1940	4½
Seaboard Air Line (Rec. Cer. Ser. C.)	1912	5
*Sciota Valley & New England (1st Mtg.)	1989	4
So. Indiana Ry. Co. (1st Mtg.)	1951	4
So. Pacific Co. (Conv. Bonds)	1929	4
So. Pacific Co. (1st Mtg.)	1955	4
Spokane & Inland Emp. Rd. Co. (1st Rfdg.)	1926	5
St. Louis, Iron Mt.& So. R.& G. Div. (1st Mtg.)	1933	4
St. Louis, Iron Mt. & Southern (Gen. Mtg.)	1931	5
St. Louis, Iron Mt. & Southern (Gen. Mtg.)	1931	5
St. Louis, Iron Mt. & Southern (Con. Mtg.)	1931	5
St. Louis & San Francisco Rd. Co. (7 yr. note)	1912	4½
St. Paul, Min. & Man. Ry. (Mont. Ext.)	1937	4
Tidewater Company (note)	1913	6
Tol. & Ohio Central Ry. Co. (Gen. Mtg.)	1935	5
Union Pacific Rd. Co. (1st and Refunding)	2008	4
Union Pacific Rd. Co. (Conv.)	1927	4
Vera Cruz & Pacific Ry. Co. (1st Mtg.)	1934	4½
*Wabash Ry. Co. (1st Mtg.)	1939	5
*West Va. & Pittsburg Ry. Co. (1st Mtg.)	1990	4
*Wheeling & Lake Erie (1st Mtg.)	1949	4
EQUIPMENT NOTES		
Boomer Coal & Coke Co. (Equipment)	1913–1914	5
Chicago, Rock Island & Pacific Ry. Co.	1917	4½
Cincinnati, Hamilton & Dayton R. R. Co	1913–1916	4½
Colorado & Southern Ry. Co	1914	5
Delaware & Hudson Co	1922	4½
Evansville & Terre Haute (Series C)	1912	4½
Iron Mountain Car Trust	1912	5
New York Central Lines	1917	5
Carried forward		

*A gift

COST	BALANCE AUG. 1, '09	PURCHASED DURING YEAR	SOLD OR PAID DURING YEAR	BALANCE AUG. 1, '10	
	$550,500	$123,000	$130,000	$543,500	$2,200,684.12
4.40b	25,000	.....	.....	25,000	
105	25,000	.....	.....	25,000	
101	10,000	.....	.....	10,000	
107	15,000	.....	.....	15,000	
100	10,000	.....	.....	10,000	
101	25,000	.....	.....	25,000	
5%b	10,000	.....	.....	10,000	
111⅛	.....	25,000	.....	25,000	
95½	.....	14,000	....	25,000	
4.47b	25,000	.....	.....	25,000	
100	6,600	.....	.....	6,600	
100	25,000	.....	25,000	.....	
100	10,000	.....	.....	10,000	
102⅞	10,000	.....	.....	10,000	
96	25,000	.....	.....	25,000	
96½	50,000	.....	.....	50,000	
98¼	25,000	.....	.....	25,000	
100	86,000	.....	.....	86,000	
102¾	5,000	.....	.....	5,000	
89⅝	25,000	.....	.....	25,000	
90¼	25,000	.....	.....	25,000	
100	10,000	.....	.....	10,000	
99	25,000	.....	25,000	.....	
102⅛	10,000	.....	.....	10,000	
94	10,000	.....	.....	10,000	
96	9,000	.....	.....	9,000	
4⅜b	.....	25,000	.....	25,000	
98	.....	25,000	.....	25,000	
5%b	25,000	.....	.....	25,000	
101¼	35,000	.....	.....	35,000	
103	5,000	.....	.....	5,000	
117⅜	10,000	.....	.....	10,000	
97	25,000	.....	.....	25,000	
100	1,000	.....	1,000	.....	
102¾	.....	25,000	.....	25,000	
96	20,000	.....	.....	20,000	
4.15b	50,000	.....	.....	50,000	
86¾	20,000	.....	.....	20,000	
95⅝	50,000	.....	.....	50,000	
118	14,000	.....	.....	14,000	
100	10,000	.....	.....	10,000	
89½	15,000	.....	.....	15,000	1,399,100.00
	$1,332,100	$237,000	$181,000	$1,399,100	
100½	.....	25,000	.....	25,000	
5½b	20,000	.....	.....	20,000	
99	20,000	30,000	20,000	30,000	
5⅞b	25,000	.....	.....	25,000	
94¾	50,000	.....	.....	50,000	
97½	25,000	.....	.....	25,000	
5¼b	25,000	.....	.....	25,000	
98¼	25,000	.....	†25,000	.....	
	$190,000	$55,000	$45,000	$200,000	$3,599,784.12

†Sold at 104½

NAME	WHEN DUE	RATE
Amounts brought forward		
Pere Marqette R. R.	1909	4½
Pere Marqette R. R.	1913	6
Seaboard Air Line Ry. (Series C)	1911–1913	4½
Seaboard Air Line Ry	1912	5
Seaboard Air Line Ry. Series H	1914	5
St. Louis & San Francisco, Series G	1913	4½
Wabash Rd. Co., Series C	1913	4½
Wabash Rd. Co., Series C	1914	4½
TRACTION BONDS		
Atlantic City Elec. Co. (1st & Refunding)	1938	5
Balt. Spar. Pt. & Chesa. Ry. (1st Mtg.)	1953	4½
Brooklyn Un. El. R. R. Co. (1st Mtg.)	1950	5
Brooklyn Un. El. R. R. Co. (1st Mtg.)	1950	5
Calumet & So. Chicago (1st Mtg.)	1927	5
Cayuga Lake Elec. Ry. Co. (1st Mtg	1922	6
Cen. El. Ry. Co. of Kansas City (Mtg.)	1914	5
Chicago Railways Co. (1st Mtg.)	1927	5
Cleveland Railway Co. (1st Mtg.)	1912	5
Davenport & Rock Island Ry. (1st Mtg.)	1911	6
Davenport & Rock Island Ry. (1st Mtg.)	1911	6
Des Moines City Ry. (Refunding Mtg.)	1921	5
Des Moines City Ry. (Refunding Mtg.)	1921	5
Detroit & North Western Ry. Co (1st Mtg.)	1921	4½
Detroit United Ry. (Col. Trust)	1910	5
Detroit United Ry. (1st Cons'l)	1932	4½
Eastern Pa. Rys. Co. (1st Mtg.)	1936	5
Hudson Companies (Col. Note)	1911	6
Hudson & Man. Rd. (Car. Trust, Ser. A)	1913	5
Hudson & Man. Rd. (Car. Trust, Ser. A.)	1914	5
Indianapolis St. Ry. Co. (Gen. Mtg.)	1933	4
Interborough Rap. Tran. Co. (Conv. Notes)	1911	6
Ithaca St. Ry. (1st Mtg.)	1922	6
Ithaca St. Ry. (1st Mtg.)	1922	6
Ithaca St. Ry. Co. (2d Mtg.)	1922	6
Ithaca St. Ry. Co. (2d Mtg.)	1922	6
Ithaca St. Ry. Co. (2d Mtg.)	1922	6
Kansas City Elev. Co. (Gen. Mtg.)	1922	4
Kansas City Ry. & Lt. (1st Refunding)	1913	5
Metropolitan St. Ry. Co. (Gen. Mtg.)	1997	5
Metropolitan St. Ry. Co. (Gen. Mtg.)	1997	5
Metropolitan St. Ry. Co. of Kansas City (1st Mtg.)	1913	5
Muscatine Cit. Ry. & Lt. Co. (1st Mtg.)	1917	5
Muscatine Cit. Ry. & Lt. Co. (1st Mtg.)	1917	5
Nassau Elec. R. R. Co. (Cons. Mtg.)	1951	4
N. Y. & Jersey Rd. Co. (1st Mtg.)	1932	5
N. Y. & Jersey Rd. Co. (1st Mtg.)	1932	5
No. Ohio Traction Co. (Cons. Mtg.)	1919	5
No. Texas Traction Co. (1st Mtg.)	1933	5
No. Texas Traction Co. (1st Mtg.)	1933	5
Oregon Electric Ry. Co. (1st Mtg.)	1933	5
Rochester Ry. Co. (Gold Mtg.)	1930	5
Carried forward		

COST	BALANCE AUG. 1, '09	PURCHASED DURING YEAR	SOLD OR PAID DURING YEAR	BALANCE AUG. 1, '10	
	$190,000	$55,000	$45,000	$200,000	$3,599,784.12
99¾	25,000	.....	25,000	.....	
5.40b	20,000	.....	.....	20,000	
4⅞b	50,000	.....	25,000	25,000	
99⅜	26,000	.....	.....	26,000	
5⅞b	24,000	.....	.....	24,000	
5¼b	25,000	.....	25,000	.....	
6%b	5,000	.....	.....	5,000	
6%b	25,000	.....	.....	25,000	325,000.00
	$390,000	$55,000	$120,000	$325,000	
98	.....	25,000	.....	25,000	
94½	15,000	.....	.....	15,000	
101¾	25,000	.....	.....	25,000	
106½	25,000	.....	.....	25,000	
99½	20,000	.....	.....	20,000	
103	2,000	.....	.....	2,000	
99½–¾	18,000	7,000	.....	25,000	
99⅞	50,000	.....	.....	50,000	
98¼	25,000	.....	.....	25,000	
102	50,000	.....	†50,000	.....	
102⅜	8,000	.....	†8,000	.....	
5½b	10,000	.....	.....	10,000	
100	15,000	.....	.....	15,000	
97½	15,000	.....	.....	15,000	
95	25,000	.....	25,000	.....	
93½	50,000	.....	.....	50,000	
86	.....	15,000	.....	15,000	
99¾	25,000	.....	.....	25,000	
5½b	10,000	.....	.....	10,000	
97½	10,000	.....	.....	10,000	
87	25,000	.....	.....	25,000	
99	50,000	.....	.....	50,000	
103	30,000	.....	.....	30,000	
102	5,000	.....	.....	5,000	
103	25,000	.....	.....	25,000	
6½b	3,000	.....	.....	3,000	
102	4,000	.....	.....	4,000	
90	25,000	.....	.....	25,000	
5⅜b	25,000	.....	.....	25,000	
109	25,000	.....	.....	25,000	
112⅜	50,000	.....	.....	50,000	
97¾	.....	25,000	.....	25,000	
97½	6,500	.....	.....	6,500	
5.45b	3,500	.....	.....	3,500	
87¾	25,000	.....	.....	25,000	
100	10,000	.....	.....	10,000	
101	25,000	.....	.....	25,000	
5¼b	25,000	.....	.....	25,000	
98	15,000	.....	.....	15,000	
99	10,000	.....	.....	10,000	
5.45b	.....	25,000	.....	25,000	
111	25,000	.....	.....	25,000	
	$810,000	$97,000	$83,000	$824,000	$3,924,784.12

†Sold at 102.273

NAME	WHEN DUE	RATE
Amounts brought forward		
Rochester Ry. Co. (Gold Mtg.)	1930	5
Rochester Ry. Co. (Gold Mtg.)	1930	5
Saginaw Valley Tract. Co. (1st Mtg.)	1920	5
Sciota Valley Tract. Co. (1st Mtg.)	1923	5
Seattle Electric Co. (1st Mtg.)	1939	5
Steinway Ry. Co. (1st Mtg.)	1922	6
Toledo Tract. Co. (Cons. 1st Mtg.)	1912	6
Toledo Rys. & Lt. Co. (Con. 1st Mtg.)	1909	4
Toledo Rys. & Lt. Co. (Con. 1st Mtg.)	1909	4
West Side R. R. Co. of Elmira (1st Mtg.)	1914	5
LIGHT AND POWER BONDS		
Associated Gas & Elec. Co. (1st & Coll. Trust)	1939	5
Baltimore Un. El. L & P. Co. (Con. 1st Mtg.)	1929	4½
Bay City Gas Co. (Gen. Mtg.)	1920	5
Butte Elec. & Po. Co. (1st Mtg.)	1931	5
Butte Elec. & Po. Co. (1st Mtg.)	1951	5
Butte Elec. & Po. Co. (1st Mtg.)	1951	5
California Gas & El. Co. (Unif. & Refd.)	1937	5
Canton Elec. Co. (1st & Ref. Mtg.)	1937	5
Chippewa Valley Ry. Lt. & Por. Co. (1st Mtg.)	1924	5
Conn. Riv. Po. Co. of N. Y. (1st Mtg.)	1937	5
Consolidated Ltg. Co. of Vt. (1st Mtg.)	1926	5
Decatur Gas & Elec .Co. (1st Mtg.)	1929	5
Detroit City Gas Co. (Gold Mtg.)	1923	5
Dominion Po. & Tran. Co. (Gold Bd.)	1925–1927	5
Grand Rapids-Musk. Po. Co. (1st Mtg.)	1931	5
Green Bay Gas & El. Co. (1st and Refunding)	1925–1935	5
Hornell Gas Lt. Co. (1st Mtg.)	1910–1924	5
Hornell Gas Lt. Co. (1st Mtg.)	1917–1920	5
Ithaca Gas Lt. Co. (1st Mtg.)	1931	5
Lacrosse Water Po. Co. (1st Mtg.)	1931	5
Lincoln Gas Co. (1st Mtg.)	1911	6
Lincoln Gas Co. (1st Mtg.)	1911	6
Mt. Whitney Power & Elec. Co. (1st Mtg.)	1939	6
Muncie Elec. Lt. Co. (1st Mtg.)	1932	5
Nassau Lt. & Po. Co. (1st Mtg.)	1927	5
Newburg Lt. Ht & Po. Co. (1st Mtg.)	1921	5
N. Y. Gas El. Ht. Po. Co. (1st Mtg.)	1948	5
N. Y. Gas El. Ht. Po. Co. (1st Mtg.)	1948	5
N. Y. Gas El. Ht. Po. Co. (1st Mtg.)	1948	5
New York & Queen Elec. Lt. & Po. Co. (1st Con.)	1930	5
Niagara Falls Po. Co. (1st Mtg.)	1932	5
Niagara Lock. & Ont. Po. Co. (1st Mtg.)	1954	5
Ontario Po. Co. of Niagara Falls (1st Mtg.)	1943	5
Pacific Lt. & Po. Co. (1st Mtg)	1942	5
Portland Gas & Coke Co. (1st & Refunding)	1940	5
Portland Gen. El. Co. (1st Mtg.)	1915–1935	5
Potomac El. Po. Co. (Cons. Mtg)	1936	5
San Diego Con. Gas & Elec. Co. (1st Mtg.)	1939	5
Seattle Lighting Co. (Refunding Mtg.)	1949	5
Shawinigan Wa. & Po. Co. (Con. Mtg.)	1934	5
Southern Lt. & Traction Co. (Col. Tr.)	1949	5
Carried forward		

COST	BALANCE AUG. 1, '09	PURCHASED DURING YEAR	SOLD OR PAID DURING YEAR	BALANCE AUG. 1, '10	
	$810,000	$97,000	$83,000	$824,000	$3,924,784.12
111½	25,000	.....	.....	25,000	
110	25,000	.....	.....	25,000	
102	50,000	.....	.....	50,000	
99	25,000	.....	.....	25,000	
5.20b	25,000	.....	.....	25,000	
114	15,000	.....	.....	15,000	
97½	40,000	.....	.....	40,000	
92	4,000	.....	.....	4,000	
94	10,000	.....	.....	10,000	
101	25,000	.....	.....	25,000	$1,068,000
	$1,054,000	$97,000	$83,000	$1,068,000	
95	.....	25,000	.....	25,000	
4.90b	25,000	.....	.....	25,000	
5¼b	.....	15,000	.....	15,000	
6%b	6,000	.....	.....	6,000	
90	34,000	.....	.....	34,000	
6%b	15,000	.....	.....	15,000	
95½	25,000	.....	.....	25,000	
97¼	.....	25,000	.....	25,000	
97½	.....	25,000	.....	25,000	
92	25,000	.....	.....	25,000	
97½	.....	25,000	.....	25,000	
100	.....	12,000	.....	12,000	
101	44,000	.....	.....	44,000	
95	25,000	.....	.....	25,000	
99	25,000	.....	.....	25,000	
100	9,000	.....	.....	9,000	
95	25,000	.....	25,000	.....	
100	4,000	.....	4,000	.....	
100	100,000	.....	100,000	.....	
5⅝b	25,000	.....	.....	25,000	
98½	50,000	.....	.....	50,000	
107.79	5,000	.....	.....	5,000	
100	.....	25,000	.....	25,000	
97½	.....	25,000	.....	25,000	
5.45b	25,000	.....	.....	25,000	
100	25,000	.....	.....	25,000	
105	25,000	.....	.....	25,000	
108	50,000	.....	.....	50,000	
110½	25,000	.....	.....	25,000	
100	.....	25,000	.....	25,000	
99½	10,000	.....	.....	10,000	
95	100,000	.....	.....	100,000	
95	100,000	.....	.....	100,000	
90	25,000	.....	.....	25,000	
98½	.....	25,000	.....	25,000	
102½	25,000	.....	.....	25,000	
100	25,000	.....	.....	25,000	
97½	25,000	.....	.....	25,000	
97½	.....	25,000	.....	25,000	
90	50,000	.....	.....	50,000	
94½	.....	50,000	.....	50,000	
	$952,000	$302,000	$129,000	$1,125,000	$4,992,784.12

NAME	WHEN DUE	RATE
Amounts brought forward		
St Louis Un. El. Lt. & Po. Co. (1st Mtg.)	1932	5
Utah Lt. & Po. Co. (Prior Lien)	1930	5
Washington Wat. Po. Co. (1st Mtg.)	1939	5
Watertown Lt. & Po. Co. (1st Mtg.)	1959	5
Western United Gas & Elec. (1st & Refunding)	1950	5
Western Electric Co. (1st Mtg.)	1922	5
MISCELLANEOUS BONDS		
American Agri. Chem. Co. (1st Mtg.)	1928	5
American Cigar Co. (Series A Notes)	1911	4
American Lumber Co. (1st & Refunding)	1920	6
American Tobacco Co. (Bond)	1944	6
Buffalo & Sus. Iron Co. (1st Mtg.)	1932	5
Central Coal & Coke Co. (Gen. Con. Mtg.)	1919	6
Central Leather Co. (1st Lien)	1925	5
Central Leather Co. (1st Lien)	1925	5
Central Leather Co. (1st Lein)	1925	5
Consolidated Land Co. (1st Mtg.)	1918	6
Corn Products Refining Co. (1st Mtg.)	1934	5
Cudahy Packing Co. (1st Mtg.)	1924	5
* Delaware River Ferry Co. (Sinking Fund)	1921	5
Flambeau River Lumber Co. (1st Mtg.)	1913–1915	6
Great Southern Lumber Co. (1st Mtg.)	1912–1915	6
International Steam Pump Co. (1st Lien)	1929	5
Leav. City & Ft. Leav. Wat Co. (Water Works)	1912	6
Long Bell Lumber Co. (1st & Refunding)	1919	6
Montreal Loc. & Mac. Co. (1st Mtg.)	1924	4
National Enameling & Stamping Co. (Ref. Mtg.)	1929	5
New York Dock Co. (1st Mtg.)	1951	4
Republic Iron & St. Co. (1st & Col. Tr.)	1934	5
Republic Iron & St. Co. (1st & Col. Tr.)	1934	5
Richmond Loc. & Mac. Wks. (Con. Mtg.)	1929	6
Rogers Brown Iron Co. (1st Mtg. & Refunding)	1924	5
Scarsdale Co. (1st Mtg.)	1919	6
Schwarzschild & Sulzberger Co. (Deb.)	1916	6
Trow Dir. Ptg. & Bkdg. Co. (1st Mtg.)	1911–1914	5
United Fruit Co. (Sinking Fund)	1923	4½
U. S. Rubber Co. (Col. Tr. 10 yr. note)	1919	6
Union Typewriter Co. (3 yr. note)	1913	5
Va. Caro. Chemical Co. (1st Mtg.)	1923	5
STOCKS		
*American Light & Traction Co., Preferred		6
American Tobacco Co., Preferred		6
*Baltimore & Ohio R. R. Co., Preferred		4
Chicago, Gt. Western Ry. Co., Preferred (Taken in reorganization for Debenture Stock)		
Delaware & Hudson Co.		9
*1st National Bank of Ithaca		12
*1st National Bank of Ithaca		12
Great Northern Ry. Co., Preferred		7
Great Northern Ry. Co., Preferred		7
Carried forward		

*A gift.

COST	BALANCE AUG. 1, '09	PURCHASED DURING YEAR	SOLD OR PAID DURING YEAR	BALANCE AUG. 1, '10	
	$952,000	$302,000	$129,000	$1,125,000	$4,992,284.12
100	25,000	.....	.....	25,000	
100	15,000	.....	.....	15,000	
102¾	25,000	.....	.....	25,000	
96½	25,000	.....	.....	25,000	
98	.....	25,000	.....	25,000	
99	.....	25,000	.....	25,000	$1,265,000
	$1,042,000	$352,000	$129,000	$1,265,000	
5½b	25,000	.....	.....	25,000	
5%b	25,000	.....	.....	25,000	
100	.....	25,000	.....	25,000	
105½–112	25,000	50,000	.....	75,000	
99	20,000	.....	.....	20,000	
100	20,000	.....	.....	20,000	
89	20,000	.....	.....	20,000	
99½	30,000	.....	.....	30,000	
99¼	50,000	.....	.....	50,000	
99	.....	20,000	.....	20,000	
98	20,000	.....	.....	20,000	
98½	25,000	.....	.....	25,000	
104	8,000	.....	1,0 0	7,000	
	.....	40,000	.....	40,000	
100	10,000	15,000	.....	25,000	
96½	.....	25,000	.....	25,000	
100	30,000	.....	.....	30,000	
98½	.....	25,000	.....	25,000	
5%b	25,000	.....	.....	25,000	
97	.....	25,000	.....	25,000	
.....	27,500	.....	.....	27,500	
90	20,000	.....	†20,000	.....	
98	10,000	.....	†10,000	.....	
115	24,000	.....	.....	24,000	
96.33	.....	25,000	.....	25,000	
95	25,000	.....	.....	25,000	
100½	.....	25,000	.....	25,000	
5½b	130,000	.....	5,000	125,000	
95¾	25,000	.....	.....	25,000	
102¼	25,000	.....	.....	25,000	
97.25	.....	25,000	.....	25,000	
5.57b	25,000	.....	.....	25,000	$908,500
	$644,500	$300,000	$36,000	$908,500	
100	25,000	.....	.....	25,000	
101¼	10,000	15,000	.....	25,000	
94	300	.....	.....	300	
	.....	100,000	.....	100,000	
171–175	.....	25,000	.....	25,000	
163.50	10,000	.....	.....	10,000	
125	40,000	.....	.....	40,000	
116	10,000	.....	.....	10,000	
133½	.....	15,000	.....	15,000	
	$95,300	$155,000		$250,300	$7,166,284.12

†Sold at 105

NAME	WHEN DUE	RATE
Amounts brought forward		
Knickerbocker Trust Co.		12
National Bank of Commerce		8
N. Y. Central & Hudson River R. R. Co		6
New York Central & Hudson River R. R. Co		6
N. Y. Dock Co., Pfd		4
Northern Pacific Ry. Co		7
Reading Company (1st Preferred)		4
*Reading Company		4
Sears, Roebuck & Co., Preferred		7
*Wells Fargo & Co		10
*Wheeling & Lake Erie, 1st Preferred		44
*Wheeling & Lake Erie, 2nd Preferred		24
Carried forward		

BONDS AND MORTGAGES

NO.	NAME	COUNTY	STATE
31	Joel Stull	McHenry	Illinois
60	H. Tuttle	Tompkins	New York
94	E. Hitchcock	"	"
151	W. & J. Davidson	York	Nebraska
265	Sigma Phi Association	Tompkins	New York
276	G. P. Bristol	"	"
338	J. W. Jenks	"	"
399	Fred Barber	Chariton	Missouri
436	Delta Kappa Epsilon	Tompkins	New York
502	C. E. Beck	Grundy	Missouri
546	E. T. Wilcox	Lancaster	Nebraska
643	H. L. Horn	York	"
751	C. C. Hennings	Cass	"
764	J. A. Hennings	Cass	"
771	H. Wilkinson	York	"
797	S. Dowers	Polk	"
813	J. A. Farrar	Filmore	"
821	H. Johnson	Butler	"
841	W. Lefler	Sarpy	"
861	F. Krupicka	Saline	"
885	G. Vance	York	"
886	W. M. Russell	Saunders	"
888	R. Pryce	York	"
949	W. B. Davis	Cass	"
956	M. E. Tigard	Saline	"
1017	H. B. Hutchins	Barnstable	Massachusetts
1035	Claus Pepper	Linn	Missouri
1074	P. O. Berg	Polk	Minnesota
1096	A. O. Lebakken	Grand Forks,	North Dakota
1120	B. F. Fye	Hamilton	Nebraska
1136	C. L. Raney	Montgomery	Iowa
1162	H. Schmid	Polk	Nebraska
1163	B. Keller	Polk	"
Carried forward			

COST	BALANCE AUG. 1, '09	PURCHASED DURING	SOLD OR PAID DURING YEAR	BALANCE AUG. 1, '10 YEAR	
	$95,300	$155,000		$250,300	$7,166,284.12
	5,000	3,200	.....	8,200	
300	23,000	.....	.....	23,000	
173	10,000	5,000	.....	15,000	
100	10,000	.....	.....	10,000	
101	27,500	.....	.....	27,500	
	.....	25,000	.....	25,000	
133½	20,000	.....	.....	20,000	
80	30,000	.....	.....	30,000	
100	.....	20,000	.....	20,000	
121½	10,000	.....	†10,000	.....	
235	3,000	.....	.....	3,000	
	1,500	.....	.....	1,500	433,500.00
	$235,300	$208,200	$10,000	$433,500	
	$7,090,016.12	$1,285,200	$775,432		$7,599,784.12

BALANCE AUG. 1, '09	PAID DURING YEAR	BALANCE	
$10,000	$10,000	.....	
3,000	.....	$3,000	
3,000	.....	3,000	
3,500	.....	3,500	
700	200	500	
3,000	.....	3,000	
1,500	.....	1,500	
800	.....	800	
5,000	.....	5,000	
2,200	.....	2,200	
800	.....	800	
700	700	.....	
1,000	.....	1,000	
2,000	.....	2,000	
1,700	1,700	.....	
2,100	2,100	.....	
1,000	1,000	.....	
1,000	.....	1,000	
1,000	1,000	.....	
1,600	.....	1,600	
850	850	.....	
900	900	.....	
1,800	1,800	.....	
1,000	1,000	.....	
350	.....	350	
800	800	.....	
400	400	.....	
2,000	.....	2 000	
1,000	.....	1 000	
800	.....	800	
1,000	.....	1 000	
800	.....	800	
1,600	.....	1 600	
$58,900	$22,450	$36,450	$7,599,784.12

†Sold at 47

NO.	NAME	COUNTY	STATE
	Amounts brought forward		
1210	J. A. Crabtree	Cass	Nebraska
1249	J. A. Whitlock	Lancaster	"
1293	W. W. Vance	York	"
1448	E. A. Britton	Adams	Iowa
1453	M. I. Courtney	Lancaster	Nebraska
1456	G. Wiebe	Gage	"
1474	R. T. Rutledge	Chariton	Missouri
1488	J. B. Hampton	Boone	"
1512	F. M. Farr	Shelby	"
1544	B. M. Watson	Cass	North Dakota
1553	J. T. Davis	Woodbury	Iowa
1602	H. A. Tomlin	Linn	Missouri
1630	W. H. Blaney	Pottawatamie	"
1684	P. Hubrich	Adair	"
1691	E. Hasselbalch	Polk	Nebraska
1696	W. Roubal	Colfax	"
1707	G. T. Hutchinson	Nuckolls	"
1756	W. M. Emmons	Monroe	Missouri
1780	M. Bunton	Macon	"
1785	E. Mendenhall	Hamilton	Nebraska
1794	J. E. Creighton	Tompkins	New York
1797	D. T. Evans	Macon	Missouri
1821	E. Mittilstadt	Stanton	Nebraska
1822	E. Eckart	Allen	Kansas
1826	A. Peterson	Polk	Nebraska
1828	J. C. Kerr	Scotland	Missouri
1829	T. H. Rees	Macon	"
1833	E. Hahn	Polk	Nebraska
1837	A. Bruns	Merrick	"
1848	J. F. Roubinek	Colfax	"
1858	A. Lind	Polk	"
1868	C. B. Rodgers	Gage	"
1869	F. Schramm	Washington	Kansas
1874	G. W. Cooper	Linn	Missouri
1880	W. H. Bowman	Gage	Nebraska
1883	J. Cohn	Otoe	"
1884	J. Cohn	"	"
1896	H. D. Reynolds	Merrick	"
1897	A. H. Persing	Merrick	"
1904	A. K. Deuel	Jefferson	"
1909	J. Madigan	Saline	"
1920	J. Jacobs	Livingston	Missouri
1954	P. M. Sears	Charitan	"
1973	E. D. Carpenter	Livingston	"
1980	E. Shreffler	Filmore	Nebraska
1991	M. Liland	Resliland	North Dakota
1993	R. W. Griffith	Kittson	Minnesota
1998	C. Flynn	Plymouth	Iowa
2005	J. A. Tisthammer	Boone	Nebraska
2006	D. Brainerd	Woodbury	Iowa
2007	E. M. Newman	Platt	Nebraska
2009	H. Zwick	Seward	"
2023	E. D. King	Coffey	"
2034	J. E. Lonsdale	York	"
2047	P. Houck	Saline	"

Carried forward .....

BALANCE AUG. 1, '09	PAID DURING YEAR	BALANCE	
$58,900	$22,450	$36,450	$7,599,784.12
2,000	.....	2,000	
1,000	.....	1,000	
1,000	.....	1,000	
2,000	.....	2,000	
800	.....	800	
4,000	.....	4,000	
900	.....	900	
650	.....	650	
1,500	1,500	.....	
1,500	.....	1,500	
2,000	.....	2,000	
3,700	.....	3,700	
600	.....	600	
1,250	.....	1,250	
3,200	.....	3,200	
900	.....	900	
1,800	1,800	.....	
2,000	.....	2,000	
450	100	350	
900	.....	900	
1,000	500	500	
1,100	.....	1,100	
1,000	1,000	.....	
600	.....	600	
2,000	2,000	.....	
2,100	.....	2,100	
1,600	1,600	.....	
1,200	.....	1,200	
1,200	1,200	.....	
2,000	2,000	.....	
800	800	.....	
4,000	4,000	.....	
2,400	.....	2,400	
2,000	2,000	.....	
4,000	.....	4,000	
800	800	.....	
1,700	.....	1,700	
1,200	1,200	.....	
1,700	1,700	.....	
1,100	1,100	.....	
1,000	.....	1,000	
800	.....	800	
1,300	.....	1,300	
500	.....	500	
1,700	1,700	.....	
1,700	.....	1,700	
2,400	.....	2,400	
2,000	.....	2,000	
850	850	.....	
2,000	2,000	.....	
1,500	1,500	.....	
1,800	1,800	.....	
1,500	1,500	.....	
1,000	1,000	.....	
1,800	1.800	.....	
$146,400	$57,900	$88,500	$7,599,784.12

NO.	NAME	COUNTY	STATE
	Amounts brought forward		Nebraska
2060	A. F. Pinkham	Cass	"
2063	E. A. Armstrong	Filmore	"
2064	J. R. Mason	Nance	"
2068	M. Pearson	Adams	"
2086	J. D. Stone	Filmore	"
2123	S. R. Carney	Filmore	"
2161	P. Hurtz	Gage	"
2167	B. Brown	York	"
2172	J. Sklenar	Burt	"
2174	J. A. Gunn	Randolph	Missouri
2180	S. M. Kensinger	Hamilton	Nebraska
2184	J. H. Croft	Clay	"
2198	J. B. Botkin	Audrain	Missouri
2200	J. Finnegan	Lancaster	Nebraska
2221	A. Rustad	Cass	"
2241	M. Donnelly	Audrain	Missouri
2246	J. H. Mason	Macon	"
2247	C. Zabokrtsky	Washington	Kansas
2260	G. Maltby	Montgomery	Iowa
2263	J. Mohlman	Plymouth	"
2264	J. Bowman	York	Nebraska
2268	J. H. Stromer	Gage	"
2280	J. P. Swanson	Polk	"
2281	C. Kiesselbach	Polk	"
2285	F. Krejci	Filmore	"
2295	S. Wickersham	Monona	Iowa
2312	S. Kitt	Filmore	Nebraska
2315	H. H. Webster	Coffey	"
2317	E. A. Baker	Randolph	Missouri
2324	J. Dunn	Polk	Nebraska
2327	A. C. Jones	Polk	"
2330	H. G. Hill	Taylor	Iowa
2332	G. W. Ryan	Pembina	North Dakota
2339	M. W. Mahoney	Butter	Nebraska
2354	P. Harden	York	"
2355	D. Wilkey	Page	Iowa
2356	I. O. Stensrud	Cass	North Dakota
2362	M. Buck	Richland	"
2368	L. W. Leake	Labette	Kansas
2371	J. McDonald	Cass	North Dakota
2374	J. W. Netzley	Gage	Nebraska
2383	J. R. Harris	Polk	"
2392	A. Anderson	Kittson	Minnesota
2393	A. A. Vigan	Cass	North Dakota
2396	J. B. Hockridge	Cass	"
2399	W. F. Gelle	Richland	"
2401	H. H. Schnebly	York	Nebraska
2410	J. G. Lutz	Nuckolls	"
2414	H. Sauvageau	Cass	North Dakota
2417	S. Phillips	Hamilton	Nebraska
2418	T. J. Watson	Filmore	"
2427	S. Sauvageau	Cass	North Dakota
2429	H. J. Voss	Thayer	Nebraska
2430	J. B. Schommer	Filmore	"
2469	C. Heesacker	Platt	"

Carried forward

BALANCE AUG. 1, '09	PAID DURING YEAR	BALANCE	
$146,400	$57,900	$88,500	$7,599,784.12
3,000	.....	3,000	
2,000	2,000	.....	
1,600	1,600	.....	
1,000	.....	1,000	
1,000	1,000	.....	
600	.....	600	
800	.....	800	
1,100	1,100	.....	
2,500	2,500	.....	
900	.....	900	
1,500	1,500	.....	
3,000	3,000	.....	
3,000	3,000	.....	
1,000	1,000	.....	
2,000	.....	2,000	
1,700	.....	1,700	
1,000	.....	1,000	
2,800	.....	2,800	
900	.....	900	
2,500	.....	2,500	
300	300	.....	
2,000	.....	2,000	
1,000	200	800	
1,000	.....	1,000	
600	600	.....	
700	300	400	
2,200	.....	2,200	
1,700	.....	1,700	
1,300	.....	1,300	
800	.....	800	
800	.....	800	
700	.....	700	
750	.....	750	
1,000	.....	1,000	
2,000	.....	2,000	
700	.....	700	
1,200	.....	1,200	
1,600	.....	1,600	
600	600	.....	
2,000	.....	2,000	
800	800	.....	
1,000	.....	1,000	
1,200	.....	1,200	
800	.....	800	
600	.....	600	
1,600	.....	1,600	
400	400	.....	
3,000	.....	3,000	
1,800	1,800	.....	
500	500	.....	
2,375	.....	2,375	
700	.....	700	
1,800	1,800	.....	
700	700	.....	
2,500	.....	2,500	
$223,025	$82,600	$140,425	$7,599,784.12

NO.	NAME	COUNTY	STATE
	Amounts brought forward		
2477	T. C. Ball	Wilson	Kansas
2478	I. James	Montgomery	"
2496	F. J. Suing	Cedar	Nebraska
2498	F. W. Hammond	Hamilton	"
2499	S. L. Bender	Saline	"
2526	R. G. Thompson	Hamilton	"
2532	A. H. Underhill	Gage	"
2545	M. Richardson	"	"
2555	R. Mount	"	"
2567	J. C. Wood	Pawnee	"
2573	J. T. Buening	Nemaha	Kansas
2579	J. E. McPherson	Republic	"
2592	A. Potmesil	Madison	Nebraska
2598	F. A. Lenhard	Filmore	"
2605	T. H. Canfield	Cass	North Dakota
2630	J. R. Frantz	Marshall	Kansas
2635	O. Olson	Cedar	Nebraska
2638	O. Sauvageau	Cass	North Dakota
2639	C. E. Franson	Wilkins	Minnesota
2642	J. S. Johnson	Hamilton	Nebraska
2643	P. Leddy	Phelps	Nebraska
2647	C. S. Wicks	Wilson	Kansas
2648	F .L. Richter	Cass	North Dakota
2649	N. Dorval	"	"
2650	H. Larson	"	"
2661	C. C. Nourse	Polk	Iowa
2665	J. J. Grim	Macon	Missouri
2667	J. Yokom	Cass	North Dakota
2671	R. H. Arthur	Nance	Nebraska
2681	A. A. Andrews	Cass	North Dakota
2685	J. Akeson	Cass	"
2692	J. Riechert	Livingston	Missouri
2695	A. B. Searles	Lancaster	Nebraska
2697	S. D. Dudney	Nance	"
2700	A. Linderbert	Montgomery	Iowa
2702	W. M. Jones	Chautauqua	Kansas
2709	J. M. Upton	Gage	Nebraska
2711	P. N. Hageness	Traill	North Dakota
2713	S. Sorsen	"	"
2719	T. Morrisey, Sr	Lancaster	Nebraska
2720	A. Schultz	"	"
2721	S. M. Bushong	Pawnee	"
2724	F. F. Tully	Boone	"
2725	M. M. Saylor	Nuckolls	"
2728	J. M. Willman	Phelps	"
2737	A. MacWilliam	Cass	North Dakota
2738	J. T. Workman	Traill	"
2739	H. Anderson	Richland	"
2742	H. G. Thorell	Phelps	Nebraska
2751	L. F. Hermunslie	Richland	North Dakota
2752	T. C. Hora	Washington	Kansas
2753	T. Knox	Traill	North Dakota
2757	J. W. Ellis	Pettis	Missouri
2782	C. Jensen	Hamilton	Nebraska
2791	A. Bengston	Lancaster	"

Carried forward.....

BALANCE AUG. 1, '09	PAID DURING YEAR	BALANCE	
$223,025	$82,600	$140,425	$7,599,784.12
800	.....	800	
800	.....	800	
1,500	.....	1,500	
1,200	.....	1,200	
1,400	.....	1,400	
1,500	.....	1,500	
1,000	.....	1,000	
400	.....	400	
1,300	.....	1,300	
1,500	.....	1,500	
1,000	.....	1,000	
1,000	.....	1,000	
800	100	700	
2,250	.....	2,250	
1,500	.....	1,500	
700	200	500	
5,000	.....	5,000	
1,000	.....	1,000	
1,600	.....	1,600	
1,200	.....	1,200	
1,200	.....	1,200	
1,000	.....	1,000	
1,300	.....	1,300	
2,000	.....	2,000	
1,600	.....	1,600	
7,000	.....	7,000	
315	.....	315	
1,600	.....	1,600	
1,500	.....	1,500	
3,000	.....	3,000	
1,600	.....	1,600	
1,200	.....	1,200	
2,000	.....	2,000	
3,500	.....	3,500	
1,800	.....	1,800	
1,000	.....	1,000	
800	800	.....	
1,300	1,300	.....	
1,800	.....	1,800	
1,200	.....	1,200	
1,000	1,000	.....	
1,000	.....	1,000	
1,000	.....	1,000	
1,000	.....	1,000	
1,600	.....	1,600	
3,800	.....	3,800	
2,500	2,500	.....	
1,800	.....	1,800	
1,500	.....	1,500	
1,300	.....	1 300	
3,700	.....	3 700	
3,500	.....	3 500	
700	.....	700	
3,000	.....	3,000	
2,400	.....	2,400	
$316,990	$88,500	$228,490	$7,599,784.12

NO.	NAME	COUNTY	STATE
	Amounts brought forward		
2793	D. A. Dickinson	Boone	Nebraska
2800	W. A. Hermlee	Thayer	"
2806	F. Herman	Staton	"
2807	M. Sullivan	Nuckolls	"
2809	J. Prendergast	Pocahontas	Iowa
2810	A. A. Riley	"	"
2814	F. Quevillon	Dunn	Wisconsin
2820	W. Schulz	Pierce	Nebraska
2821	F. Pagel	Thayer	"
2846	A. A. Funk	O'Brien	Iowa
2850	J. W. Wiebe	Gage	Nebraska
2853	H. W. Cassill	Washington	Kansas
2856	S. Slaughter	Saunders	Nebraska
2858	M. Huber	Lancaster	"
2860	H. H. Fairchild	Jefferson	"
2863	N. Wilcox	Taylor	Iowa
2866	J. D. Beal	Livingston	Missouri
2871	J. Flakne	Polk	Nebraska
2874	P. P. Skorstad, Sr	Clay	Minnesota
2876	A. P. Osley	Richland	North Dakota
2880	J. A. Horn	Phelps	Nebraska
2881	S. B. Smith	Chautauqua	Kansas
2885	P. L. Markey	Lancaster	Nebraska
2889	A. Edwards	Woodbury	Iowa
2891	H. Jeppson	Phelps	Nebraska
2898	D. W. Hilsabeck	"	"
2899	G. Stopak	Nance	"
2904	E. L. Melvin	Boone	"
2911	A. Rostvang	Richland	North Dakota
2914	S. Bagley	Taylor	Iowa
2915	J. A. Hogan	Lancaster	Nebraska
2918	T. S. Reitan	Clay	Minnesota
2920	L. Schill	Norman	"
2921	P. Anderson	Phelps	Nebraska
2922	C. Vieselmeyer	Thayer	"
2936	E. K. Atkinson	Tompkins	New York
2939	F. Nichols	Pierce	Nebraska
2946	M. Mortensen	Cass	North Dakota
2947	O. A. Bloom	"	"
2953	J. F. Romjne	Macon	Missouri
2957	W. Wymore	Republic	Kansas
2959	J. F. Henry	Moniteau	Missouri
2961	H. Snodgrass	Merrick	Nebraska
2963	W. E. Stewart	Washington	Kansas
2968	H. T. Olanson	Polk	Minnesota
2970	L. Skamfer	Richland	North Dakota
2973	A. N. Macy	Cloud	Kansas
2975	A. Denker	Polk	Nebraska
2979	The Bee Building Company	Douglass	"
2980	J. G. Wagner	Stanton	"
2983	P. F. Cahill	Boone	"
2984	O. A. Johnson	Hamilton	"
2985	H. Goettsch	Cheraker	Iowa
2992	W. M. Allbury	Sarpy	Nebraska
2993	F. L. Osberg	Knox	"

Carried forward.....

BALANCE AUG. 1, '09	PAID DURING YEAR	BALANCE	
$316,990	$88,500	$228,490	$7,599,784.12
1,000	.....	1,000	
3,000	.....	3,000	
700	700	.....	
700	.....	700	
2,500	.....	2,500	
1,500	.....	1,500	
150	.....	150	
1,400	1,400	.....	
500	.....	500	
5,000	.....	5,000	
2,400	400	2,000	
2,000	.....	2,000	
2,500	2,500	.....	
1,000	.....	1,000	
3,800	800	3,000	
500	.....	500	
3,150	.....	3,150	
1,600	.....	1,600	
1,500	.....	1,500	
800	.....	800	
800	.....	800	
1,100	.....	1,100	
1,600	1,000	600	
1,200	1,200	.....	
1,300	.....	1,300	
1,500	.....	1,500	
1,100	.....	1,100	
1,300	1,300	.....	
500	.....	500	
1,600	.....	1,600	
650	.....	650	
1,000	.....	1,000	
750	.....	750	
1,700	.....	1,700	
2,000	.....	2,000	
2,500	.....	2,500	
300	300	.....	
600	.....	600	
2,000	2,000	.....	
600	600	.....	
1,100	1,100	.....	
1,000	1,000	.....	
1,250	.....	1,250	
1,200	1,200	.....	
500	.....	500	
1,800	.....	1,800	
200	100	100	
3,500	3,500	.....	
200,000	.....	200,000	
1,000	500	500	
3,500	3,500	.....	
1,200	.....	1,200	
3,200	.....	3 200	
1,600	.....	1 600	
1,200	.....	1,200	
$599,040	$111,600	$487,440	$7,599,784.12

NO.	NAME	COUNTY	STATE
	Amounts brought forward		
3009	D. D. Howe	Woodbury	Iowa
3018	H. Wehnes	Gage	Nebraska
3020	E. K. Atkinson	Tompkins	New York
3021	O. A. Johnk	Clay	Minnesota
3025	W. Johnston	Merrick	Nebraska
3027	S. R. Jenkins	Montgomery	Iowa
3028	W. H. H. Leck	Washington	Kansas
3035	C. Sherman	Lyon	Iowa
3036	F. Grabe	Washington	Nebraska
3039	E. J. Rathbun	Woodbury	Iowa
3040	H. Bonin	Thayer	Nebraska
3045	S. Purdy	Adair	Iowa
3050	R. C. Lambert	Merrick	Nebraska
3051	N. J. Wagner	Woodbury	Iowa
3058	C. C. Taylor	Mills	"
3060	J. Ward	Cass	Missouri
3062	F. E. Ely	Gage	Nebraska
3066	E. Scanlon	Saunders	"
3069	P. Hickman	Lyon	Iowa
3071	C. W. Carlson	Woodbury	"
3073	T. Peterson	Plymouth	"
3074	W. Lindsey	Cass	Missouri
3075	T. B. Trumbo, etc	Cass	"
3077	E. G. Snyder	Boone	Nebraska
3080	D. Wilson	Adair	Iowa
3081	T. J. Bender	Filmore	Nebraska
3087	E. F. Medlar	Fillmore	Nebraska
3090	D. D. Darnell	Henry	Missouri
3105	H. Fraemke	Thayer	Nebraska
3110	S. Marples	Gage	"
3111	A. S. Waldron	"	"
3115	I. F. Koon	Grundy	Missouri
3116	J. H. Schierbaum	"	"
3117	I. Ratliff	Cass	"
3122	E. S. Powell	Macon	"
3125	N. Jakobson	Jefferson	Nebraska
3134	A. Meyer	Thayer	"
3136	J. T. Price	Morgan	Missouri
3137	O. Anderson	Richland	North Dakota
3142	J. E. Swaney	Thayer	Nebraska
3144	B. Wegner	Merrick	"
3147	D. Keleher	Woodbury	Iowa
3148	E. T. Keleher	"	"
3150	C. S. Borroughs	Gage	Nebraska
3153	A. H. Anderson	Woodbury	Iowa
3154	M. Casey	Madison	Nebraska
3155	C. W. Foresman	Republic	Kansas
3157	J. C. Robinson	Cedar	Nebraska
3161	H. E. Rockefellow	Montgomery	Iowa
3162	G. M. Metz	Dixon	Nebraska
3165	G. H. Stivers	Cherokee	Iowa
3168	G. Gineau	Thayer	Nebraska
3171	A. G. Wolfenbarger	Gage	"
3172	A. E. Inman	Tremont	Iowa
3173	M. Wiszman	Fillmore	Nebraska
	Carried forward		

BALANCE AUG. 1, '09	PAID DURING YEAR	BALANCE	
$599,040	$111,600	$487,440	$7,599,784.12
1,200	.....	1,200	
2,500	.....	2,500	
1,500	.....	1,500	
2,000	.....	2,000	
3,000	.....	3,000	
1,800	1,800	.....	
2,000	.....	2,000	
2,500	2,500	.....	
1,350	1,100	250	
600	600	.....	
2,000	.....	2,000	
2,500	.....	2,500	
2,200	.....	2,200	
1,800	.....	1,800	
2,200	.....	2,200	
700	.....	700	
3,300	.....	3,300	
2,500	.....	2,500	
2,000	.....	2,000	
700	.....	700	
1,300	800	500	
300	.....	300	
550	.....	550	
1,000	500	500	
600	.....	600	
2,500	.....	2,500	
1,200	.....	1,200	
3,300	3,300	.....	
2,400	1,500	900	
1,600	.....	1,600	
2,500	.....	2,500	
1,000	.....	1,000	
1,800	1,000	800	
900	900	.....	
2,000	2,000	.....	
1,000	.....	1,000	
1,000	.....	1,000	
1,200	.....	1,200	
2,000	2,000	.....	
800	.....	800	
2,700	.....	2,700	
2,000	2,000	.....	
1,600	.....	1,600	
900	900	.....	
2,000	2,000	.....	
1,700	1,700	.....	
1,500	1,500	.....	
1,200	1,200	.....	
1,200	1,200	.....	
800	800	.....	
2,300	2,300	.....	
2,500	.....	2,500	
5,000	5,000	.....	
4,000	4,000	.....	
4,500	.....	4,500	
$700,240	$152,200	$548,040	$7,599,784.12

NO.	NAME	COUNTY	STATE
	Amounts brought forward		
3174	M. Wiszman	Seward	Nebraska
3175	C. Adair	Fillmore	"
3176	L. M. Swett	Gage	"
3177	E. F. Medlar	Thayer	"
3180	W. J. Oliver	Nodaway	Missouri
3181	H. Rustad	Richland	North Dakota
3182	H. Anderson	Cass	"
3183	O. Anderson	Cass	"
3184	J. T. Gylland	Richland	"
3185	W. McDonnell	Adair	Missouri
3189	P. E. Butler	Cloud	Kansas
3190	S. Magnusson	Richland	North Dakota
3191	J. Ready	Wilkins	Missouri
3193	J. A. Stenhjem	Cass	North Dakota
3194	M. Martinson	Richland	"
3195	P. Bergin	Dixon	Nebraska
3196	S. J. Liland	Richland	North Dakota
3197	W. W. Pease	Richland	"
3200	J. L. Fronk	Worth	Missouri
3201	F. Herrick	Richland	North Dakota
3202	J. A. Leer	"	"
3213	Minnesota Canada Land Company	Thayer	Nebraska
3214	J. W. Little	Fillmore	"
3216	O. N. Bohne	Richland	North Dakota
3217	F. Burns	Republic	Kansas
3218	J. Sandell	Polk	Nebraska
3219	S. A. Swanson	Hamilton	"
3220	J. Irish	Chariton	Missouri
3222	P. Rogers	Macon	"
3224	J. Sorenson	Platt	Nebraska
3227	F. Moritz	Pocahontas	Iowa
3228	H. H. Dagsforrde	Nuckolls	Nebraska
3229	J. R. Clement	Thayer	Iowa
3230	J. M. Jones	Fillmore	Nebraska
3231	M. C. Nelson	Polk	"
3232	W. Stenzel	Platt	"
3233	J. Novacek	Butler	"
3235	F. S. Crane	Ida	Iowa
3238	J. L. Campbell	Hancock	Iowa
3240	E. J. Crook	Gage	Nebraska
3241	J. E. Ingerson	York	"
3242	J. Dynes	Cass	North Dakota
3243	J. H. Moxham	Republic	Kansas
3245	M. Gouff	Gage	Nebraska
3247	T. Kiesselbach	Polk	"
3238	A. B. Christensen	Nuckolls	"
3249	G. J. Morris	Douglass	"
3250	B. Hampton	Saline	"
3252	Commercial Building Company	Douglass	"
3253	M. P. Holland	Lancaster	"
3254	C. A. Bush	Clay	"
3255	H. Luhring, Jr	Washington	Kansas
3256	G. McMurry	Gage	Nebraska
3257	D. A. Pollock	Fillmore	"
3258	C. Braun	Nuckolls	"

Carried forward

BALANCE AUG. 1, '09	PAID DURING YEAR	BALANCE	
$700,240	$152,200	$548,040	$7,599,784.12
4,500	.....	4,500	
2,600	2,600	.....	
800	.....	800	
1,200	.....	1,200	
2,600	2,600	.....	
1,500	1,500	.....	
1,700	.....	1,700	
2,000	.....	2,000	
2,000	2,000	.....	
1,100	1,100	.....	
500	500	.....	
2,000	2,000	.....	
2,000	2,000	.....	
1,500	1,500	.....	
2,000	.....	2,000	
1,200	.....	1,200	
1,600	1,600	.....	
1,000	.....	1,000	
4,000	4,000	.....	
300	300	.....	
1,000	.....	1,000	
29,000	.....	29,000	
3,200	3,200	.....	
800	.....	800	
1,500	.....	1,500	
1,300	1,300	.....	
2,000	.....	2,000	
1,200	1,200	.....	
750	.....	750	
800	800	.....	
1,300	1,300	.....	
4,000	.....	4,000	
1,500	.....	1,500	
400	400	.....	
1,200	1,200	.....	
1,250	1,250	.....	
3,400	400	3,000	
600	600	.....	
2,000	.....	2,000	
6,000	.....	6,000	
2,600	.....	2,600	
2,000	2,000	.....	
1,000	.....	1,000	
3,600	.....	3,600	
1,200	.....	1,200	
1,200	.....	1,200	
7,000	.....	7,000	
1,000	1,000	.....	
30,000	.....	30,000	
400	200	200	
1,200	1,200	.....	
2,500	1,000	1,500	
1,000	.....	1,000	
4,500	.....	4,500	
1,000	.....	1,000	
$859,740	$190,950	$668,790	$7,599,784.12

NO.	NAME	COUNTY	STATE
	Amounts brought forward		
3262	J. P. Lofgren	Phelps	Nebraska
3263	G. S. Shaklee	Sumner	Kansas
3264	C. S. Ellison	LaBette	"
3265	J. H. Ellison	"	"
3268	A. T. Wilhite	Randolph	Missouri
3269	G. S. Stoner	Saunders	Nebraska
3271	R. Fisher	Gage	"
3272	H. Herpolsheimer	Lancaster	"
3273	C. Cramer	Polk	Iowa
*3275	E. J. Kemp	Westchester	New York
*3276	R. G. Abercrombie	"	"
*3277	R. G. Abercrombie	"	"
*3278	J. English	"	"
*3279	J. English	"	"
*3281	S. E. Connell	"	"
*3282	A. Clark	"	"
3283	D. Rosenstein	Hennepin	Minnesota
3284	O. L. Kaminske	Mitchell	Kansas
3285	J. Gugerty	Grundy	Missouri
3286	W. A. Stocking	Tompkins	New York
3287	O. Schreck	Moniteau	Missouri
3288	J. Craig	Tompkins	New York
3289	R. Sweeney	Chippewa	Wisconsin
3290	T. Gill	Clay	Nebraska
3291	E. D. W. Dodson	Clay	Kansas
3292	C. Anderson	Wilkin	Missouri
3293	R. Schapke	Dixon	Nebraska
*3294	M. R. Connell	Westchester	New York
*3295	R. G. Abercrombie	"	"
*3296	R. G. Abercrombie	"	"
*3297	G. C. Andrews	"	"
*3298	M. R. Connell	"	"
*3299	S. E. Connell	"	"
3301	H .B. McLeod	Stanton	Nebraska
*3302	H. Voorhees	Hennepin	Minnesota
3304	T. L. Stuart	Merrick	Nebraska
3305	J. T. Allen	Moniteau	Missouri
3306	G. L. Woodward	Phelps	Nebraska
3307	O. J. Engelstad	Polk	Minnesota
3308	P. J. Engum	Richland	North Dakota
3309	A. Koehler	Hall	Nebraska
3310	Great Lakes Dock Company	St. Louis	Minnesota
	Carried forward		

*A gift.

BALANCE AUG. 1, '09	PAID DURING YEAR	BALANCE	
$859,740	$190,950	$668,790	$7,599,784.12
1,000	.....	1,000	
7,000	.....	7,000	
725	725	.....	
725	725	.....	
2,100	.....	2,100	
2,200	.....	2,200	
1,200	.....	1,200	
30,000	2,500	27,500	
10,000	.....	10,000	
7,000	.....	7,000	
3,000	.....	3,000	
1,500	.....	1,500	
2,000	.....	2,000	
500	.....	500	
5,000	.....	5,000	
15,000	.....	15,000	
16,500	1,500	15,000	
4,000	.....	4,000	
1,600	.....	1,600	
3,500	.....	3,500	
6,000	.....	6,000	
3,000	.....	3,000	
500	500	.....	
700	.....	700	
3,000	.....	3,000	
1,500	1,000	500	
2,000	.....	2,000	
5,000	.....	5,000	
5,000	.....	5,000	
15,000	.....	15,000	
5,800	.....	5,800	
1,000	.....	1,000	
4,000	.....	4,000	
3,000	.....	3,000	
50	50	.....	
1,200	.....	1,200	
800	.....	800	
2,500	2,500	.....	
800	.....	800	
800	.....	800	
8,500	8,500	.....	
35,000	.....	35,000	$70,490.00
$1,079,440	$208,950	$870,490	$8,470 274.12

Amount brought forward		$8,470,274.12
Loans on collateral		136,977.50
Special Deposits.		
Columbia Trust Co., @ 3%	$1,497.92	
Equitable Trust Co., @ 2½%	481.30	
Guaranty Trust Company, @ 3%	570.88	
Ithaca Trust Company, @ 3%	1,358.81	
Mercantile Trust Company, @ 3%	448.08	
Metropolitan Trust Company, @ 3½%	123.04	
Union Trust Company, @ 2½%	373.30	
United States Trust Company, @ 2½%	145.19	
		4,998.52
Real Estate.		
Sage Block, Ithaca, 6%	31,000.00	
Campus Cottage Account 5½%	59,960.86	
Foreclosure Property 7%	15,220.65	106,181.51
Land Contracts.		
Western Land Contracts Schedule	78,400.55	
Warren States Contract 5%	400.00	78,800.55
		$8,797,232.20
Advances for purchase or construction.		
Farm Land Purchase	25,873.00	
Sage College Repairs	10,879.51	
Gymnasium Addition	2,325.38	
Morse Hall Addition	1,214.50	40,292.39
Ledger Balances.		
Departmental Accounts	1,889.37	
Expense Accounts	4,706.58	
Students	1,366.46	
Bennett Mortgage	1,620.00	
Sundry Persons	3,092.48	
Agricultural Experiment Station, Adams	473.20	13,148.09
Cash Advances.		
G. F. Atkinson, acc't European Fungi Collection	400.00	
H. E. Dann, acc't Music Festival	200.00	
L. M. Dennis, acc't Purchasing Trip	150.00	
E. S. DeLany, Petty Cash, Agricultural College	200.00	
V. A. Moore, Petty Cash, Veterinary College	100.00	
W. M. Polk, Petty Cash, Medical College	500.00	
Martha Van Rensselaer, acc't Inspection Trip	200.00	
Flora Rose, acc't Inspection Trip	200.00	
Harriet A. Sutherland, Petty Cash, Infirmary	25.00	
L. H. Van Kirk, Postmaster, acc't Postage	73.66	
L. A. Wait, acc't Salary	3,000.00	
Mrs. G. S. Martin, acc't Sage Board account	4,086.94	9,135.60
		$8,859,808.28

Less Amounts due		
Bills payable	$6,500.00	
Bennett Book Fund	2,158.90	
Sage Room Deposit	1,955.00	
C. E. Survey Camp	792.54	
Cong. Ind. Fund	45,000.00	
Carried forward	$56,405.44	$8,859,808.28

Amounts brought forward		$56,405.44		$8,859,808.28
Memorial Book Fund		140.25		
Sundry Persons		202.90		56,749.59
				$8,803,058.69
Cash in bank			$54,873.37	
Due State from C. U.:				
Agricultural Income		$5,283.52		
$175,000 App'n for 1909–1910, maintenance State College of Agriculture		22,203.52		
Income State College of Agriculture		1,064.61		
State College of Forestry Income		8,983.90		
State Veterinary College Income		5,852.63		
State Veterinary College Maintenance		1,043.54		
		$44,431.72		
Due C. U. from State:				
App'n for Extension work 1909–1910	$1,233.18			
App'n for Extension work 1910–1911	749.04			
App'n for Enlargement Veterinary College	49.28			
App'n for College of Forestry Land Account	288.53			
App'n for Extension Work, Veterinary College	$1,003.60	$3,323.63	$41,108.09	13,765.28
				$8,816,823.97

Schedule XI

Foreclosure Properties

	Aug 1, 1909		Aug. 1, 1910	Income
J. H. Catlin	$12,900.00		$12,900.00	$1,117.51
W. G. Clark	2,320.65		2,320.65	
S. H. Lamport	725.00	Sold for $950		
	$15,945.65		$15,220.65	$1,117.51
Profit on foreclosure property sold			$28,287.63	
Credit balance			$13,066.98	

Schedule XII

Suspense Account

Lots in Topeka	$1,043.30	
New York Dock Company Stock	2,500.00	
LaCrosse Water Power Company Stock	1,250.00	
Connecticut River Power Company Stock	100.00	
		$4,893.30

Note.—This Suspense Account consists of property of uncertain value taken in adjustment of securities or as bonus on purchases and is not included in the University assets.

Schedule XIII

SUMMARY OF INTEREST RATES

	Aug. 1, 1909	Aug. 1, 1910	Increase	Decrease
Securities bearing				
2 % int. or dividend	$ 1,746.30			$ 1,746.30
2½% " "	3,366.57	999.79		2,366.78
3% " "	90,571.52	3,875.69		86,695.83
3½% " "	70,573.88	54,123.04		16,450.84
4% " "	873,800.00	915,800.00	42,000.00	
4½% " "	714,700.00	559,050.00		155,650.00
4¾% " "	48,500.00	36,000.00		12,500.00
5 % " "	5,114,579.61	5,440,501.62	325,922.01	
5¼% " "	18,000.00	18,000.00		
5½% " "	171,862.72	149,802.72		22,060.00
6 % " "	1,251,415.67	1,278,156.45	26,740.78	
7 % " "	30,827.24	91,222.89	60,395.65	
8 % " "	43,945.65	23,000.00		20,945.65
9 % " "		25,000.00	25,000.00	
10 % " "	10,000.00			10,000.00
12 % " "	50,000.00	58,200.00	8,200.00	
Non paying	158,500.00	143,500.00		15,000.00
Advances and Ledger Balances.....	71,352.51	5,826.49		65,526.02
Cash items	29,876.38	13,765.28		16,111.10
	$8,753,618.05	$8,816,823.97	$488,258.44	$425,052.52

The average rate on the above is 5.01 per cent. The rate of interest upon invested funds, actually received during the past year averaged 5.098 per cent.

Schedule XIV

CHANGES IN INVESTMENTS SINCE AUGUST 1, 1909

Securities on hand Aug. 1, 1909 as per Treasurer's Report		$8,753,618.05
Add purchased during the year:		
Corporation Bonds, Notes and Stocks (See Productive Funds)	$1,285,200.00	
Western Land Contracts—Sales during the year (Schedule XIX)	2,765.00	
Increase in Campus Cottage Account	2,500.00	$1,290,465.00
		10,044,083 05
Deduct, paid or sold during the year:		
Corporation Bonds, Notes and Stocks (See Productive Funds)	$775,432.00	
Sundry Bonds and Mortgages (See Productive Funds)	208,950.00	
Decrease, Loans on collateral	7,262.50	
Decrease in Foreclosure Account	725.00	
Decrease in Special Deposits	107,259.75	
Western Land Contracts, Paid during year (See Schedule XIX)	16,169.22	
Paid Account Warren States Contract	50.00	
Decrease in Advances and Ledger Balances ...	95,299.51	
Decrease in Cash Item	16,111.10	$1,227,259.08
		$8,816 823.97

Schedule XV

BALANCES DUE AUG. 1, 1910, ON CONTRACTS FOR WESTERN LANDS SOLD

Carl N. Anderson	7%	$ 419.00
Louis Anderson	7	243.24
Chas. T. Geroue	6	270.00
Jump River Land Co	6	4,286.45
Fred A. Hunter	6	390.00
Cornell Land and Power Co	5½	30,000.00
Julius Kuehl	6	275.00
J. B. Saunders	6	150.00
South Muscatine Lumber Co	5½	17,500.00
Ole E. Lund	6	200.00
Ben R. Eide	6	225.00
Carl Flug	6	135.00
Gust Wegan	6	500.00
Gustav and Augusta Lange	7	340.00
J. L. Gates Land Co	5½	21,841.86
South Alberta and Minnesota Land Co	6	800.00
Ole O. Smestuen	6	325.00
Christian Anderson	6	500.00
		$78,400.55

Schedule XVI

REAL ESTATE

Land	Acres		
Campus	350	$217,758.05	
*Agricultural Farm	577	15,311.30	
Veterinary Farm	115	6,536.00	
Cornell Heights Lots		3,250.00	
Hasbrouck Farm	52	4,200.00	$247,055.35

Buildings	Built or acquired		
Barnes Hall	1889	$53,659.87	
Boardman Hall	1891	102,699.62	
Cascadilla Building	1868	37,010.94	
Carnegie Filtration Plant	1903	22,000.00	
Franklin Hall	1883	100,923.11	
Fuertes Observatory	1902	6,624.92	
Goldwin Smith Hall	1904	353,550.25	
Hasbrouck Lodge, etc	1910	5,800.00	
Hydraulic Laboratory Building	1902	7,390.00	
Infirmary	1898	60,000.00	
Library	1890	296,020.90	
Lincoln Hall	1888	72,603.10	
MacKoon Cottage	1883	14,248.97	
McGraw Hall	1871	120,000.00	
Medical College, New York City	1901	850,000.00	
Loomis Laboratory, New York City	1906	120,000.00	
Medical College Laboratory, N. Y. City	1906	75,000.00	
Military Hall and Gymnasium	1883–1892	56,902.72	
Morrill Hall	1868	70,111.25	
Morse Hall and Annex	1890–1898	133,930.10	
Carried forward			

*$25,873.00 now carried in the Farm Purchase Account was advanced from Productive Funds for the purchase of Agricultural Farms and is carried as an investment to be cancelled by annual payments from the University appropriation to Agricultural. As the payments are made the amount will be carried to Real Estate Account. This account also does not include the value of the Preswick farm, payment for which is made in the form of an annuity.

Amounts brought forward		$2,558,475.75	$247,055.35
North Barn	1883	5,987.30	
Power House	1905	10,000.00	
President's House	1876	50,000.00	
Repair Shop	1895	6,000.00	
Rockefeller Hall	1904	274,494.01	
Sage Chapel and Organ	1874–1895	40,000.00	
H. W. Sage Memorial Apse	1898	12,000.00	
Memorial Chapel	1883	11,547.76	
Sage College and Conservatory	1875–1895	210,662.15	
Sage College Cottage	1897	13,000.00	
Sibley Buildings	1871–1902	218,361.56	
South Barn	1902	5,000.00	
Stimson Hall	1901	130,756.63	
Susan Linn Sage Cottage	1887	11,215.79	
Thurston Cottage	1905	10,000.00	
White Hall	1873	80,485.16	3,647,986.11
Total C. U. Real Estate			$3,895,041.46
State Veterinary College			
Original Buildings	1895	135,000.00	
Operating Ward	1908	6,796.67	141,796.67
State Agricultural College			
Original Buildings	1906	275,000.00	
Poultry Houses	1908	2,001.00	
Entomology Glass houses	1910	2,957.00	
Barn	1910	22,999.00	
Glasshouses	1910	27,043.00	330,000.00
			$4,366,838.13

Schedule XVII

EQUIPMENT

Archaeology		$ 5,535.00
Architecture		25,100.51
Botanical		18,964.12
Chemical		100,183.07
Civil Engineering		61,730.66
Electric Service		29,177.35
Entomological		20,138.30
Geological		76,800.31
German		488.75
Greek		2,613.70
Grounds		8,448.70
Gymnasium		11,172.50
Infirmary		7,259.51
Law Department (furniture)		6,530.25
Library		740,416.00
Mathematical		487.00
Mechanical		216,921.40
Medical, New York		63,443.90
Medical, Ithaca:		
Embryology Research	$ 5,465.31	
Histology	16,699.33	
Physiology and Biochemistry	18,369.14	
Carried forward	$40,533.78	$1,395,411.03

Amounts brought forward	$40,533.78	$1,395,411.03
Anatomy	21,901.99	
Surgery and Medicine	300.00	
		62,735.77
Military		2,853.41
Museum Classical Archaeology		19,517.90
Neurology		44,548.88
Physical		124,649.26
Pedagogy		3,307.45
Physical Geography		12,084.43
Psychological		13,605.95
Tunnel and Flume		29,700.00
Water Works System		34,728.65
Repairs		7,899.90
Furniture		14,201.20
Miscellaneous		15,455.00
Steam Heating and Tools		978.00
Agricultural Experiment Station		17,182.40
Classical		720.00
Fire Apparatus		1,919.00
Memorial Chapel, Statuary		18,274.75
		$1,819,772.98
State Veterinary College		44,182.39
State Agricultural College		130,557.34
		$1,994,512.71

Schedule XVIII

Capital Account 1909–1910

Capital August 1, 1909		$8,753,618.05
Add:		
Alumni Fund	$2,550.37	
Alumni Endowment Fund	125.00	
Alumni Loan Fund	2,970.00	
Cottage Renewal Fund	1,532.32	
Class '91 Memorial Fund	29.59	
Class '96 Memorial Fund	44.33	
Class '97 Memorial Fund	226.71	
Class '98 Alumni Hall Fund	19 16	
Cornell Endowment, Reserve Fund	2,480.39	
Corson French Prize Fund	62.14	
W. Fiske Library Endowment Fund	15,000.00	
Guiteau Student Loan Fund	3,178.38	
Mary F. Hall, D. A. R. Fund	26.71	
Professorial Pension Fund	10,447.63	
Professorial Pension Income Fund	3,737.46	
Judson N. Smith Fund	1,000.00	
Surplus Fund	760.80	
Women's Student Loan Fund	568.03	
Summer School Laboratory bills not charged	1,630.06	
Decrease in Student balances	556.39	
Decrease in Cash Deficit	42,893.97	89,839.44
		$8,843,457.49
Less:		
Decrease Polish Student Loan Fund	34.00	
Decrease Foreclosure Profit and Loan	2,836.11	
Decrease in Premium and Discount	23,763.41	26,633.52
		$8,816,823.97

Schedule XIX

WESTERN LANDS

RECEIPTS AND DISBURSEMENTS ACCOUNT WESTERN LANDS FOR YEAR ENDING AUGUST 1, 1910

Receipts, Aug. 1, 1909 to Aug. 1, 1910		Disbursements Aug. 1, 1909 to Aug 1, 1910	
Land and Timber Contracts	$16,169.22	Taxes	$179.61
	16,169.22	Commissions	105.00
		Balance	15,884.61
			$16,169.22
Excess of Receipts over Disbursements	15,884.61		
C. U. Balance Aug. 1, 1909	4,947,818.36		
C. U. Balance Aug. 1, 1910	$4,963,702.97		

TRIAL BALANCE LAND LEDGER

Expense	$1,726,849.03	Land	$4,531,837.87
Cornell University	4,963,702.97	Timber	2,211,616.59
Balances due on Contracts	78,400.55	Trespass	20,063.90
		Hay	4,268.14
		Farm Land Rent	758.05
		College Land Scrip	408.00
	$6,768,952.55		$6,768,952.55

FARM LAND SALES

	Acres	Amount
Southern Alberta and Minnesota Land Co	79.94	$1,140.00
Rudolph Petsch	160.00	1,000.00
Christian Anderson	80.00	625.00
	319.94	$2,765.00

SUMMARY OF BALANCES DUE ON CONTRACTS

August 1, 1909, Balance due	$91,804.77
Add:	
Farm Land Sales during the year	2,765.00
	$94,569.77
Amount received account Land and Timber Contracts	16,169.22
Balance Aug. 1, 1910	$78,400.55

SUMMARY OF ACREAGE

Balance unsold August 1, 1909	1,819.31 acres
Sales during the year	319.94 "
Balance unsold Aug. 1, 1910	1,499.37 "

Schedule XX

NEW YORK STATE VETERINARY COLLEGE

MAINTENANCE ACCOUNT

Balance on hand August 1, 1909		$ 1,555.65
Appropriation State of New York for 1909–10		35,000.00
Expenditures:		
Salaries (Instructing Staff)	$24,808.31	
Pay Roll (Other Employees)	3,910.00	
Electric Lights	100.30	
Gas	227.10	
Fuel	358.84	
Repairs	636.65	
Advertising	417.35	
Librarian	218.50	
Departments	4,268.95	
Office	291.36	
Team and Wagons	250.00	
Grounds and Contingent Expenses	24.75	
	$35,512.11	
Balance unexpended Aug. 1, 1910	1,043.54	
	$36,555.65	$36,555.65

INCOME OF VETERINARY COLLEGE

Balance on hand August 1, 1909		$4,370.39
Received Aug. 1, 1909 to July 31, 1910:		
Experiment Station	$ 25.30	
Laboratory Fees	2,078.80	
Tuition	1,000.00	
Rent Groom's Cottage	25.00	
Clinics and Medicine	1,574.70	
Tuberculin, etc	614.37	
Miscellaneous	109.57	5,427.74
Expended Aug. 1, 1909 to July 31, 1910:		
Salaries	34.78	
Repairs	156.09	
Advertising	184.31	
Departments	2,206.91	
Office	617.69	
Team and wagons	513.75	
Contingent Expenses	206.69	
Experiment Station	25.28	
	$ 3,945.50	
Balance unexpended Aug. 1, 1910	5,852.63	
	$ 9,798.13	$9,798.13

1909—$10,000 APPROPRIATION FOR SPECIAL RESEARCH

Appropriation	$10,000.00
Expenditures heretofore reported	279.76
Balance unexpended Aug. 1, 1909	$9,720.24
Carried forward	$9,720.24

Amount brought forward		$9,720.24
Expenditures:		
Assistants to do scientific work	$1,400.45	
Attendant	540.00	
Labor	871.84	
Horses, Wagons and Implements	831.81	
Animals for experimental purposes	545.47	
Feed for animals	626.33	
Lumber, cement, fencing, etc	971.69	
Instruments, drugs, equipment	82.46	
Contingent	253.47	
Hog Cholera Serum	262.11	
	6,385.63	
Balance unexpended Aug. 1, 1910	3,334.61	
	$9,720.24	$9,720.24

1909—$20,000 APPROPRIATION FOR NORTH WING EXTENSION

Appropriation		$20,000.00
Expended for advertising for bids	$ 49.28	
Unexpended balance, Aug. 1, 1910	19,950.72	
	$20,000.00	$20,000.00

Schedule XXI

STATE COLLEGE OF AGRICULTURE

1908 STATE MAINTENANCE APPROPRIATION (1908–1909)

Appropriation		$150,000.00
Expenditures heretofore reported		132,854.46
Balance unexpended Aug. 1, 1909		$17,145.54
Expended as follows:		
Office, General Maintenance and Printing	$1,356.58	
Salaries	12,550.30	
Janitors	472.00	
Farm Practice	407.05	
Horticulture	214.89	
Plant Pathology	183.40	
Pomology	214.09	
Poultry Husbandry	365.45	
Lighting	327.30	
Animal Husbandry	126.73	
Farmers' Wives' Reading Course	56.70	
Farmers' Reading Course	42.95	
Rural School Leaflet	91.65	
Home Nature Study	2.04	
Rural Art	137.99	
Dairy Industry	310.00	
Farm Crops	46.34	
Soils	61.72	
Drawing	5.58	
Farm Mechanics	.35	
Rural Economy	52.05	
Chemistry	119.63	
Extension	.75	
	$17,145.54	$17,145.54

1909 STATE MAINTENANCE (1909–1910)

Appropriation		$175,000.00
Expended as follows:		
Office, General Maintenance and Printing	$22,711.00	
Chemistry	566.91	
Rural Economy	176.98	
Plant-Breeding	298.11	
Extension	193.42	
Drawing	114.27	
Salaries	76,780.95	
Plant Physiology	1,249.57	
Plant Pathology	989.75	
Farm Practice	14,848.98	
Home Economics	566.73	
Animal Husbandry	4,046.77	
Entomology	2,975.84	
Farm Crops	1,005.59	
Soils	962.84	
Poultry Husbandry	3,696.22	
Farm Mechanics	405.16	
Pomology	1,814.00	
Rural School Leaflet	984.41	
Farmers' Wives' Reading Course	1,082.80	
Rural Art	410.28	
Dairy Industry	8,891.25	
Horticulture	2,920.84	
Extension	5,103.81	152,796.48
Balance unexpended Aug. 1, 1910		$ 22,203.52

1908 APPROPRIATION FOR EXTENSION WORK UPON THE FARMS AND AMONG THE FARMERS OF THE STATE

Appropriation		$10,000.00
Expenditures heretofore reported		9,338.86
Balance unexpended Aug. 1, 1909		661.14
Expended as follows:		
Extension (publications, lectures, etc.)	$661.14	661.14

1909 APPROPRIATION FOR EXTENSION WORK, ETC.

Appropriation		$10,000.00
Expenditures heretofore reported		1,407.18
Balance unexpended Aug. 1, 1909		8,592.82
Expended as follows:		
Extension (publications, lectures, etc.)	$6,322.71	
Surveys	1,880.91	8,203.62
Balance Aug. 1, 1910		$ 389.20

1910 APPROPRIATION FOR EXTENSION WORK, ETC.

Appropriation		$12,000.00
Expended as follows:		
Extension Work	$427.89	
Surveys	321.15	749.04
Balance Aug. 1, 1910		$11,250.96

AGRICULTURAL INCOME ACCOUNT

Balance Aug. 1, 1909			$ 4,304.04
Received from Farm Practice Dept., teaming, labor, etc.		$ 4,170.47	
Received from Animal Husbandry			
Sales	$ 2,380.65		
Testing	26,899.77	29,280.42	33,450.89
			$37,754.93
Expended			
By Farm Practice Department		3,712.04	
By Animal Husbandry		28,759.37	32,471.41
Balance Aug. 1, 1910			$ 5,283.52

STATE AGRICULTURAL COLLEGE INCOME ACCOUNT

Balance on hand Aug. 1, 1909			$6,996.84
Received from Dairy Industry Sales		$82,331.26	
Received from Poultry Husbandry Sales		4,831.35	
Received from fees—Winter Course	$5,050.30		
" " " First Term	3,859.45		
" " " Second Term	3,987.05		
		12,896.80	
" " " Horticultural Sales		400.06	
Received from Gross sales from Grape Rot Experimental Vineyards, etc.		3,649.07	
Received from Sundry Sources		290.51	
Received from sale of Old Type, Books, etc		970.20	105,369.25
			$112,366.09
Expended as follows:			
Dairy Industry Department		$87,099.15	
Poultry Husbandry Department		6,631.69	
Office		9,804.24	
Pomology		3,775.92	
Entomology		666.23	
Home Economics		526.32	
Horticultural Department		605.81	
Plant Pathology		651.51	
Plant-Breeding Department		216.83	
Farm Crops		106.89	
Plant Physiology		388.83	
Farm Mechanics		621.54	
Soils Department		206.52	111,301.48
Balance Aug. 1, 1910			$1,064.61

Schedule XXII

STATE COLLEGE FORESTRY LUMBERING ACCOUNT

Balance Aug. 1, 1909	$8,803.59
Expended during year	108.22
Balance Aug. 1, 1910	8,695.37
Deposit First Nat'l Bank, College Forestry	8,983.90
Due Cornell University money advanced	288.53
	$8,695.37

Schedule XXIII

SURPLUS OR INSURANCE FUND

Amount of Fund Aug. 1, 1909		$3,441.34
5% of General Income not including income on Special Funds	$37,585.37	
Income on Fund	175.43	37,760.80
		$41,202.14
Amount transferred to Income		37,000.00
Amount of fund Aug. 1, 1910		$ 4,202.14

Schedule XXIV

WOMEN STUDENTS' LOAN FUND

Amount of fund Aug. 1, 1909		$7,068.28
Received on loans during year	$1,163.77	
Income on funds	370.36	1,534.13
Amount of fund Aug. 1, 1910		8,602.41

Schedule XXV

GUITEAU STUDENT LOAN FUND

	Principal of Fund	Income	Loans	Payments of Principal	Loans Interest
1906–07	$132,678.38	$ 6,747.44	$ 7,302.00	$ 395.00	$ .82
1907–08	211,999.99	8,344.45	7,226.00	1,142.00	57.50
1908–09	231,078.59	11,392.18	7,802.10	2,269.00	242.68
1909–10	234,256.97	11,942.36	8,942.50	2,780.00	398.38
		$38,426.43	$31,272.60	$6,586.00	$699.38
Less payments of loans			$ 6,586.00		
Loans outstanding			$24,686.60		

Schedule XXVI

CORNELL INFIRMARY

Balance on hand August 1, 1909		$19,023.65
Received from Infirmary Fees		16,558.00
Received from Infirmary patients for services not covered by fees		2,078.06
Received from outside patients		531.90
Income from Endowment Fund		5,098.00
Income on cash balance		950.00
		$44,239.61

EXPENDED AUGUST 1, 1909 TO AUGUST 1, 1910

Labor (House and Grounds)	$1,621.33	
Supplies	4,153.01	
Equipment (Professional)	255.87	
Equipment (House)	208.17	
Fuel	536.58	
Gas (Heat and Light)	121.95	
Electric Lights	124.10	
Water	112.15	
Repairs	274.63	
Carried forward	$7,407.79	$44,239.61

Amounts brought forward		$740,779	$44,239.61
Care of Grounds		53.53	
Contingent		264.33	
Furniture		74.72	
Superintendent		1,056.63	
Nurses		1,919.00	
		$10,776.00	
Outside Care 1909–10		3,562.15	14,338.15
			$29,901.46

Schedule XXVII

ESTIMATED INCOME 1910–1911

Income on Securities			$440,546.00
Add:			
Rent of Sage College and Cottage		$15,500.00	
Rent of Cascadilla and Cottages		10,500.00	
Student Fees Regular Session		397,859.00	
Student Fees Summer Session		23,866.00	
Cornell Infirmary		20,000.00	
Interest on Student Notes		700.00	
Departments		2,000.00	
Alumnae Scholarship		150.00	
Agr. Exp. Station, Hatch	$13,500.00		
" " " Adams	13,500.00		
" " " Income	50.00	27,050.00	
Cong. Ind. Fund, Morrill	$25,000.00		
" " " Nelson	20,000.00	45,000.00	542.625.00
			$983,171.00
5% of General Income to Surplus Fund		37,500.00	
Amount transferred to principal of Fund		12,000.00	49,500.00
Estimated Income Ithaca			933,671.00
" " Medical College N. Y. City			202,940.00
			$1,136,611.00
Excess of expenditures over Income to Aug. 1, 1910 (See 1st page Treas. Report)		24,054.14	
Amount of Income due Special Funds		63,120.55	
Amount due on appropriation to complete contracts of last year		17,397.77	
		$104,572.46	

CERTIFICATE OF AUDITING COMMITTEE

We hereby certify that we have examined the University Cash Book, Dr. and Cr. from Aug. 1, 1909, to Aug. 1, 1910; the balance due on Western Land Contracts, as specified in Schedule XVI of the foregoing report, amounting to $78,400.55; that we have compared the same with notes exhibited by E. L. Williams, Treasurer, and with receipts for those in the course of collection; and that we have examined the securities as specified in Schedule X of this report, amounting to $8,816, 823.97, and find all of same correct.

Henry B. Lord,
Charles E. Treman
Jared T. Newman,
Auditing Committee.

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APPENDIX

APPENDIX I

CHANGES IN THE STAFF OF INSTRUCTION

The following new appointments were made during the year 1909–1910:

E. B. Titchener, Sage Professor of Psychology in the Graduate School (transfer to occur January 26, 1910), November 6, 1909.

J. S. Shearer, Professor of Physics, November 6, 1909.

J. Rogers, Professor of Clinical Surgery, April 30, 1910.

F. L. Ackerman, Acting Assistant Professor of Design in the College of Architecture, January 4, 1910.

G. A. Everett, Acting Assistant Professor of Oratory and Debate, March 29, 1910.

G. L. Current, Instructor in Experimental Engineering, October 12, 1909.

H. E. Howe and H. O. Taylor, Instructors in Physics, October 12, 1909.

B. J. Lemon, Instructor in Chemistry, October 26, 1909.

F. R. Perrin, Instructor in French, October 26, 1909.

E. J. Fluegel, Instructor in German, October 26, 1909.

J. R. Turner, Instructor in Economics, October 26, 1909.

D. Symmers, Instructor in Pathology, November 9, 1909.

F. N. Menefee and E. V. Baron, Instructors in Civil Engineering, January 4, 1910.

S. L. Galpin, Instructor in Geology and Mineralogy, January 18, 1910.

W. E. Hopper, Instructor in Geology and Physical Geography, January 18, 1910.

D. Steele, Instructor in Economic Geology, January 18, 1910.

E. R. Faulkner, Instructor in Surgical Pathology, February 15, 1910.

W. H. Hook, Instructor in Experimental Engineering, March 8, 1910.

J. F. Putnam, Instructor in Experimental Engineering, April 12, 1910.

A. S. Leverty, Clinical Instructor in Medicine, Department of Neurology, May 24, 1910.

W. C. Thro, Instructor in Clinical Pathology, May 24, 1910.

S. R. Wing and C. A. Harrington, Assistants in Physics, October 12, 1909.

D. H. Lehman, Assistant in Physical Culture, October 12, 1909.

E. Freudenheim and R. S. Hollingshead, Assistants in Chemistry, October 12, 1909.

T. K. Davis, Assistant in Histology and Embryology, October 12, 1909.

E. B. Cobb, Assistant in American History, October 12, 1909.

J. T. Lloyd, Assistant in Biology, October 12, 1909.

L. M. White, Assistant in English, October 26, 1909.

H. M. Barr, L. Buell, and I. E. Nightingale, Readers in English, October 26, 1909.

C. R. Hugins, Assistant in Public Speaking, October 26, 1909.
R. T. McKnew and W. D. Craig, Assistants in Physics, October 26, 1909.
A. Berg, Hospital Interne in Veterinary College, October 26, 1909.
L. W. Wing and A. K. Rotheberger, Assistants in Bacteriology, October 26 1909.
R. J. Shepard, Assistant in Extension Teaching, October 26, 1909.
J. C. Andrews and H. E. Riegger, Assistants in Chemistry, November 9, 1909.
W. E. Caldwell, Assistant in Ancient History, November 9, 1909.
R. E. Wheeler, Assistant in Extension Work, November 9, 1909.
J. G. Brody, Assistant in Pharmacy, November 9, 1909.
G. E. Robinson, G. W. Blair, W. B. Clift, and W. Knapp, Assistants in the Military Department, November 30, 1909.
C. A. Carroll, Reader in English, November 30, 1909.
R. Cross and R. L. French, Assistants in Winter Course, November 30, 1909.
J. H. Phillips, Assistant in Soil Technology, November 30, 1909.
M. H. Givens, Assistant in Biochemistry, November 30, 1909.
L. M. Day, Assistant in Psychology, January 18, 1910.
E. E. Barker and A. B. Clayton, Assistants in Geology, January 18, 1910.
V. E. Nunez and A. W. Conklin, Assistants in Chemistry, February 5, 1910.
H. L. Rees, Assistant in Plant Pathology, February 5, 1910
L. V. Walker and S. O. Dillon, Assistants in Chemistry, February 15, 1910.
T. H. Evans, Assistant in Clinical Pathology, February 15, 1910.
H. P. Reid, Assistant in the Military Department, March 8, 1910.
F. H. Rhodes, Assistant in Chemistry, March 8, 1910.
F. T. Finch, Assistant in Poultry Husbandry, March 29, 1910.
M. W. Fisk, to assist in experimental work in Dairy Department, March 29, 1910.
L. J. Ulrich, Assistant in Chemistry, April 12, 1910.
J. C. Fogle, Assistant in Reference Library, January 18, 1910.

SUMMER SESSION, 1910

J. Q. Adams, Assistant Professor of English.
C. D. Albert, Assistant Professor of Machine Design.
A. L. Andrews, Instructor in English.
J. Bauer, Instructor in Economics.
S. Blanton, Instructor in Elocution.
H. B. Brown, Instructor in Botany.
L. A. Bryant, Supervisor of Music, Ithaca Public Schools.
J. C. Cothran, Assistant in Chemistry.
H. E. Dann, Professor of Music.
D. Derickson, Assistant Professor of Civil Engineering.
D. C. Gillespie, Instructor in Mathematics.
R. J. Gilmore, Assistant in Biology.
J. E. Griffith, Head of Department of Drawing, High School of Commerce, Cleveland, Ohio.
H. B. Hilliard, Head of Department of Piano Instruction, Ithaca Conservatory of Music.

A. C. Houlehan, Assistant in Chemistry.
E. F. Johnson, University Organist.
E. E. McCready, Director Industrial Education, Public Schools, Syracuse.
F. A. Molby, Instructor in Physics.
A. H. Morgan, Graduate Student in Zoology.
R. A. Mordoff, Assistant in Physical Geography.
E. F. Rathjen, Assistant in Chemistry.
E. W. Rettger, Assistant Professor of Applied Mechanics.
R. D. Schrock, Instructor in Physiology.
W. B. Smith, Assistant in Machine Shop.
A. A. Somerville, Instructor in Physics.
L. T. Sutherland, Assistant in Chemistry.
T. Tapper, Lecturer, Institute of Musical Art, New York City.

The following new appointments were made up to and including July 9, 1910, to take effect at the beginning of the academic year 1910–1911:

B. G. Wilder, Professor of Neurology and Vertebrate Zoology, Emeritus, June 23, 1910.
W. T. Hewett, Professor of the German Language and Literature, Emeritus, June 23, 1910.
L. A. Wait, Professor of Mathematics, Emeritus, June 23, 1910.
C. H. Knight, Professor of Clinical Medicine, Department of Laryngology and Rhinology, Emeritus, June 23, 1910.
F. S. Dennis, Professor of Clinical Surgery, Emeritus, June 23, 1910.
G. P. Bristol, Director of the School of Education, April 30, 1910.
W. N. Barnard, Secretary of Sibley College, May 17, 1910.
J. I. Hutchinson and V. Snyder, Professors of Mathematics, April 30, 1910.
A. B. Faust, Professor of the German Language and Literature, April 30, 1910.
E. M. Chamot, Professor of Sanitary Chemistry and Toxicology, April 30, 1910.
A. W. Browne, Professor of Inorganic and Analytical Chemistry, April 30, 1910.
E. H. Wood, Professor of Mechanics of Engineering, April 30, 1910.
H. D. Hess, Professor of Machine Design, April 30, 1910.
W. H. Glasson, Acting Professor of Economics and Politics, May 17, 1910.
A. C. Gill, Professor of Mineralogy and Petrography, June 23, 1910.
D. H. Udall, Professor of Veterinary Medicine and Hygiene, June 23, 1910.
J. P. Bretz, Professor of American History, June 23, 1910.
A. Hoch, Professor of Clinical Medicine, Department of Psychopathology, June 23, 1910.
S. P. Beebe, Professor of Experimental Therapeutics, June 23, 1910.
A. Livingston, Assistant Professor of the Romance Languages and Literatures, February 5, 1910.
G. H. Sabine, Acting Assistant Professor of Logic and Metaphysics, March 8, 1910.
F. R. Sharpe, W. B. Carver, and A. Ranum, Assistant Professors of Mathematics, March 29, 1910.

A. Gordon, Assistant Professor of the Romance Languages and Literatures, March 29, 1910.
H. L. Jones, Assistant Professor of Greek, March 29, 1910.
G. A. Everett, Assistant Professor of Oratory, April 26, 1910.
E. J. Fluegel, Assistant Professor of the German Language and Literature, April 26, 1910.
A. W. Boesche, Assistant Professor of the German Language and Literature, April 30, 1910.
J. Bauer, Assistant Professor of Economics, May 17, 1910.
G. B. Upton Assistant Professor of Experimental Engineering, May 24, 1910.
L. D. Hayes, Assistant Professor of Machine Design, May 24, 1910.
F. A. Burr, Assistant Professor of Power Engineering, May 24, 1910.
J. P. Schaeffer, Assistant Professor of Anatomy, May 24, 1910.
W. C. Thro, Assistant Professor of Clinical Pathology, June 7, 1910.
J. Fraenkel and J. R. Hunt, Assistant Professors of Clinical Medicine, Department of Neurology, June 7, 1910.
J. C. Torrey, Assistant Professor of Experimental Therapeutics, June 23, 1910.
E. S. Savage, Assistant Professor of Animal Husbandry, July 9, 1910.
W. A. Hurwitz and E. J. Miles, Instructors in Mathematics, March 29, 1910.
L. Pumpelly, Instructor in the Romance Languages and Literatures, March 29, 1910.
W. D. Zinnecker, Instructor in German, April 12, 1910.
F. M. Smith, L. N. Broughton, F. Peek, and D. W. Prall, Instructors in English, May 17, 1910.
R. Saby and A. P. Usher, Instructors in Economics, May 17, 1910.
M. M. Goldberg, Instructor in Physics, May 17, 1910.
F. McAllister, Instructor in Botany, May 17, 1910.
H. W. Mayes and M. H. Givens, Instructors in Physiology and Biochemistry, May 17, 1910.
F. F. Koenig, Instructor in Veterinary Medicine and Parasites, May 17, 1910.
F. S. Jones, Instructor in the Study of Poultry Diseases, May 17, 1910.
C. E. Hayden, Instructor in Physiological Research, May 17, 1910.
F. E. Klinck, W. R. Straus, C. A. Carpenter, and J. A. Fried, Instructors in Machine Design, May 24, 1910.
S. R. Wing, Instructor in Experimental Engineering, May 24, 1910.
P. W. Thompson, Instructor in Power Engineering, May 24, 1910.
J. G. Pertsch, Instructor in Electrical Engineering, May 24, 1910.
H. E. Kramm, Instructor in Economic Geology, May 24, 1910.
T. C. Ulbricht, Instructor in Power Engineering, May 24, 1910.
H. DeWolf, Instructor in Medicine, June 7, 1910.
M. Goodridge, Instructor in Therapeutics, June 7, 1910.
E. F. DuBois, Instructor in Clinical Medicine and Applied Pharmacology, June 7, 1910.
R. Cecil, Instructor in Pathological Anatomy, June 7, 1910.
J. F. McClendon, Instructor in Histology, June 7, 1910.
J. G. Brody, Instructor in Pharmacology, June 7, 1910.
C. D. Corwin, Instructor in Machine Design, June 14, 1910.
R. L. Daugherty, Instructor in Mechanics, June 14, 1910.

E. N. Burrows, Instructor in Civil Engineering, June 17, 1910.
E. L. Schaub, Instructor in Philosophy, June 23, 1910.
R. H. Wheeler, Instructor in Extension Teaching, July 9, 1910.
P. Work, Instructor and Investigator in Vegetable Gardening, July 9, 1910.
L. B. Cook, Instructor in Dairy Industry, July 9, 1910.
H. B. Young, Instructor in Home Economics, July 9, 1910.
A. Dick, Instructor in Sewing (December, January, February), July 9, 1910.
N. W. Dougherty, Instructor in Civil Engineering, July 9, 1910.
G. S. Martin, Lecturer on Economics, April 26, 1910.
A. S. Taylor, Lecturer on Surgery of the Peripheral Nervous System, June 7, 1910.
J. R. Knipfing, Assistant in Mediæval History, May 17, 1910.
A. S. Roberts, Assistant in American History, May 17, 1910.
H. Lubin, Assistant in Economics, May 17, 1910.
J. C. Stevens, Assistant in Economics and Finance, May 17, 1910.
W. G. Mallory, H. G. Ayres, C. C. Bidwell, J. W. Hornbeak, H. L. Howes, and O. E. Buckley, Assistants in Physics, May 17, 1910.
B. B. Higgins, Assistant in Botany, May 17, 1910.
H. M. Jennings and W. A. Verwiebe, Assistants in Physical Culture, May 17, 1910.
J. A. Badertscher and P. E. Smith, Assistants in Histology and Embryology, May 17, 1910.
W. E. Humphrey, Assistant in Architecture, May 17, 1910.
R. R. Birch, W. E. Fritz, and C. I. Corbin, Student Assistants in the State Veterinary College, May 17, 1910.
J. Storrer, Assistant in Geology, May 31, 1910.
W. H. Sheldon, Assistant in Medicine, June 7, 1910.
E. L'Esperance, Assistant in Pathology, and Cataloguer, June 7, 1910.
L. R. Greer, Assistant in Physiology, June 7, 1910.
R. A. Cooke, Assistant in Experimental Therapeutics, June 7, 1910.
E. J. Connell, Clinical Assistant in Surgery, Department of Laryngology and Rhinology, June 7, 1910.
T. A. Mulcahey, Clinical Assistant in Surgery, Department of Otology, June 7, 1910.
J. A. Riche, Assistant in Physiology, June 7, 1910.
W. Dunn, Assistant in Experimental Therapeutics and Microphotography, June 7, 1910.
B. Feldstein, Assistant in Experimental Therapeutics, June 7, 1910.
E. V. VanAlstyne, Assistant in Experimental Therapeutics, June 7, 1910.
C. E. Power, Assistant in Physics, June 14, 1910.
W. E. Koerner, J. S. King, and A. R. Hitch, Assistants in Chemistry, June 14, 1910.
C. E. Leighty, Assistant in Plant-Breeding, June 14, 1910.
A. M. Atwater, Assistant in Plant-Breeding Laboratory, June 14, 1910.
W. A. Gibbons, Assistant in Chemistry, June 23, 1910.
H. M. Bower and R. J. Gilmore, Assistants in Biology, July 9, 1910.
G. R. Hill, Assistant in Plant Physiology, July 9, 1910.
H. Anderson, Assistant in Plant Pathology, July 9, 1910.

A. C. Beal, Assistant in Floriculture, July 9, 1910.
W. W. Fisk, Assistant in Dairy Industry, July 9, 1910.
T. J. McInerney, Student Assistant in Dairy Industry, July 9, 1910.
B. B. Robb, Student Assistant in Farm Mechanics, July 9, 1910.
G. E. Bennett, Student Assistant in Home Economics, July 9, 1910.
S. Bailey, Assistant in Home Economics Laboratory, July 9, 1910.
C. T. Gregory, Assistant in Plant Pathology, July 9, 1910.
H. N. Kutschbach and D. L. Earl, Assistants in Farm Management (July 1 to September 30), July 9, 1910.
J. C. McLearn and L. Vanderhoef, Assistants in the Library, June 7, 1910.
V. C. Ryder and W. B. Flannery, Assistants in the Law Library, June 17, 1910.
L. L. Utter, Assistant in the Library, June 23, 1910.

APPENDIX II

REPORT OF THE SECRETARY OF THE UNIVERSITY FACULTY

To the President of the University:

SIR:—I have the honor to submit the following report upon the work of the University Faculty for the academic year 1909–10:

At the beginning of the current year the work of the Graduate Department, formerly under the jurisdiction of this Faculty, passed to the control of the Graduate School organized under action of the Board of Trustees communicated to this Faculty April 16, 1909.

The Faculty's work now consists of miscellaneous business transacted in legislative sessions held at monthly intervals, and of specific business transacted mainly by standing committees invested by the Faculty with various powers.

MISCELLANEOUS LEGISLATION

CALENDAR—NOV. 12, 1909. The following rules governing the University calendar were adopted:

1. The first day of instruction shall be the last Thursday in September, and Commencement shall be on a Wednesday in June thirty-eight weeks later.

2. The year shall consist of two terms, each of one hundred session days, including instruction days and days given to the examination period known as Block Week, but not including Sundays or vacations.

3. Vacations shall be as follows: Thanksgiving and the Friday following, 2 days; at Christmas, average 11 week days; Founder's Day, 1 day; Junior Week, 3 days following Block Week, the third day (Saturday) being

for the second term's registration; Spring vacation, 4 week days, beginning on a Thursday near the 1st of April; Navy and Spring Day, 1 day, the Saturday nearest the 30th of May.

Dec. 10, 1909. The Faculty received notice from the Board of Trustees of their approval of the foregoing calendar rules, except that Commencement Day be on a Thursday until further action of the Trustees, and that for 1910–11 instruction begin on Friday, Sept. 30, instead of Thursday, Sept. 29.

Insignia—Dec. 10, 1909. The special committee on insignia (see President's Report for 1908–1909, p. xii) received the Faculty's permission to submit to the Board of Trustees a plan for securing competition for an University emblem. Under authorization of the Trustees the committee offered a prize of $200 for the best design, and on June 10, 1910, the committee reported its award of the prize to Messrs. Bailey, Banks, & Biddle of Philadelphia. A second prize of $50 was added by the Trustees and was awarded to Mr. Edwin S. Healy of Bloomfield, N. J. About 150 designs were received by the committee. As neither of the premiated designs was adopted, the Faculty instructed the committee to continue its work in the selection of an emblem and to report at the October meeting, 1910.

Football—Dec. 11, 1909. At a special meeting called on the foregoing date, the Faculty adopted the following resolutions:

Resolved, That it is the insistent opinion of this Faculty that the continuance of football as a game for undergraduates depends upon a thoroughgoing and effective revision and enforcement of the rules regulating the game and the selection and conduct of players, officials, and coaches, with a view to securing greater safety of life and limb and higher standards of honor and fair play.

Resolved, further, That the Secretary be instructed to forward a copy of the foregoing resolution to the Cornell member of the Football Rules Committee, with the request that he read and present it to the committee at the next meeting of the committee at which the question of revision of the rules is discussed.

Committee on Relations to Secondary Schools—Mar. 11, 1910. A standing committee under the foregoing title, to consist of eight members including the Registrar, was authorized, and the President was requested to appoint the same.

University Publications—Apr. 15, 1910. The Faculty approved the following recommendations of the Committee on University Policy:

(1) That all of the official publications of the University be combined into a uniform series called "The Official Publications of Cornell University." In this group there should be included the annual Register, the general Circular of Information, the Announcements of the separate Colleges, the President's Report, an Illustrated Circular, the Announcement of the Summer Session, and such other pamphlets as may be officially authorized.

(2) That the Register, as a book for general informational purposes to be sent to prospective students, be superseded by an annual "General Announcement" or "Circular of Information," and that the main purpose of the Register hereafter shall be to serve as a permanent record of the University year; and further that a charge of twenty-five cents per copy be made for the Register, the chief purpose of this charge being to indicate

that the volume is not intended for general gratis distribution for informational purposes.

(3) That a uniform size of 6 x 9 inches outside measurement be adopted for the official publications of the University, and that all special publications of the several colleges conform to this size, as far as is feasible.

(4) That there shall be uniformity throughout the series in

(a) Method and style of announcing courses, involving the elements to be announced and their relative order;

(b) The use of abbreviations, capitals, italics, punctuation, etc.

Address to Berlin—Apr. 15, 1910. The following congratulatory address was sent to the University of Berlin under the Faculty's instructions of this date:

Cornell University sends to the Friedrich-Wilhelms University at Berlin cordial felicitations and greetings on the auspicious occasion of the celebration of the one hundredth anniversary of its foundation.

Established in the time of Germany's need by wise statesmen, the great Berlin University, by its promotion of exact research in all the fields of human inquiry and by the unfolding of scientific principles salutary for the State and Society, has been an ever-flowing source of the people's strength, a wise guide in the learning and culture of the Fatherland and of all lands.

In recognition of this world-wide service, of which the American Republic is a grateful beneficiary, Cornell University has delegated Jeremiah Whipple Jenks, Professor of Economics and Politics, to bear its message of greeting and good-will to the Rector and Senate of its illustrious sister institution.

May the Friedrich-Wilhelms University through future centuries continue its high, unhampered mission of enlarging the domain of beneficent truth and of enlightening and quickening the ideals of human progress.

Retirement of Professor L. A. Wait—June 10, 1910. The following resolutions were adopted on this date:

On the retirement of Professor Lucien Augustus Wait from active teaching, after a long and successful professional career, his colleagues in the University Faculty desire to place on record their high estimate of his services to the cause of education and sound learning.

Called in 1870 to an assistant professorship in the Department of Mathematics in the third year of its history, fresh from study at Harvard, he bore an important part in shaping the policy of the department, and in establishing its well-known high standards. His unusual ability as a teacher and organizer led to his promotion in 1877 to the associate headship of the department, relieving Professor Oliver of much of the administrative work; and he became sole head at Professor Oliver's death in 1895.

His administration has always been notable for efficiency, harmony, and devotion to high ideals of scholarship. In planning the mathematical instruction, he has kept steadily in view its various aims and purposes, including intellectual discipline, preparation for the scientific professions or for work in pure science, and the training of teachers and investigators. How well he has succeeded in the difficult task of holding an even balance among the diverse interests is well known to all who have had any personal concern in the matter. On the disciplinary side, he has been careful to have the instruction of every grade placed upon a sound logical basis; on the scientific side, while keeping in close touch with the related departments in the College of Arts and Sciences, he has also studied the needs of the various professional colleges; and in the interests of prospective teachers he has always given due prominence to the pedagogical side of the work.

A notable feature of his administration is the encouragement he has given to the research work of his younger colleagues and of the graduate students

He has always planned that each instructor, after his initiatory period, should take some share in the graduate work, and should not be so over-burdened as to leave no time for his private investigations. Professor Wait has also encouraged the preparation of suitable text-books, being ever eager to adopt progressive methods of presentation and instruction, and has himself set an example of thoroughness and effectiveness in the class-room.

While firm in enforcing the rules and standards of the department, his unfailing courtesy is proverbial; and his qualities as a teacher and a man have gained him the warm regard of a long line of Cornell alumni, and of the Faculty and Trustees, many of whom are numbered among his former students.

A man of ripe and varied culture, Professor Wait has taken a deep interest in all the educational problems which have come before the Faculty, and his accustomed attitude has exhibited a fine blending of the progressive and the conservative. We shall miss his genial presence from our meetings, but we hope he may long remain a member of our University community.

Goldwin Smith—June 10, 1910. The following resolutions were drafted by the committee appointed under Faculty action of the foregoing date:

By the death of our beloved colleague, Goldwin Smith, this Faculty has lost its senior member, and Cornell University one of its truest and most sympathetic friends. From its opening, in 1868, through all its existence he has identified himself with the University's interests. During its earliest years, while he was resident with us, by his brilliant and inspiring lectures and not less by his personality he was an inestimable influence. His very presence was a power. After his retirement to Canada he still for many years continued to return to us for his courses of lectures; and always his coming was hailed, alike by Faculty and students, as a great and inspiriting occasion. None were too mature to listen to him gladly; and, whether in the class room or in that social converse to which he so generously welcomed even his boys, he was not only a rare intellectual force but a potent inspiration to character. Who of us can ever forget that spare and stately though slightly stooping figure,—that face so eloquent of thought and of experience, so noble in its grave and lofty calm,—that mirthful and mirth-provoking smile which ever and anon broke like a sunbeam through its sadness,—that quizzical twitching of the mouth which heralded and softened his satire,—that voice, so quiet yet so expressive? These, with his pure and noble life and his loyal and unselfish services to Cornell, will be a memory long cherished by this Faculty. He will stand out in the history of the University as one of those who did most to shape and to vitalize its early career.

THE FACULTY'S STANDING COMMITTEES

1. Admission by Certificate—During the year 1909–10 the number of schools from which students were received by certificate was 264, and the number of students presenting certificates was 586. The number of schools whose students had no mark below a pass was 107, and the number of students admitted with no mark below a pass was 293. These figures on the number of students admitted with no mark below a pass show a marked improvement over the years 1907–08 and 1908–09. Thirty-five schools, warned in the period from 1906 to 1909, have sent no students to the University since the date of warning, and the schools have been continued as on probation. The privilege of recommending students in one or more subjects was withdrawn from five schools, and the entire privilege

withdrawn from one school. Thirty schools received notification that the work done by their graduates, admitted at the beginning of the year, was unsatisfactory.

In the report of last year, written by Dean Crane, reference was made to the proposed Entrance Certificate Board to be created under the authorization of the Association of Colleges and Preparatory Schools of the Middle States and Maryland. Up to the present time not enough colleges have ratified the proposed constitution to enable the organization to begin work. At the last general meeting of the institutions interested in this matter, the delegate from Cornell University was Professor G. P. Bristol, Chairman of the Committee on Admission by Certificate, who made a report adverse to our participation in the proposed Certificate Board. Our own system, developed through twenty-five years of careful work and attention to details, seemed to promise better satisfaction of our needs than the plan under consideration by the new organization. With the present administration of our own system, there is a minimum of friction between both parties interested in it, the University and the secondary schools, and there is greater satisfaction with the results than at any time hitherto.

There are still weak points in the system and these are inherent in its nature. The pressure to grant a certificate may be almost irresistible in certain cases, and such pressure is more likely to come from private than from public schools. A few years ago the University Faculty had before it a proposition to discontinue the practice of admitting students upon certificate from private schools. A majority of the Faculty appeared at that time to favor such a movement, but the opposition of a part of the members was so strong that the matter was dropped. There is now a feeling in the committee that the question might wisely be renewed. With the steady extension of the system of examinations of the College Entrance Examination Board, there seems to be less reason for maintaining the certificate privilege in the case of private schools, i.e., of endowed institutions charging tuition, than there was hitherto. The expense involved, if the students at such schools have to go some little distance to attend an examination of the Board, is small and needs scarcely be considered in the case of students who are able to attend this class of schools.

The provisional acceptance of 60 per cent, as a pass mark for credentials issued by the State Department of Education, continues under the conditions laid down last year, that is, the acceptance of 60 per cent during the period of 1909–1913. As yet, there are not sufficient data at hand to determine whether this tentative arrangement will prove satisfactory or not.

The new Standing Committee on Relations to Secondary Schools, authorized on March 11, 1910 and referred to above, was constituted with a desire to place the various questions that relate to the articulation between school and college, including the question of school certificates, under the jurisdiction of a single committee. The new committee, it has been thought, might in process of time, take over the functions of the Committee on Admission by Certificate. The Committee on Relations to Secondary Schools will not organize its work until the beginning of the next academic year.

2. University Undergraduate Scholarships—The policy of the committee during the past year has been marked by certain new departures of importance. Hitherto when a vacancy has been created for any reason, it has been found impracticable to fill it by a new appointment. Consequently the scholarship in such cases has lapsed. This year, however, it was suggested that vacancies be filled from the list of competing candidates of merit who had failed to win an original appointment. A vacancy was caused by the death of one of the freshmen scholarship holders in December, 1909, and the committee at the end of the first semester recommended to the Faculty the method above mentioned of appointing a successor. This proposal met the approval of the Faculty and seems to offer a suitable precedent for dealing with similar cases in the future. At times, of course, there may be no one of the unsuccessful competing candidates whose merit warrants appointment. No satisfactory method of dealing with such cases has yet suggested itself to the committee.

Another question brought up for the first time this year touched the extent of the claim of the estate of a scholarship holder who died during his incumbency. This question was raised by the death of the incumbent above referred to. The committee, upon the suggestion of the Executive Committee of the Board of Trustees, recommended a pro rata payment in such cases, and the Faculty at once adopted this recommendation as a just practice, applicable to this and similar cases.

The work of the scholarship holders has been most satisfactory. At the end of the first semester a few students were of lower grades in certain studies than the committee felt was warranted by the proper standards for the incumbents of these scholarships. They were informed by the committee that better work was expected, and at the close of the year these students made a showing that was entirely satisfactory. The general proficiency of the entire number of 36 incumbents for the second semester was such that it was unnecessary to call a meeting of the committee to consider whether they were entitled to receive their stipends. It was perfectly clear that all had done excellent work.

3. Excuses from Physical Training—The work of this committee covers excuses from the two Departments of Physical Culture for men and for women and the Department of Military Science and Tactics.

a) Department of Physical Culture for Women. In Sage College 197 students were required, according to statute, to take physical training.

Attended prescribed work		148
Excused for physical disability	36	
Excused because of outside labor	13	49
Total		197

b) Department of Physical Culture for Men.

Excused:	
For physical defects	20
Labor students	20
Total excused	40

c) Department of Military Science and Tactics. The following figures are based upon the enrollment in the department on the date of the annual inspection, May 26, 1910:

Aggregate number of Cadets in the Cadet Corps		589
Freshmen required to take drill	491	
Volunteers from upper classes	98	
Total	589	
Total number of men students in the freshman class (approximate)		1,000
Total number of freshmen taking drill		491
Number of freshmen not taking drill		509

The 509 freshmen not taking drill are classifiable as follows:

Freshmen defaulting in drill		76
Freshmen excused by authority:		
Athletics	100	
Physical disability	53	
Labor students	131	
Aliens	34	
Quakers	3	
Passed up because of military work in other schools	46	
Three year courses, etc.	66	
Total excused		433
Aggregate		509

Excuses granted for athletics to the number of 100, as indicated in the foregoing table, were apportioned as follows (by the Athletic Council):

Track	35
Crew, including five coxswains	40
Lacrosse	11
Fencing	4
Baseball	10
Total	100

In 1907–08 the maximum number of excuses authorized was 82. In 1908–09 the number was raised to 120 in order to meet possible contingencies, but only 101 were actually called for and excused. In 1909–10 the maximum number of excuses for athletics authorized by the committee was 100.

4. Student Affairs—The duties of this committee consist in the regulation of student organizations, both athletic and non-athletic, and in the administration of discipline for misconduct. In regard to the regulation of student organizations, the committee censors all schedules for intercollegiate contests, both in Ithaca and abroad, including events conneeted with non-athletic organizations, such as the musical clubs, the orchestra, dramatic clubs, debates, and also fraternity delegates. The number of men entitled to leave Ithaca in order to participate in out-of-town engagements is determined by the committee, and a recommendation is then issued to the Dean of the college concerned that individuals thus named are eligible for leaves of absence. The number of leaves of absence requested on behalf of student organizations is relatively small. The maximum number of absences permitted by the committee to any individual for one term is seven days and this maximum is rarely reached. It is the established policy of the committee not to grant or recommend leaves of absence for events in Ithaca. The record of individual leaves of absence is placed on file in the Registrar's office and an examination of the same will show that leaves granted to individuals on account of student organizations have not been excessive.

In regard to the administration of discipline for misconduct, the committee has spent a good deal of time on this aspect of its duties. A careful examination of the records of the police court of the City of Ithaca during the calendar year 1909 showed that only 42 cases had come under the court's jurisdiction, and these were for minor violations of city ordinances, and there were no crimes committed against property or persons. In the academic year from September 1, 1909 to July 1, 1910, 19 students were arrested and convicted in the city court. Four of these had sentence suspended. The remaining 15 cases consisted of minor offenses,—disorderly conduct, theatre disturbances, violation of speed law, etc.

On the whole, the committee regards the statistics drawn from the court's records as evidence of an unusually high condition of obedience to law on the part of so large a student population.

There were 14 cases brought before the committee for fraud in examination. Of these 14 students, 12 were found guilty, 6 of whom were removed from the University, and 6 were "paroled," reprimanded, or had their credits cancelled. As to the committee's work in relation to the general conduct of students, there has been in the past no efficient machinery by which the committee could discover what students were delinquent either in studies or morals. All students come to the University with certificates of good moral character and with educational credentials that furnish assurance of their having gone through a period of rigorous mental discipline. The committee estimates that 99 per cent of the students in the University are above reproach, so far as their moral conduct is concerned. They go about their daily work regularly and in every way maintain the traditions of the University as regards good behavior. A small contingent, however, probably not in excess of one per cent of the entire student population, have, for one reason or another, false standards of living and fall into dissolute habits and waste their time until they are dropped from the University rolls by their faculties. Heretofore, the University has left these individuals without any supervision, and there would be justification for this course, no doubt, were it not for the fact that the University as a whole is judged by a disorderly contingent of this sort, however small. In order to improve these conditions, the committee called into consultation a committee of students, seven of whom were seniors and five juniors, at the middle of the academic year. After a thorough consideration of the situation, the committee of students recommended to the Faculty's committee the adoption of a system in vogue at some other Universities, whereby a proctor or patrol officer is employed to work in co-operation with the student committee and the faculty committee for the betterment of conditions among students. On the recommendation of the two committees, the Trustees of the University unanimously approved this plan and made the necessary appropriation to carry it out.

During the past two years there has been considerable agitation in the college press regarding the so-called "hat clubs," particularly those going under the names "Mummy Club" and "Nalanda Club." The committee investigated the scholarship record of the members of these clubs for several years back, and after consulting with alumni who have been members of

them, the committee came to the conclusion that these clubs were a menace to the discipline of the University and should therefore be judiciously and insistently reformed or abolished. The continuance of the clubs was permitted by the committee, subject to their pledging prescribed reforms, and the committee further forbade the use of the clubs' insignia as militating against the spirit of democracy in the University. The clubs declined to conform to the committee's requirements, and it was therefore ordered that the clubs be forthwith disbanded.

Respectfully submitted,

WM. A. HAMMOND,

Secretary of the University Faculty.

APPENDIX III

REPORT OF THE DEAN OF THE GRADUATE SCHOOL

To the President of the University:

SIR: I have the honor to submit herewith my first report as Dean of the Faculty of the Graduate School.

ORGANIZATION

The action of the Board of Trustees establishing the Graduate School was communicated to the University Faculty on April 16, 1909, and reads as follows:

Resolved, (1) That the division of the Graduate School which has hitherto been designated the Graduate Department shall after Commencement Day, 1909, be designated the Graduate School;

(2) That the Faculty of the Graduate School shall consist of those professors and assistant professors who are actively engaged in supervising the work of graduate students as members of special committees in charge of the major and minor subjects;

(3) That this Faculty shall have exclusive jurisdiction over all graduate work and advanced degrees;

(4) That legislation for the further organization of this Faculty await the recommendations of the Faculty itself. And the President is hereby authorized to convoke this Faculty and request them to consider this subject and also any matters relating to graduate work and advanced degrees which they may deem expedient; it being understood, however, that all matters relating to graduate work and advanced degrees for the year 1908–1909 remain as heretofore in the hands of the University Faculty;

(5) That the new Faculty hereby created shall on Commencement Day, 1909, and thereafter, take over completely from the University Faculty all its functions and powers in relation to graduate work and advanced degrees and shall thereafter have exclusive jurisdiction over such matters.

At the first meeting of the Faculty of the Graduate School, held on April 23, 1909, it was voted "that the President be requested to nominate a Dean of the Faculty." The nomination of Professor Ernest Merritt as Dean was presented by the President and confirmed by the Faculty on May 13, 1909.

At its third meeting, on May 27, the Faculty referred the question of the further organization to a committee, consisting of the Dean, as chairman, and ten other members, two being elected at large, and two from each of four groups in the Faculty, namely the groups of Arts, of Pure Sciences, of Constructive Sciences, and of the sciences represented in the Colleges of Agriculture, of Medicine, and of Veterinary Medicine. The following were elected members of the committee: Professors Bristol, Comstock, Dennis, Haskell, Hull, Jenks, Kimball, Moore, Nichols, Sampson. In the fall of 1909, this committee also took over the functions of the former Committee on Graduate Work of the University Faculty.

The committee presented a preliminary report on December 10, 1909, giving the outline of a plan of organization and requesting an expression of the opinion of the Faculty on the general principles involved. The main features of the plan proposed were approved by the Faculty and the committee presented a formal report on March 11, 1910, which, after slight amendment, was adopted by the Faculty in the following form:

I

For the convenient discussion of questions which chiefly concern those engaged in related fields of work, and for the purpose of electing representatives to the General Committee of the Graduate School, the members of this Faculty are to be divided into five groups, as follows:

A. Languages and Literatures.

B. History, Political Science, Law, Philosophy, Education.

C. Mathematics, Astronomy, Physics, Chemistry, Geology, Physical Geography.

D. Biological Sciences.

E. Engineering, Architecture, Applied Physical Sciences.

Each member of this Faculty will be requested to indicate the group to which he desires to belong. In case the nature of the work renders membership in two groups proper, this is to be permitted.

II

The General Committee of the Graduate School will consist of five members at large elected by the Faculty, and five members elected by the groups, one member being elected by each group. The Dean shall be *ex-officio* chairman of the General Committee.

The term of office of the members of the General Committee is to be three years, the length of term for the members first elected to be arranged by lot after their election so as to make the number retiring each year as nearly as possible equal. New members of the General Committee are to take office on May 1.

The representatives of each group on the General Committee shall be *ex-officio* chairman of that group.

It shall be the duty of the General Committee to pass upon questions which do not involve a change of policy; to consider such matters as may be referred to it by the Faculty; and upon its own initiative to make recommendations to the Faculty regarding questions involving the interests of the Graduate School.

Meetings of the five groups of the Faculty, organized in accordance with the above action, were held soon after the action was taken, and in the case of two groups several meetings were held before the close of the college year. Besides electing representatives on the General Committee, the groups discussed certain questions raised by the General Committee regarding admission to the Graduate School and admission to candidacy for advanced degrees, and have in several instances made recommendations to the Faculty which will come up for consideration in the fall.

The groups prove to be more nearly equal numerically than might be expected, the number of members in each being at present as follows: A, 20; B, 21; C, 25; D, 37; E, 21. Eleven members of the Faculty elected to become members of two groups.

In establishing these five groups, the Faculty has not delegated to them any part of its control of graduate work. The final decision will in all cases still remain with the Faculty. Each group, however, constitutes a committee whose members are engaged in related lines of work, and who therefore approach the questions connected with graduate work from much the same point of view. It seems probable that many of the problems of the Graduate School may be handled more efficiently by having their discussion by the groups precede their discussion by the Faculty.

It will be noticed that the authority of the General Committee is limited to the decision of such questions as do not involve a change in policy. But, like the groups of the Faculty, it is authorized to make recommendations to the Faculty on its own initiative regarding any questions which concern the interests of graduate work. Containing as it does representatives elected from all branches of the Faculty, the General Committee will in all likelihood exert an important influence on the policy of the Graduate School.

No further questions regarding the organization of the Graduate School are now under consideration, either by the Faculty or the General Committee. The purposes of such organization seem to me to be two in number: (1) to systematize the administrative work of the Graduate School in such a way as to reduce this routine to the minimum compatible with efficiency and to leave each member of the Faculty as free as possible to devote himself to teaching and scholarly work; and (2) to facilitate the interchange of views among the members of the Faculty, to the end that a uniformly high standard may be maintained in all lines of graduate work. If experience shows that these purposes are accomplished, I believe that any future elaboration of the plan of organization is undesirable. Too much systematization—or standardization—is to be deplored in all lines of teaching; but it is especially to be avoided in the case of graduate teaching, where the individual and personal element plays so important a part.

GRADUATE WORK DURING THE SUMMER

On several occasions during the past five years the Dean of the University Faculty has called attention to the need of a more clearly defined policy in regard to graduate work in the summer.* The students who desire to do

*See the report of the Dean of the University Faculty, (Appendix II to the President's Report), 1904–5 p. XVII; 1905–6, p. XV; 1906–7, p. XX; 1907–8, p. XVII; 1908–9 p XIX.

graduate work during the summer, fall into two groups: (1) Graduates of Cornell or of other universities, usually teachers, who attend the summer session and wish to obtain an advanced degree by summer work only. For several years past, special provision has been made for this class of students in the summer sessions of the Universities of Chicago, Columbia, Wisconsin, Michigan, and many other universities, and in several instances graduate work has become an important feature of the summer session. (2) Graduate students who are in residence during the regular session of the University, but who for various reasons find it desirable to continue their work during the summer. In several of the biological sciences, for example, the conditions for advanced work are especially favorable during the summer months and many lines of investigation can scarcely be carried on at any other time.

The General Committee was helped in the consideration of the question of summer work by the replies to a circular letter which was sent to all members of the Faculty asking for an expression of opinion on the subject. The recommendations of the committee, first presented to the Faculty on December 17, 1909, were finally adopted at the meeting on January 14, 1910, in the following form:

Resolved, That members of the University Faculty who desire to offer summer work for graduate students are authorized to do so; and that students taking such summer work may, at the discretion of their special committees, be relieved from residence during an equal part of the University year. But no graduate student shall receive credit for more than two terms' credit during any twelve consecutive months, and work done during the summer must be done under the personal direction of the member of the committee having charge of the work.

Work done in the summer session, under the direction of a member of the Faculty of the Graduate School, may be counted for residence toward the Master's degree under the following conditions:

One term's residence to be satisfied by three summer sessions and two terms' residence by five summer sessions.

It will be seen that the Faculty's action exerts no pressure upon its members to provide for graduate work in the summer. It is to be assumed, therefore, that such work will be offered only by those members of the Faculty who find the conditions favorable to its successful prosecution. While the predominant sentiment of the Faculty was in favor of granting credit toward an advanced degree for graduate work done in the summer session, a considerable number were of the opinion that such work could not be properly done in their particular subjects. In correspondence with prospective students I have called attention to the fact that graduate work is not offered in all subjects, and that its continuance from year to year cannot be guaranteed.

GENERAL FACULTY ACTION

For a number of years past, the degrees of Master of Civil Engineering, Master of Mechanical Engineering, and Master of Science in Agriculture have in special cases been conferred upon graduates of this University after two years of professional practice and study *in absentia*. In the spring of 1909, the Faculty of the College of Agriculture voted to recommend to the

University Faculty that this practice, in the case of the degree of M.S. in Agr., be discontinued. The recommendation was received too late to be acted upon before the close of the academic year, and was therefore presented to the Faculty of the Graduate School. In the meantime a similar recommendation had been voted by the Faculty of Sibley College with regard to the degree of M.M.E., and the Faculty of the College of Civil Engineering later recommended that the degree of M.C.E. be no longer conferred for work done *in absentia*. The first two recommendations were adopted by the Faculty of the Graduate School on March 23, and the last was adopted on May 13, 1910.

On March 23, acting upon the recommendation of the General Committee, the Faculty took the following action affecting the eligibility of instructors to membership on this Faculty:

> Instructors who hold the Doctor's degree are to be eligible for membership on the special committees in charge of the work of graduate students.
>
> This Faculty recommends to the Board of Trustees such a change in the statute establishing the Graduate School as will add to the Faculty those instructors who are actively engaged in supervising the work of graduate students as members of special committees in charge of the major and minor subjects.

The recommendation of the Faculty was adopted by the Board of Trustees on May 24. During the year 1909–10, there were twenty instructors who held the degree of Ph.D. and who might therefore become members of the Faculty of the Graduate School in case graduate students should select work with them for a major or minor subject.

In the past the distinction between the special committee, in charge of the work of the graduate students, and the examining committee, which conducts the examination for the degree, has not been entirely clear, although the prevailing practice has been for the special committee to act also as the examining committee. In a report presented to the Faculty on December 10, 1909, the General Committee recommended the adoption of the following resolution:

> *Resolved*, That the examining committee for the Doctor's degree should contain two members in addition to the members of the candidate's special committee, these additional members to be selected by the Dean; and that the examining committee for the Master's degree should have one member in addition to the members of the special committee.

The recommendation was approved in principle by the Faculty on December 20 by a vote of 37 to 17. But when the resolution came up for final action on March 23, 1910, it failed of adoption by a vote of 14 to 14. At the same meeting on motion of the President it was voted that

> All examinations for advanced degrees are examinations of this Faculty, and it is the right of every member of the Faculty to attend the examinations.

The Dean was requested by the Faculty, "in announcing the examinations for the advanced degrees to qualify them in terms of the groups into which this Faculty has been divided."

On March 23 the Faculty adopted the following statement regarding the normal distribution of time between the major and minor subjects required for the Doctor's degree:

Ordinarily not less than one-half of the time of a candidate for the degree of Doctor of Philosophy shall be devoted to his major subject, and not more than one-quarter of his time to each minor subject. But a different distribution of time may be made in case the members of his special committee are agreed.

POLICY AND DEVELOPMENT OF THE GRADUATE SCHOOL

The establishment of the Graduate School, by directing special attention to graduate work, has naturally led to the discussion by the Faculty of fundamental questions of policy as well as of problems of organization. As a result of such discussion the Faculty on December 17, 1909, adopted the following statement:

The purpose of the Graduate School is to provide the student with the method and discipline of original research, to the ultimate end that he may contribute to the advancement of knowledge. In furnishing this opportunity for independent investigation, the school seeks to make conditions of study such as will enable the candidate for an advanced degree to devote himself wholly to his chosen field, unhampered by the restrictions that necessarily obtain in undergraduate work. From the undergraduate examinations and recitations he will come into freedom of association with older scholars who will seek to make his work profitable to him by giving him such aid and direction as he may show himself to need. The daily lesson is largely replaced by the larger task, whose accomplishment lies mainly in the student's own hands, after the facilities of the library and laboratory and friendly guidance have been placed at his service. Inasmuch as subjects vary greatly, requirements for all subjects are impossible to state in terms that shall be at the same time specific and uniform. In some departments of knowledge, original research may begin with the student's entrance into the school, while in other and older departments of knowledge, much preliminary graduate work is needed to fit the candidate for profitable research. But in all cases certain obvious requirements are made, a definite minimum period of residence, the mastery of some one subject, adequate acquaintance with allied subjects, the passing of a final examination, and the presentation of a satisfactory thesis.

Previous to the retirement of the first General Committee on May 1, this committee prepared a report of a general character on the needs and policy of the Graduate School. At the meeting on May 13, the recommendations of the committee were adopted in detail and the report as a whole was then adopted by unanimous vote. Representing as it does the sentiment of the Faculty as a whole, this report, which is given below, may well take the place of the discussion by myself of the important questions which it raises.

REPORT OF THE GENERAL COMMITTEE

The first Committee of the Graduate School, elected in June, 1909, was instructed by the Faculty to recommend a plan for the permanent organization of the School. From time to time during the year the committee has

made reports to the Faculty in accordance with these instructions, and the essential features of the plan proposed have been adopted. During the consideration of the problem of organization the committee has frequently been led to discuss questions of a more general character, in which the interests of the University as a whole, as well as the interests of the Graduate School, are involved. At this time, when the establishment of the Graduate School has directed especial attention to the problems of advanced instruction and research, it seems peculiarly appropriate that such broad and fundamental questions should receive consideration, and the committee therefore presents to the Faculty the following report:

In the opinion of your committee a Graduate School is preeminently a school of research. Its purpose is to contribute to the advancement of knowledge, both by the training for productive scholarship which it offers to its students, and through the investigations carried on by the members of its Faculty. A graduate school which is associated with a group of undergraduate colleges as a part of a university may serve another purpose of almost equal importance through its influence on the undergraduate body. In the development of the Graduate School of Cornell University that policy should be pursued which accomplishes these purposes most fully and efficiently.

In this country, recognition of the fact that graduate work and research are essential features of a true university has come only gradually. But the appreciation of the importance of such work is now widespread, both in university circles and among the public generally. Of especial significance is the position taken by the Association of American Universities, which makes membership in the Association conditional upon the possession of a strong graduate department. This University was among the first to recognize the importance of advanced work, and opportunities for advanced study have been offered almost from the opening of the University in 1868. The first Doctor of Philosophy received his degree in 1872, and since that time more than a thousand advanced degrees, over three hundred of them being doctorates, have been conferred. The high standing attained by the holders of our advanced degrees as teachers and investigators, and in other lines of professional work, is sufficient evidence of the success of our graduate department in the past; while the fact that this success has been achieved with incomplete organization, and without systematic efforts to promote graduate work, encourages us to hope that still greater success may be attained in the future.

There are several obvious ways in which our Graduate School might be strengthened: for example, by the establishment of new professorships, and by improved facilities in the way of material equipment. As money becomes available, we have no doubt that these needs of the Graduate School will receive the careful attention of the President and Board of Trustees. In the meantime we deem it advisable for the recently organized groups in our Faculty to consider what are the most urgent needs of the School as they affect that group. As occasion arises, it will then be possible for this Faculty to make definite recommendations and to furnish such information as may be needed by the President in the consideration of such recommendations.

Since, however, no adequate fund is now available for the expansion of the Graduate School, it is important for us to consider in what ways graduate work may be strengthened under the conditions which now exist. While widely different opinions are doubtless held regarding the relative importance of the different lines of work represented in the University, no member of this Faculty would wish to see proper financial support withdrawn from one college or school in order to develop another, however desirable such development might be in itself. It is important, therefore, that we should carefully consider the place which a graduate school should occupy in a symmetrically developed university. Once a substantial agreement has been reached by the members of this Faculty regarding the ideal toward which the University should strive, we may reasonably expect that progress toward the attainment of this ideal will begin.

To assist in the discussion of the problems which confront the Graduate School, tables have been prepared—contained in the appendix to this report—giving the registration of graduate students at Cornell and at other universities, the growth of the Graduate School during the past fifteen years, and other statistics of interest to members of the Faculty. The facts brought out by these tables and by the discussion which accompanies them seem to justify two conclusions:—

(1) That our Graduate School, as compared with the graduate schools of other universities, is not as strong numerically as the standing of Cornell in other respects would lead us to desire and expect (Table I); (2) that while the number of graduate students is slowly increasing, the growth of the Graduate School is not so rapid as that of the undergraduate colleges of the University (Table II).

Although statistics bearing upon the numerical strength of our Graduate School have been used as a basis for the discussion which follows, it is by no means our desire to assign great weight to mere numbers in estimating the success of graduate work. A university which contributes its share to the advancement of knowledge through the efforts of its faculty, and whose undergraduates receive through association with their teachers such inspiration as will make them independent and progressive thinkers, may fairly be said to possess a strong and successful graduate school, even if it has only a few graduate students. Numerical weakness in graduate work is significant only because it raises the presumption that a university is also weak in the features which attract advanced students, namely, facilities for investigation, and activity on the part of its faculty in research and progressive scholarship. A university can get along without graduate students; but if it lacks the qualities which attract such students it is no longer in any true sense a university. In our opinion, the fact that the percentage of graduate students at Cornell has steadily diminished for over fifteen years is a signal of danger, which should not be ignored.

The discussion of the more remote and obscure causes which have contributed to this result presents many difficulties, and would probably be neither profitable nor convincing. It seems clear, however, that an important cause is to be found in the rapid growth of the undergraduate colleges. Each year instruction must be provided for two or three hundred

more undergraduates. The demands thus made upon the time and energy of our teachers, and upon the income of the University, are immediate and pressing. In consequence the University is unable to provide the expensive material equipment which is absolutely essential in many lines of advanced work; the time which the members of the teaching staff can give to graduate instruction is restricted; and worst of all, the pressure of administrative work and elementary instruction compels the members of our Faculty to reduce greatly the time devoted to investigation and other scholarly work.

While citing these unfortunate results of the growth of the University, it is proper to direct attention also to certain equally obvious benefits which the Graduate School receives from the increase in the number of undergraduates. It is customary here, as in other universities, to provide for the increasing needs of elementary instruction by the appointment of instructors and assistants who combine graduate study with their teaching work. Of the 311 students now registered in the Graduate School 124 are members of the teaching staff. In some departments practically the whole increase in the number of graduate students during the past fifteen years may be accounted for by the increase in the number of instructors and assistants. This body of young men, who are at the same time students and teachers, forms a very desirable element in the Graduate School, and one whose presence is largely due to the rapid growth of the undergraduate colleges.

It is often said that the only limit to the growth of a university, even without an increase in its endowment, is that set by the capacity of its class rooms and laboratories; for as the attendance increases, the salaries of the additional teachers required will be met by the increased receipts from tuition. The data presented in Table IV show that Cornell has in fact very nearly reached a condition for which the above statement is correct. If the present tendency is allowed to continue until the average salary of our teachers has fallen to $1070, instead of $1190 as at present, the salary of each additional teacher will be paid by the tuition received from the new students who make his presence necessary, and the growth of the University can continue—until checked by the inadequacy of our material equipment—without further change in the relative number of professors, instructors, and assistants on our instructing staff. In the past, however, the growth of the University has necessitated a steady decrease in the relative number of professors and assistant professors on our instructing staff. In 1898–1899, 41 per cent of our teachers were of the professorial grade. At present only 33.5 per cent are of that rank. If the percentage had remained the same as in 1898–1899 we should now have 233 professors in our University Faculty instead of 189. It must not be forgotten that an increase in the number of undergraduates brings with it an additional burden of administrative work, and that this burden, together with the responsibility of planning the work of instruction so as to handle such large numbers, must fall upon the *permanent* members of the staff. Unless the permanent staff is increased in the same ratio as the whole teaching staff, the time of the members of our Faculty will be increasingly occupied by administrative routine, and ad-

vanced work and research must necessarily suffer. It is doubtless a coincidence, and yet not devoid of significance, that the decrease in the relative number of graduate students is almost exactly the same as the decrease in the percentage of professors and assistant professors.

It is apparent that further increase in undergraduate instruction must necessitate the erection of additional buildings and the expansion of the material equipment. Several of our colleges and departments are already so crowded that growth is impossible without an increase in buildings and equipment. Under such circumstances the growth of these colleges and departments, unless provided for by additional endowment, would necessarily require a withdrawal of financial support—already inadequate—from the Graduate School, and at the same time a lowering of the standard of teaching throughout the University. Assuming that increased endowment for material growth is obtained, we may still properly ask whether an institution in which the average teacher's salary is $1070, and in which nearly half of the instruction is in the hands of temporary assistants receiving a salary of $500 or less, represents the type of institution that we are content to accept as our ideal in the development of Cornell University. May it not be that we can do more good for the cause of education by directing our efforts toward making Cornell the best university in the country, rather than the largest?

If we are to retain the advantages which a university possesses as compared with a number of isolated colleges, a proper balance should be maintained between the different colleges of the University; and in each college we should strive to bring about such a growth within each department as will preserve a proper proportion between elementary and advanced work.

The present condition is not one which will take care of itself. It may be urged that a proper balance between graduate and undergraduate work will be automatically maintained; that provision need not be made for advanced instruction until the demand is shown by a large increase in the attendance of graduate students. Such an argument, however, ignores several essential facts. It is a relatively simple matter for a teacher to drop his advanced work in order to give instruction to elementary classes. But it is a different thing for a man whose time has been occupied by the routine of administration and elementary work to change suddenly to graduate instruction and the direction of research. Again, from the standpoint of a graduate student, the attractiveness of a university is determined either by the excellence of its facilities for experimental work, or by the standing of the members of its faculty as investigators and progressive scholars. Unless our Faculty contains men eminent in their fields of knowledge and prepared to give graduate students the special training and the inspiration that they seek, and unless the University already possesses the material equipment that is required, graduate students will not come to us. Provision for graduate students must be made years in advance, and not after the need of it has been shown by the returns from the Registrar's office.

The problem to which we invite the attention of the Faculty is, therefore, not merely the strengthening of the Graduate School for its own sake.

It is rather that of stimulating increased activity in those lines of work which distinguish a true university from a large college, to the end that Cornell may retain the honorable position which she has held in the past, and now holds, among the universities of the country.

In the opinion of your committee one of the most effective means of strengthening the Graduate School, and at the same time of maintaining a high standard of undergraduate teaching, is for the members of this Faculty to use their influence, both individually and as a body, to encourage scholarly work among all members of the instructing staff. Let it be understood that each member of our staff is expected to contribute in some way to the advancement of knowledge, and not merely to teach what he has received from others. If there are any who are overburdened with routine teaching, the load should be lightened to such an extent as to make research possible. Whenever it is practicable, each member of the staff should be given the opportunity of taking part to some extent in advanced teaching as well as in elementary work. Most important of all, recommendations for appointment or advancement should usually be determined not merely by success in teaching or in administrative work, but largely by ability and activity in scholarly work and investigation.

These suggestions do not possess any especial novelty. They doubtless represent the policy which many—perhaps most—of the departments of the University already attempt to follow; and in all likelihood, they will be accepted in principle by all members of the Faculty. We feel, however, that concerted action by the Faculty, and perhaps the adoption of definite resolutions embodying these, or similar principles, is desirable.

Even if the interests of the Graduate School alone were to be considered it would not be desirable to differentiate graduate work from the other work of the University to such an extent as to have the Faculty of the Graduate School made up of professors whose whole time is devoted to graduate work and research. And in its effect on the University as a whole, we feel that such a policy would be very unfortunate. In our opinion one of the most important benefits of a strong graduate school arises from the influence which it may be made to exert upon the undergraduate body. The mere presence at the University of a body of advanced students and investigators means little to the undergraduate. But if he actually receives his instruction from these men he can scarcely fail to acquire to some extent their point of view. The spirit of progress and the attitude of fair and open minded inquiry, which a graduate school preeminently represents, are the mental qualities that are needed more than any others in all lines of life. Unless our undergraduates acquire in some degree this spirit their college education has failed in its most important object,—beside which the mere acquisition of knowledge is of little moment.

But we cannot expect teachers to give to their students a spirit which they do not themselves possess. And while teachers whose whole time is occupied by elementary teaching and routine may make excellent drill masters, such a condition is in the highest degree unfavorable for the maintenance of the spirit of progressive scholarship. It seems clear, therefore, that if the University is to achieve its highest purpose it must first of all demand of

all its teachers those characteristics which are recognized as essential to membership in this Faculty; and having done so, it should assist in maintaining their activity and enthusiasm by encouraging all teachers, young and old, to contribute to progress in their fields of knowledge by scholarly work and investigation. Those who are sufficiently mature should further be given the opportunity of taking part in the direction of graduate work.

We feel that such a policy will contribute both to the effectiveness of undergraduate teaching and to the strength of the Graduate School. If the income of the University does not permit a great increase in this Faculty by the apppointment of professors whose chief work is with graduate students, we may nevertheless increase its effective strength by calling to our assistance all members of the staff whose training has prepared them to take part in such instruction. If we cannot call from other universities as many eminent men as we might desire, we may at least take such steps as will help in the development of men of eminence here. Such men may prove as valuable to the University during their development as when their reputations are established.

There is another way in which your committee feels that the efficiency of the Graduate School and of the University might be increased. The growth of the University has brought with it a large increase in the routine administrative work connected with teaching. This is doubtless most marked in the departments which have laboratories, but it is felt to a greater or less extent by all. It is, moreover, the heads of the departments who usually suffer most from the increased demands upon their time from this cause. In some cases the situation is improved to some extent by distributing such work, and the responsibility which goes with it, among several members of the department, so that the burden on any one individual is not a serious one. But in many cases the work could be more economically handled by providing a sufficient number of assistants outside of the instructing staff—stenographers, clerks, laboratory helpers, etc.—who work under the direction of the professors in charge. To obtain real relief in this way it would be necessary to pay salaries that are comparable to what such men and women would receive for similar work outside of the University. But even then the saving to the University would be very considerable. At present some of our best men are largely prevented from devoting their time to the real university work of teaching and investigation, not by the time required for the consideration of broad questions of policy, but by the purely routine duties connected with the administration of their departments. While we are aware that the problem is one that requires action by individual departments and by the administrative authorities of the University rather than by this Faculty, the results of the present situation seem to us so serious as to call for mention in this report.

We desire finally to direct attention to another matter whose indirect bearing upon the success of the Graduate School is important. The statute establishing the Graduate School has made this Faculty responsible for all graduate work, in whatever college or department such work may be done. Among the many benefits which we believe will follow from this plan of organization is that of increased co-operation between members of this

Faculty in providing for the needs of graduate students. We feel, however, that such co-operation should be voluntary, and should come spontaneously as the result of discussion between individual members of the Faculty working in related fields. In the opinion of your committee, this Faculty is not to be regarded as a federation of colleges or of departments, but as an association of individuals having equal rights and privileges with respect to graduate work.

In presenting this report the committee's chief purpose has been to bring before the Faculty for consideration certain questions of policy, which in our opinion are of greater importance in the development of the Graduate School than any details of organization or administration. In order to facilitate action by the Faculty, if such action is desired, we have summarized the recommendations of the committee in the following paragraphs:—

(1) It is recommended that each group in this Faculty take under consideration the needs of the Graduate School as they affect that group, with a view to making recommendations to the Faculty, or through this Faculty to the President and Board of Trustees, in regard to such action as the best interests of graduate work may seem to demand. Whenever the financial condition of the University permits increased appropriations for graduate work and research, this Faculty will then be in a position to make definite recommendations and to furnish such information as may be needed in their consideration.

(2) It is important for the interests of the Graduate School and of the University as a whole that the work of teaching be so distributed that all members of the instructing staff may have a reasonable amount of time for scholarly work and research. And it is recommended that all members of this Faculty use their influence, both collectively and individually, to encourage such work by all members of the teaching staff.

(3) So far as practicable each member of the staff should be given the opportunity of taking part in advanced instruction as well as in elementary teaching.

(4) Recommendation for appointment and promotion should be contingent upon the possession of ability and activity in scholarly work and investigation, and not merely upon success in teaching.

(5) In order that those members of the Faculty who are charged with the administration of large departments should still be able to devote the greater part of their time to the real university work of teaching and investigation and to broad questions of policy, it is highly desirable that they should be provided with such assistance from outside the teaching staff as will relieve them from the purely routine work which now occupies so large a part of the time of many of our most highly paid professors. The economy that could be effected by such a policy is so great as to justify the payment to assistants of salaries that are comparable to those paid for similar services outside the University. Without such salaries it is rarely possible to secure and retain the services of competent persons, and the relief obtained by our department heads is either temporary or altogether illusory.

(6) This Faculty is not to be regarded as a federation of colleges or departments, but as an association of individuals having equal rights and privileges in respect to graduate work.

(7) The best interests of the University require a symmetrical development of the several departments and colleges. In the growth of each college and department a proper proportion should be maintained between the energy devoted to undergraduate instruction on the one hand, and that devoted to graduate work and investigation on the other. If the conditions do not permit the proportionate development of these two phases of university work, steps should be taken to restrict further increase in our undergraduate registration.

G. P. Bristol, J. W. Jenks,
J. H. Comstock, D. S. Kimball,
L. M. Dennis, V. A. Moore,
E. E. Haskell, E. L. Nichols,
C. H. Hull, M. W. Sampson,
Ernest Merrit, *Chairman.*

The tables referred to above will be found at the close of this report, where will be found also statistics connected with the work of the year 1909–1910.

Respectfully submitted,
Ernest Merritt,
Dean of the Faculty of the Graduate School.

TABLE I

Total Registration, and Registration of Graduate Students, in different Universities, November 1, 1909.

(From statistics published by R. Tombo, *Science*, Dec. 24, 1909.)

University	Total Registration	Total after deducting Summer School, etc.	Graduate Students	Ratio of Graduates to Total	Ratio of Graduates to second column
California	4084	3147	337	8.2	10.7
Chicago	5487	1891	441	8.0	23.3
Clark	(Data not given in Professor Tombo's paper)				
Columbia	6132	3735	797	13.0	21.3
Cornell	5028	3675	256	5.1	6.9
Harvard	5558	3312	423	7.6	12.8
Illinois	4502	3175	230	5.1	7.2
Indiana	2231	1042	111	5.5	10.6
Iowa	2246	1308	121	5.4	9.2
Johns Hopkins	(Data not given in Professor Tombo's paper)				
Michigan	5259	3212	151	2.8	4.7
Minnesota	4351	3097	93	2.1	3.0
Missouri	2589	1947	122	4.7	6.2
Nebraska	3402	2826	97	2.8	3.4
New York	3843	2184	264	6.9	12.1
Northwestern	3197	1426	82	2.6	5.7
Pennsylvania	4857	2963	389	8.0	13.2
Princeton	1398	1398	134	9.5	9.5
Stanford	1620	1555	84	5.2	5.4
Wisconsin	4245	3213	259	6.1	8.1
Yale	3276	2682	413	12.6	15.4

The numbers in the second column give the total registration exclusive of students in the summer session, medicine, law, divinity, pharmacy, dentistry, and such courses as our short course in agriculture. Owing to the fact that practically no graduate work is done in these branches, and that some are not represented at Cornell, it is thought that this column gives a fairer comparison with other universities for the purpose of this discussion than the first column.

Inspection of the table shows:

(1) If students registered in the work mentioned in the preceding paragraph are left out of the consideration, only one other university has a larger registration than Cornell.

(2) Four universities have a larger total registration than Cornell.

(3) Eight universities have more graduate students than Cornell.

(4) In twelve universities the ratio of graduate students to the total registration is larger than at Cornell. If statistics from Clark and Johns Hopkins were included, this number would undoubtedly be raised to fourteen.

(5) If we compare the number of graduate students with the numbers in the second column we find the ratio is larger for twelve universities than for Cornell.

TABLE II

Showing the number of graduate students and the total registration at Cornell from 1891 to 1909.

[From data contained in the President's Report 1908–09.]

Year	Total registration except Summer School, Short Course, and Medicine[1]	Graduate Students[2]	Percentage of Graduate Students to Total
1891–1892	1538	133	8.65%
1892–1893	1700	170	10.
1893–1894	1810	240	13.2
1894–1895	1689	185	10.95
1895–1896	1702	145	8.5
1896–1897	1808	161	8.9
1897–1898	1835	166	9.05
1898–1899	1823	190	10.4
1899–1900	1966	174	8.8
1900–1901	2154	205	9.5
1901–1902	2412	189	7.84
1902–1903	2626	201	7.63
1903–1904	2720	197	7.27
1904–1905	2912	211	7.24
1905–1906	3067	232	7.56
1906–1907	3175	239	7.52
1907–1908	3414	249	7.32
1908–1909	3764	310 272	8.1[3] 7.2

[1]The students in medicine have been left out partly because the College was established during the period covered by the table, and partly because of the fact that this College is in large part separated from the rest of the University. The effect is to make the relative decrease in the number of graduate students slightly less marked than it would otherwise be.

[2]Complete registration for the year.

[3]The apparent increase from 7.32% in 1907–08 to 8.1% in 1908–09 is due to the fact that 38 seniors who had completed the 120 hours required for the bachelor's degree were allowed to register in the Graduate School during the second term. In previous years cases of this kind were rare. To make the comparison a fair one these 38 seniors should not be included. The percentage of graduate students is then reduced to 7.2%.

TABLE III

Showing the number of graduate students, arranged according to the groups in which the major subject lay, for the years 1895–1910.

Year	A Languages and Literature	B History, Pol. Econ., Philosophy	C Physical Sciences	D Biological Sciences	E Engineering and Architecture
1895–1896	24	36	26	16	29
1896–1897	30	29	34	22	18
1897–1898	26	39	38	25	18
1898–1899	32	36	44	27	23
1899–1900	29	40	46	32	17
1900–1901	29	38	41	48	27
1901–1902	28	39	36	45	22
1902–1903	34	37	45	40	27
1903–1904	23	25	39	42	25
1904–1905	21	28	46	56	28
1905–1906	24	35	66	72	34
1906–1907	27	39	71	61	29
1907–1908	28	43	74	61	28
1908–1909[1]	20	52	82	84	30
1909–1910[1]	17	42	88	83	39

TABLE IV

Facts bearing upon the effect of further increase in the number of students at Cornell University.

Total regularly enrolled students[2] (Ithaca) (1908–09)		3792	
Total instructing staff[3] (Ithaca)		443	
Students per teacher			8.6
Total salaries[4] (Ithaca)	$570,063.00		
Deduct salaries of administration, etc.	43,265.00		
	$526,798.00		
Average salary of teachers (Ithaca)			$1,190.00

If in the future the ratio of teachers to students is to remain the same ten new teachers must be added for an increase of 86 students.

Of the total 3810 students at Ithaca in 1908–09, 1865, or 49%, were in colleges for which the tuition is $150. (Architecture, 133; Civil Engineering, 569; Sibley, 1163). If the new students are distributed among colleges like the old, 49% will be in colleges where tuition is $150; of the remainder we may assume that those in Agriculture will have the additional expense provided for by state appropriation, say at the rate of $100 per student. The tuition received from 100 new students will therefore be

$$49 \times 150 + 51 \times 100 = 7350 + 5100 = 12450,$$

and the tuition received from 8.6 students will be $1070, as compared with $1190 required for an additional teacher at the present average salary.

The receipts from tuition will, therefore, not quite meet the expense of the additional teachers required. Since increased registration must also bring

[1] Seniors registered in the Graduate school during the second term have not been included.
[2] Register, 1908–09 pp. 743–745.
[3] President's Report, 1908–09, p. 15.
[4] Including also officers of administration, janitors, etc., President's Report, p. 25.

some increase in the general expenses of the University, it will be seen that the present tuition will not permit further growth without a reduction in teaching efficiency. Without an increase in endowment the growth of the University therefore necessitates either (1) a reduction in the average salary paid to teachers, i.e., a decrease in the relative number of professors as compared to instructors and assistants; or (2) an increase in the amount of teaching carried by each member of the staff. In the past the situation has been met by the first of these alternatives.

STATISTICS OF ATTENDANCE, 1909–1910

During the year 1909–10, including the summer session of 1909, 309 graduate students were registered in the Graduate School, as follows:

Regular session	288
Summer Session only	16
In absentia	5
Total	309

Arranged according to the degrees for which they were candidates:

Candidates for Ph.D.	156
" " A.M.	72
" " M.S. in Agr.	25
" " M.C.E.	8
" " M.M.E.	21
" " M.S. in Arch.	1
Not candidates for a degree	26
Total	309

Advanced degrees were conferred at Commencement, June, 1910, as follows:

Doctor of Philosophy	35
Master of Arts	16
Master of Science in Agriculture	14
Master of Civil Engineering	2
Master of Mechanical Engineering	2
Total	69

Among the students registered in the Graduate School during the year there were graduates of 97 different institutions, distributed as follows:

GRADUATE STUDENTS, 1909–1910

Adelphi College	1	Calcutta University	1
Alabama Poly. Institute	1	University of California	2
Alfred University	1	University of Cape of Good Hope	1
Amherst College	5	Charles City College	1
University of Arkansas	1	University of Chicago	1
Baker University	1	Clemson College	2
Barnard College	2	Colgate University	4
Boston University	1	College City of New York	1
Brigham Young University	1	University of Colorado	2
Brown University	1	Columbia University	4
Bryn Mawr College	1		

Cornell University	144[1]
Denison University	1
De Pauw University	2
Drake University	1
Drury College	1
Earlham College	1
University of Edinburgh	1
Elmira College	2
Franklin & Marshall College	1
Georgia School Tech	1
German Wallace College	1
Hamilton College	1
Hobart College	1
Howard College	1
University of Illinois	5
Illinois Wesleyan College	1
University of Indiana	5
Iowa State College	4
University of Kansas	2
University of Kentucky	1
Keystone State Normal	1
Louisiana State University	1
McPherson College	1
Maryland Agr. College	1
Massachusetts Agr. College	2
Mass. Inst. Tech	4
Miami University	1
University of Michigan	3
Michigan Agr. College	2
University of Missouri	6
Mt. Holyoke College	1
University of Nebraska	2
Nebraska Wesleyan Univ.	1
New Hampshire A. & M. College	1
New Hampshire State College	3
University of North Carolina	1
North Carolina A. & M. College	3
University of North Dakota	4
North Dakota Agr. College	1
Oberlin College	3
Ohio State University	5
Ohio Northern University	1
University of Oklahoma	1
Oregon Agr. College	1
Ottawa University	1
Pomona College	1
Presbyterian College of South Carolina	1
Purdue University	1
Roberts College	1
Rutgers College	1
Smith College	3
Stanford University	2
Teachers College	1
Tech. Hochschule) München)	1
University of Tokio	1
Toronto School Prac. Sci	1
University of Toronto	1
Trinity College	1
Union College	2
Ursinus College	1
Utah Agr. College	4
Valparaiso University	2
Vanderbilt University	2
Vassar College	3
Wabash College	9
Wake Forest College	1
Washburn College	1
Washington College	1
Washington & Jefferson Coll.	1
Wesleyan University	4
Western Reserve University	2
Westminster College	2
University of West Virginia	1
Williams College	1
Wilson College	1
University of Wisconsin	2

Of the 306 graduate students in residence, 37 are seniors in Cornell University who have completed the work for the first degree, but who have not yet actually received the degree.[2]

[1] 39 are seniors who have completed their work for the first degree and have been permitted to register in the Graduate School.

[2] Seniors in the College of Arts and Sciences who have completed all requirements for the A.B. degree except the requirement of residence are permitted to register in the Graduate School provided they are prepared to become candidates at once for an advanced degree. Seniors in other colleges have been allowed to register in the Graduate School when all requirements for the first degree have been met.

The distribution among the five groups of the Faculty of the major and minor subjects selected by graduate students in residence was as follows:

	Majors			Minors		
	Graduates	Seniors	Total	Graduates	Seniors	Total
Group A	17	16	33	29	18	47
Group B	42	11	53	70	13	83
Group C	88	5	93	152	7	159
Group D	83	4	87	127	9	136
Group E	39	1	40	48	0	48
Total.....	269	37	306	426	47	473

APPENDIX IV

REPORT OF THE DEAN OF THE FACULTY OF ARTS AND SCIENCES

To the President of the University:

SIR:—As Dean of the Faculty of Arts and Sciences, I have the honor to submit the following report for the year 1909–10.

The class of 1910 was the first to experience the full force of the rule requiring for graduation eight terms of residence as well as 120 hours of credit. Members of that class had been accustomed, like their predecessors, to think of their hours as the main matter. They knew that last year certain students whose credits were complete had been graduated without eight full terms of residence (Report, p. XLIX). They made no discrimination between their case and that, and a number of them, whose credits promised to be by February at least 120 hours, applied to the Faculty, with great variety of ingenious argument, to be granted the same indulgence as the preceding classes. But the Faculty made a discrimination. They knew that unlike the class of '09, the present seniors had had full notice before entering the College. They were of opinion, therefore, that no injustice would be done by enforcing the new residence requirement. They were of the opinion, too, that the only feasible way of administering it at all was to enforce it with the same strictness that had long been observed in exacting the requirement of 120 hours credit. They, therefore, refused all petitions to graduate short of residence in any degree.

In the course of the discussion which led to this conclusion the view was urged upon the Faculty that, for many students, graduate study was in effect a vocational training, preparatory to one or another of the newer professions, and that the Faculty ought to give to Arts seniors who wished to begin their professional studies in the Graduate School the same privilege of double registration now granted to seniors who wish to register in one or another of the professional colleges. Influenced, it may have been, by this educational argument, and moved also, I fancy, by requests to the same

effect from several students whose expectation of graduating short of residence had been disappointed, the Faculty voted, on the fifth of November, "that in case a student has fulfilled all requirements for the A.B. degree except the residence requirement, this Faculty will offer no objection to his registration in the Graduate School, provided, however, that his work has been of such character as to enable him to become a candidate at once for an advanced degree." At the same time they referred the general question of the eight-term residence requirement to a special meeting, to be held the fifteenth of November. The special meeting reaffirmed the requirement in full, but directed the Committee on Educational Policy to consider "the question of recommending qualified seniors for admission to the Graduate School with the understanding that their first year of graduate study should be counted as fulfilling the requirements of the last two terms of study towards the degree of A.B." At the December meeting of the Faculty the committee reported its opinion:

"Whether or not it is desirable that the degree of Doctor of Philosophy be conferred within two years after the degree of Bachelor of Arts your committee regards as a question for the Graduate School." "If the conditions of candidacy for an advanced degree may be met by the end of junior year, their nature and extent must deeply affect the elections of our more ambitious undergraduates." "The acceptability of the first year of graduate study as fulfilling the requirements of the last two terms of residence towards the degree of Bachelor of Arts will depend upon the nature of the Graduate School's requirements for that year and upon the manner in which their fulfillment is to be ascertained."

The committee, therefore, asked to be discharged from further consideration of the question until the Graduate School should have determined the conditions of candidacy for an advanced degree and the effective requirements during the first year of such candidacy. This report the Faculty adopted in full.

Of the 32 seniors who, by February, 1910, had fulfilled all of the requirements for the A.B. degree except the residence requirement, an even score were qualified, under the Faculty's action of November, to register in the Graduate School as candidates for advanced degrees, and actually did so. But the Faculty's December action seemed to indicate that the November arrangement was regarded as provisional, and likely to be revised when the newly organized Faculty of the Graduate School should have "determined the conditions of candidacy for an advanced degree and the effective requirements during the first year of such candidacy." Meanwhile the Dean's office and the Committee on Academic Records were somewhat puzzled how to deal with the twenty Arts-Graduate students.

It was at length decided to make use of the analogy between the November legislation and the older rules about double registration. When an Arts senior registers also in the College of Law, or in an engineering college, as a candidate for a professional degree, he becomes wholly subject, for the year in question, to those rules of the professional college which regulate the amount and character of his work. Our Faculty, being well assured of the exacting nature of those rules, and having already made up their mind to accept one year's work in professional subjects toward the degree

of A.B., have no hesitation in recommending the graduation of such doubly-registered seniors upon the certificate of the professional college that they have done a satisfactory year's work. In the view of the committee, the requirement that Arts students registered also in the Graduate School must be candidates for some advanced degree was similarly designed to make sure that during the remainder of their residence for the A.B. degree such doubly-registered Arts students should do a reasonable amount of work. The committee accordingly declined to include in the list of candidates recommended to our Faculty for graduation the name of any senior who was registered also as a graduate student, until a certificate that his graduate work was satisfactory had been given by the Dean of the Graduate School. I am not aware that any doubly-registered student who expected an A.B degree at the last Commencement actually failed to receive it for want of such certificate; but some of them apparently had difficulty in getting the certificate and in such cases the difficulty was, I fear, not without reason.

THE REGISTRATION OF ARTS STUDENTS AS GRADUATES

We have now had two years experience with graduate registration by Arts students still awaiting their baccalaureate degrees,—last year under the provisional legislation just described, and the preceding year under the provisions given on page XLIX of last year's Report. In all nearly fifty students were involved. The number is sufficient to warrant some deductions. It seems that doubly-registered Arts-Graduate students are, in fact, of two roughly distinguishable sorts. One sort regard the period as the beginning of serious graduate study. They are, as a rule, adequately prepared. They are, almost without exception, of exemplary diligence. Their candidature for an advanced degree is undertaken in good faith. They deserve all reasonable encouragement, and for them it is probably desirable that the present arrangement, or something to the same effect, should be maintained. The other sort of Arts-Graduate, having accomplished the comparatively easy task of piling up 120 hours credit in less than eight terms, is chiefly concerned to pass, in as agreeable a manner as he may, the tag end of his required residence. He has several reasons for desiring to come under the rules of the Graduate School. It pleases his parents, and impresses friends of the family. It entitles him to crow over his classmates in the College. It may even enable him to escape examinations for which he would otherwise be held. If, to secure these delights, he must become a candidate for an advanced degree (which, avowedly, he has not the remotest intention of ever taking) he, or she, will make a formal declaration of candidacy with any major and minor subjects for which the fleeting approval of a special committee can somehow be obtained. A pseudo-graduate student of this sort does not promptly enter, of his own choice, into any active relations with his special committee. He rather attempts to postpone so long as possible the making of definite plans for the graduate work which he has no desire to do. Postponement for at least a term proves easy, and the special committee, however assiduous, is virtually helpless in the situation. The whole organization of the Graduate School, including that of

its special committees, is for the guidance of candidates who really plan to proceed to a degree. Such are justly allowed, when needful, an initial period of deliberation in order to choose and to bring under way those schemes of graduate work which they will later carry out under the specific oversight of their special committee, and upon which, in due course, they will be tested by thesis and examination. Of such an organization it is easy for a shirking Arts senior to take a brief advantage: Having already 120 hours credit, he resolutely marks time, assured that a minimum of work will receive approval. For the special committee is well aware that to withhold its approval will deprive him of the baccalaureate degree which, by 120 hours credit and eight terms residence, he is universally considered to have earned at the hands of the Faculty of Arts and Sciences. This penalty, if inflicted, would seem unduly severe. And even if it were deserved, the special committee, directly responsible only for graduate work, would be reluctant to inflict it upon one still in fact and substance an undergraduate student. He (or she) may, therefore, shirk with impunity.

It may well be that the Faculty of the Graduate School will prove unable ever so to "determine the conditions of candidacy for an advanced degree and the effective requirements during the first year of such candidacy" as to prevent shirking during the first term, or even the first year, of graduate work. It may even be undesirable for them to make the attempt. So far, at any rate, they have not done what our Faculty seemed last December to expect. It is fortunate, therefore, that the Faculty of Arts and Sciences, which bears the responsibility for Arts students until they receive the A.B. degree, has an immediate and obvious remedy in its own hands. If each professor in our Faculty, whenever asked, as a member of the Faculty of the Graduate School, to act upon the special committee of an Arts-Graduate student, shall refuse to do so unless the student's past record and present intentions give assurance that he will make a desirable graduate student, the others will then be obliged to complete their residence under the rules of this College, where they belong. Not that our rules, or any rules can make a faithful worker out of a confirmed soldierer. But we should at least not appear, as there is danger that we now may, to be taking our own eight-term requirement in a merely formal sense and licensing loafers to loaf for the remainder of their course after 120 hours have been secured.

If, however, it shall prove that this immediate and obvious remedy does not work, our Faculty may be disposed to consider other measures to the same end. The machinery which the Graduate School finds adequate for its purposes not answering ours at this point, we may ourselves be obliged to impose such additional conditions upon the registration of our students in the Graduate School as may eliminate from the ranks the conspicuous few that, in the guise of graduate students, are merely marking time until June.

REARRANGEMENT OF FRESHMAN COURSES

Besides discharging their routine duties (described by my last Report, p. xxxiii) in advising freshmen as to the choice of their studies, the Administrative Board in Charge of the Work of Freshmen and Sophomores gave

further attention this year to certain phases of the matter referred to them by the President and reported upon in a general way a year ago (pp. XLIX–LI)—"the proper method of instructing underclassmen." The first point of attack at this time was the number of courses which students, especially freshmen, took concurrently. But the closely related questions soon came in of the frequency of recitations, and the number of courses open to freshmen that begin with the second term of the year.

Inquiry into the number of courses pursued concurrently showed that out of 937 students whose records were examined there were twelve who took less than four classes. These were all exceptional cases of one sort or another—special students or such as, on account of ill health, were permitted to carry less than the usual minimum of hours. Of the remaining 925 only 90 or 9.7 per cent were registered for four courses; 280 or 30.3 per cent were registered for five courses; 332 or 35.9 per cent for six courses; 179 or 19.5 per cent for seven courses; and 44 or 4.6 per cent for eight or nine courses. In other words six courses was the typical registration. Over one-third of all the students followed that number, while twice as many were registered for seven courses as for four.

The cause was not far to seek. The list of courses open to freshmen illustrated it perfectly. In all they numbered 66. Four of them came six hours a week, seven came five hours, and five four hours, making sixteen courses, or less than a quarter of the whole number which exceeded three hours per week. Thirty-eight, or more than one-half of the whole, were three-hour courses. There were also nine two-hour courses and three one-hour courses. Three-hour courses were almost universal in the languages (there were six-hour courses, pursued by single sections in "baby Greek", "German 1 and 2", and "French 1 and 2", and a one-hour course in "Sight Latin," but the latter could be taken only as supplementary to a three-hour course). Three-hour courses were also likewise used exclusively in freshman history, and commonly in the natural sciences. The sciences, however, made use of several two-hour courses also. In the exact sciences (mathematics, physics, and chemistry) the five-hour course was typical, though there were some courses of six hours, some of four hours, and in mathematics some of three and even two hours. In short the three-hour course was the common one for freshmen as well as other students. In order to make the required number of credits, even freshmen were compelled, except in the exact sciences, to register for five or six courses per term whether they liked or not.

In their preparatory schools the freshmen had been accustomed to study but four subjects, in some of the better preparatory schools but three subjects. The Board were of the opinion that the transition from school to college might properly be marked, in many instances, by an increasing diversification of the students' academic interests, and in others by the more intensive study of a single subject such as would require the prosecution concurrently of several classes in it. But in view of the diversion of attention and dissipation of interest inevitably attendant upon the beginning of a college course, they doubted the wisdom of further multiplying distractions by practically forcing all freshmen to double the accustomed number of their classes.

The practice of the departments which at present entails this result has been of gradual growth. Under the earlier organization of our instruction, when each freshman was held for some fixed group of subjects, determined by the degree which he sought to obtain, five-hour freshman classes were the rule in most if not all of the departments. The establishment of a single Arts degree with universal freedom of election for all students in the College, seems to have induced a gradual cutting down of freshman classes to three hours,—perhaps as a measure of interdepartmental competition for the favor of elective students. Its effectiveness for this purpose must have been lost as soon as the practice became general, but the same inducements which first brought certain departments to adopt it would deter any from abandoning it until all or most should do so. The blame, if blame there be, attaches, in my opinion, less to the departments severally than to the organization of the College as a whole. So long as there was no conscious correlation of freshman courses, no obligation upon any department to adjust its classes to those in other departments, scarcely even an opportunity for consultation with a view to such an adjustent, it cannot be thought surprising that the duty which each department certainly owed to its own subject should have absorbed its attention and dictated its policy. If, in consequence, the interests of the College as a whole were in some degree overlooked, the Board felt confident (and the event has proved it rightly confident) that cordial co-operation from the departments would be forthcoming to repair the oversight as soon as its existence should be realized. It was in this confidence that the Board approached the question whether more frequent recitations were, on the whole, desirable in freshman courses.

THREE-HOUR AND FIVE-HOUR CLASSES

Members of the Board who had taught the languages to freshmen in three-hour sections and in five-hour sections agreed that the five-hour classes learned faster and with more certainty. It was even asserted by several men of experience in the matter that in courses coming five hours a week throughout one year (180 recitations) as much was uniformly accomplished as in courses coming three times a week throughout two years (216 recitations, or 20 per cent more). Other members who, at Cornell and elsewhere, had taught on both a three-hour and a five-hour schedule were equally emphatic that the latter was better for the student, though they were by no means certain that it was easier for the teacher. The Board apparently considered such experience more weighty than psychological theories of attention largely based upon laboratory experiments, and concluded that less than six classes concurrently would afford variety sufficient to sustain the student's interest. They considered, too, that five-hour classes promised to put him in early possession of a working knowledge of the tools of further study, notably of the languages, and that they would also enable one who might be late in deciding upon graduate study to repair more promptly the deficiencies of his equipment.

In the respect of the number of courses open to freshmen the second term, the Board saw a further advantage in classes of greater frequency than

three hours per week. In spite of the request of the Faculty, passed years ago, that the departments, in arranging their schedules, provide courses beginning in February, it was the fact that but 23 of the 66 scheduled freshman courses did begin then, and of these 23 all but five were in the scientific subjects. This proved embarrassing to mid-year matriculants, and to such September matriculants as, having completed in the first term a six-hour course in chemistry or physics, were seeking to make up a full schedule in the second term.

In consequence of these and, no doubt, of other considerations, the Board recommended that the work hitherto done in three hours a week throughout the year in the first and second-year courses in the modern languages be given hereafter in sufficient hours per week during the first term and be repeated the second term. They likewise directed their chairman "to confer with the departments concerned with a view to bringing about this state of affairs," and to confer also as to the possibility of giving each of the freshman history courses in a single term, instead of extending them both throughout the year. Conferences were held. The departments proved in general favorable to the suggested changes. The Announcement of Courses issued in May shows German 1 and French 1 as six-hour courses and German 2 and French 2 as five-hour courses. The courses in Spanish were left at three hours, partly because many of the students studying that language, especially in the first year, were not in the College of Arts and Sciences and might experience difficulty in making a place for a five or six-hour Spanish course in their required curricula. The freshman courses in history, however, have been made five hours each, and the English Department, instead of its two freshman courses of three hours each, has announced a single freshman course of four hours. The Board feared that limitations of laboratory space and equipment might constitute a serious obstacle to similar changes in the "natural history" courses and seemed content that those should remain at three hours while the working of changes already planned should be under observation.

Among the phases of the experiment which will call for most careful consideration, not only by the Board but by all members of the Faculty, the more important are, perhaps, the effect upon students and teachers of a more intensive study of fewer subjects during the freshman terms, and the extent to which, if at all, students may show a disposition to elect three-hour courses not because they want the subjects, but as an insurance against failing in over-many hours.

MID-YEAR MATRICULATION

As a result of the change, freshmen in Arts and Sciences can now begin their course to as good advantage with the second term as with the first. The number of high school pupils seems to be growing who either commence their school course at mid-year or possess sufficient ability to finish it in less than the scheduled time. Such are ready for college in February, and if they must wait until September many of them will drift into such employments as are likely forever to deprive them of the privilege of a college course. There is also, every September, a considerable group of applicants for ad-

mission who are rejected for entrance deficiencies so slight that it would be easy to repair them by February. To keep these out until the following September is to waste their time. Their number, too, is likely to increase with our growing strictness in respect of entrance conditions. And the hardship of making them wait a whole year is the greater since our recent action (last Report, pp. xxxiv–xxxvi) denies them surplus entrance cred t upon certificate for such extra studies as they may pursue in preparatory school during the year of enforced waiting. It is, therefore, a merit of the change in freshman courses that it will facilitate mid-year matriculation. And further facilitation may be expected from the action taken by the University Faculty to provide entrance examinations in January as well as in September.

ENTRANCE REQUIREMENTS IN LANGUAGE

Until 1908 all matriculants in the College were required to satisfy what we now know as the "old entrance requirements," including either (a) all of the entrance Latin plus all of some other entrance language, equivalent to seven language units of the "new" requirements, or else (b) all of two modern foreign languages, equivalent to six "new" language units, plus advanced entrance mathematics or a science. In any case, therefore, at least six units of foreign language were required for admission to the College. By action taken on the first of November, 1907, (cf. pp. xxv–xxvii of Dean Hill's Report) our Faculty adopted the "new entrance requirements," which were to be optional in 1908 and 1909 and the sole rule in 1910. These new requirements, while apparently increasing the total amount of preparation demanded, worked a marked decrease in the linguistic preparation, namely from six units (or in many cases seven units) to four only. Furthermore, they did not call for advanced entrance preparation in any foreign language whatever, whereas the old requirements had exacted the full preparation, both elementary and advanced, in two languages.

The vast majority of the students admitted in 1908 and in 1909 voluntarily offered as much preparation in foreign languages as would have satisfied the old requirements, and less than one-tenth came with the permissible minimum of linguistic preparation. Experience soon showed, however, that an altogether disproportionate share of these failed to meet the expectations of the Faculty and came, in consequence, before the Committee on Academic Records. It was chiefly this circumstance, apparently, which induced our Faculty to retrace its steps in some degree by voting, June 3, 1910, upon the recommendation of the Committee on Educational Policy:

First, that instead of the four units of foreign language now required for admission, there be required in future five units of foreign language, of which three must be offered in some one language and two in some other language. [This would leave but four elective units instead of the present five.]

Second, that out of the total of 15 units required, the remaining four elective units, or any of them, may be single units in language, as in other subjects.

Third, that the description of the entrance requirements in the foreign languages be accordingly so revised, and the corresponding entrance exami-

nations be so arranged as to enable an applicant for admission to offer either one or more units in any language, namely, in Greek 1, or 2, or 3; in Latin 1, or 2, or 3, or 4; in German 1, or 2, or 3; in French 1, or 2, or 3; in Spanish 1, or 2, or 3.

The date of passing these resolutions was so late in the year that it was not possible, before Commencement, for them to receive deliberate consideration at the hands of the University Faculty. It remains, therefore, still to be determined whether or not that body, in case it considers that entrance requirements have become a matter of general University policy concerning more than one college, will be disposed to authorize the changes which our Faculty has proposed. And until this is decided it is idle to consider a date for putting our suggestions into force. They are, however, an important portion of the legislation of the Faculty of Arts and Sciences during the year just closed, and as such require mention here, whether or not they are destined eventually to be approved.

The first of them, being but a partial reversion from requirements found unsatisfactory to those in force before 1907, calls for no further comment. The second and third, which provide for counting single units of entrance language, are, however, in part new, and may need a word of explanation. The "old" entrance requirements permitted single units (school years) to be counted after the first two in the same language, e.g., Virgil, as one unit after Latin Grammar and Caesar (2 units), or advanced German as one unit after Elementary German (2 units). The "new" entrance requirements of 1907 continued this policy, and it is in no wise affected by the vote of June third. But that vote also permits single *beginning* years of a language to be counted. This is new. And it should be pointed out so clearly as to preclude any possible misapprehension that a beginning year may be counted only when offered in a third language by an applicant for admission who has also studied a first language for at least three years, and a second language for at least two. This is very different from accepting a single year in each of two or three languages, when offered by a man who has never gone beyond the first year in any of them, and may be, in fact, quite incapable of learning enough of any language to make the slightest use of it.

Instead, therefore, of relaxing in any degree the present linguistic requirements for admission to the College, the most recent action of our Faculty, taken as a whole, looks towards greater strictness in them. The Faculty desires, however, to encourage any student who plans learning a third language to take it up, if possible, while still in school, instead of postponing the most elementary study of it until he has come to college.

The Faculty likewise voted (Minutes, ii, 86) "that the subject of Agriculture be not accepted by this College in satisfaction of entrance requirements."

The following is the customary table of Leaves of Absence 1904–10:

Ground	1903–04	1904–05	1905–06	1906–07	1907–08	1908–09	1909–10
Personal illness	117	56	48	37	151	640	1140
Illness or death in family	62	31	30	22	37	44	70
Request of parents	22	14	5	4	25	21	16
Wedding	20	18	13	7	14	28	10
Business	67	42	32	23	48	31	64
Delegate to convention	20	19	1	—	5	16	29
Voter	11	61	6	1	9	32	17
Department excursion	60	29	7	7	6	140	96
Examinations	20	22	2	6	3	12	24
Missed connections	34	6	—	—	3	—	26
Student organizations	—	—	—	—	—	59	110
Miscellaneous	23	11	11	24	8	55	62
Total	456	309	155	131	309	1088	1664

To the comments made last year (pp. XLIII–XLV) upon the inadequacy of these figures, and the danger that they may prove misleading, I would add only that the issue of 1650 leaves of absence, the majority of which, in effect, merely record what the students themselves report, occupies a larger portion of my office hours than the obvious usefulness of the leaves themselves might appear to justify.

DELINQUENT STUDENTS

Acting upon the authority recently given them by the Faculty (p. XLV of the last Report), the Committe on Academic Records dismissed two students early in May for flagrant neglect of their work. Last year, it may be recalled, no less than five were dismissed during term time for the same reason. The customary examination of students' records was also made after the close of each term, and students were dropped, placed on probation, or warned, as seemed to be needful. The net result (including in the totals the students dropped before the examinations) is shown by the following table. As is customary, the figures for preceding years are also given by way of comparison.

Academic year	Students dropped after examination			Students warned or put on probation			Aggregate for year	Total students registered	Per cent dealt with
	First term	Second term	Total	First term	Second term	Total			
1904–05	23	20	43	18	10	28	71	684	10.4
1905–06	21	16	37	20	18	38	75	705	10.6
1906–07	18	15	33	42	48	90	123	748	16.4
1907–08	21	21	42	24	21	45	87	820	10.6
1908–09	27	22	54	33	29	62	116	902	12.7
1909–10	32	28	60	29	33	62	122	970	12.8

During the last two years there has been a marked growth in the apparent interest taken by fraternal and athletic organizations among the students in the academic standing of their members, and the Faculty, at their April

meeting, approved the policy, already adopted in some degree by the Dean's office and by various professors, "of furnishing, to apparently responsible bodies making inquiry, information as to the standing of students." (Minutes, ii, 88). There can be no doubt that a co-operation of this sort between Faculty and students holds a promise of much good; but it also contains a potentiality of no small evil. All will depend upon the use made by "apparently responsible bodies" of the information furnished in reply to their requests. If they use it to admonish the slothful and negligent, and to encourage with appreciation the good scholars among their members, there should result, in some measure, that improvement of scholastic standing which the President has recently enjoined it upon certain organizations to effect. If, on the other hand, the certainty that any of its abler members is far above the passing mark should be treated by any "apparently responsible body" merely as evidence of a margin of safety on account of which he might be urged to neglect his class work in order to achieve the glory of "prominence" in "activities," the net result would be most unfortunate. For the scholastic standards of the College are far more debased when a man of known capacity sinks to the passing mark than they are elevated when half-a-dozen incompetents are somehow driven just above it.

WORK OF COMMITEEES

During the year the Committee on Educational Policy held eleven meetings, the Administrative Board five meetings, and the extremely laborious Committee on Academic Records twenty-six meetings. Each also employed sub-committees upon various subjects. The chief results of their labors, so far as they eventuated in positive action, have been set forth above. The Committee on Educational Policy also gave much time to considering "the relation of student activities to the work of the College," and was assisted, at some of the deliberations upon that subject, by Professor Young and by Mr. Dugan, Graduate Manager of Athletics, also by a group of seven representative students who readily accepted its invitation to a joint session and freely exchanged views with the members of the committee. It seemed clear that the questions involved were such that no one college could effectively deal with them alone, and in view of the progress of a related inquiry in the University Faculty, the committee concluded to make no report to our Faculty concerning the matter. I fancy that the members of the committee all felt, however, that their time had not been wasted, and that their understanding of the situation had been materially increased. They expressed their cordial thanks to the gentlemen who, through conference, had helped them to that result.

Respectfully submitted,

CHARLES H. HULL,

Dean of the Faculty of Arts and Sciences.

APPENDIX V

REPORT OF THE DIRECTOR OF THE COLLEGE OF LAW

To the President of the University:

SIR: I have the honor to submit the report of the College of Law for the academic year 1909–1910. There have been no changes during the year in the resident Faculty, and all courses have been given regularly as announced. The course in Bankruptcy, omitted last year under circumstances mentioned in my last report, was given this year by Mr. William H. Hotchkiss. As Mr. Hotchkiss's duties as Superintendent of Insurance forbade any long absences from Albany, the course was given on consecutive Fridays and Saturdays, two to three hours each day, but without any interruption of the regular senior work. The course in Patent Law was given by Mr. William Macomber of the Buffalo Bar. His lectures have been received with marked interest by the law students, and have been attended by a considerable number of students in the engineering colleges. The courses in Patent Law and in Admiralty have in the past been given only once in each period of three years. This arrangement compels students in the first year of their studies to pursue whichever of these courses may happen to be given in the particular year. With the present enrollment in the college these classes are too large for the accomplishment of the best results. Moreover the courses are of such a character that it is desirable that students pursuing them should have advanced further in their general law studies than have the first-year students at the time the lectures are given. It is desirable that these courses be given in alternate years. If this change should be made, first-year students could be excluded and the courses obtained in the junior and senior years.

The registration this year has been the largest in the history of the college. An inspection of the subjoined table will show that the increase in new students has been almost entirely in the four-year course. The wisdom of establishing the four-year course, and especially of the changes made several years ago in its arrangement, is demonstrated both by its growing appeal to entering students, and by the superior scholarship in law subjects of students pursuing that course. In January the average marks of the four-year sophomores was 13% higher than the average mark of the three-year students pursuing the same subjects.

The registration in the college for the past eleven years is shown in the following table:

Year	Seniors	Juniors	4 Year 2	4 Year 1	3 Year 1	Special	Total
1899–1900	52	61	—	—	61	4	168
1900–1901	45	52	—	—	78	7	182
1901–1902	34	71	—	—	86	7	198
1902–1903	48	77	—	—	95	5	225
1903–1904	53	76	—	—	109	3	241
1904–1905	58	80	—	—	86	4	228
1905–1906	65	69	—	—	83	4	221
1906–1907	51	70	—	—	89	1	211
1907–1908	48	68	—	—	85	5	206
1908–1909	48	58	15	29	71	6	227
1909–1910	49	56	22	54	70	10	261

The increase noted cannot be expected to continue. Indeed the advanced entrance requirements in the three-year course, which will take full effect in September, 1911, will undoubtedly result in a considerable decrease in the number of students entering that course, although for reasons hereafter stated it is probable that the decrease will not be so great as was expected when the new requirements were first adopted.

In addition to the students in the College of Law, 26 students from other colleges have been pursuing courses given in this college. The tendency for some years has been toward a decrease in the number of students of this class, and especially in the number of Arts seniors pursuing the entire first-year law work with a view to completing the courses in Arts and in Law in six years. Of the latter class this year there were only 9. The decrease is probably due in part to the present requirement of the Faculty of Arts and Sciences that a student, in order to enjoy the privilege of pursuing the first year of Law work as the senior work in Arts and Sciences, must at the beginning of his senior year have credit in at least ninety hours of work in Arts and Sciences. This cause is not alone sufficient to account for the entire falling off in numbers. It may be that there is a growing tendency among students to abandon their Arts courses for professional study at an earlier period than the beginning of their fourth year. That there is some such tendency is indicated by the increasing number of transfers from Arts and Sciences at the end of the freshman and sophomore years. It may also be that those who pursue their Arts work to the senior year are coming to prefer to take the full Arts course and so to devote seven years instead of six to the two courses.

Of the regular law students, 93 are from outside the state of New York. Last year there were 74; in 1907–1908, 63; in 1906–1907, 62; in 1905–1906, 57.

The number of students in attendance at this time, May 2, is 225. Of the 36 registered but no longer in attendance, 1 completed his work for graduation; 2 transferred to other colleges of the University; 15 voluntarily withdrew; and 18 were dropped for failure in or neglect of work.

Of the 74 students pursuing the first year of the three-year course (70 regular students and 4 specials), 4 have the A.B. or equivalent degree and

25 others have had one or more years of college work. If to these be added the 22 sophomores in the four-year course, 24 seniors in other colleges of the University taking first-year law subjects, and the 54 four-year students entering this year, we have a total of 129 students out of 176 who have had from one to four years of college work, or who will have had one year of such work before pursuing more than one law subject. This leaves only 47 of the 176 to complete their law course without such a foundation.

The diminishing proportion of students endeavoring to pursue their professional studies without previous college training has been a subject of comment in previous reports. The tendency seems almost constant. In 1907–1908, these students constituted 44% of the class; in 1908–1909, 38½%; this year, 26¾%. It would seem, therefore, that the transition to the new entrance requirements, whereby at least one year of college work will be required for admission to the three-year course, may occur without so great a diminution in the number of students as was expected when the new requirements were adopted. It must, on the other hand, be borne in mind that there are still this year 47 students in the first-year class who could not meet the new requirements because they have had no college work. Moreover, it is probable that some of those included in the foregoing computation as having had one year of college work could not entirely fulfil the new requirements. While they have attended college a full year they may not have successfully performed the entire work of the year.

The method of supervising the Arts studies of the four-year students, referred to in my last report, has been continued this year. An effort has been made to lighten the task thereby imposed upon professors in Arts and Sciences by the adoption of a system of forms as similar as practicable to those used for like purposes by the Underclass Administration Board of the Faculty of Arts and Sciences. While the results of this method have not been in all respects entirely satisfactory, it is believed that much good has been accomplished, and the Director wishes to renew his expression of appreciation for the hearty assistance and co-operation he has received from the Dean and the Faculty of the College of Arts and Sciences in this effort at supervision.

Upon the recommendation of the Faculty, the Trustees have made a change in the terms of the Boardman Senior Law Scholarship. The former terms of the statute providing for its award were framed with reference to conditions in the college at the time the scholarship was established. It was open, therefore, only to the students in the three-year course who had pursued both the first and second years in the College of Law. Not only were the four-year students excluded from competition, but also students who had taken the first year of law work while seniors in the College of Arts and Sciences. The introduction of the four-year course and its great growth in numbers suggested the desirability of opening the competition to all students pursuing the first two years of law work, whether in the four-year or the three-year course and whether registered in their first year in the College of Arts and Sciences or in the College of Law.

A memorial to the late Dean Huffcut has been presented by his former students and colleagues in the Law Faculty. It is a life-size, three-quarter

length portrait by Mr. J. Colin Forbes, of London, and has been hung in the upper reading room of the Library with the portraits of Judge Boardman and Judge Finch. It is a striking likeness and possesses artistic merit worthy of the artist's reputation.

The Librarian having fallen ill has been granted a leave of absence from April 20 to the beginning of the next academic year. Upon his sick-bed he has prepared his annual report which is herewith submitted. The condition of the Library, as disclosed by the report, as well as the circumstances of the preparation of the report itself, testify to his faithful services. The increase generously made in the appropriation for maintaining the Library has proved reasonably sufficient to meet the increased expenses referred to in the last report of the Director. The over-crowding of the shelves has, however, become serious, and there is most urgent need of an immediate increase in shelf-room. If the plans now under way for meeting this need should be fully carried out, there will be sufficient space provided to accommodate the growth of the Library for a number of years.

Respectfully submitted,
FRANK IRVINE,
Director of the College of Law.

APPENDIX VI

REPORT OF THE DIRECTOR OF THE MEDICAL COLLEGE

To the President of the University:

SIR: I have the honor to present my report upon the Medical College of the University.

It is with much pleasure I call attention to the cordial support given by the Faculty and instructors to the change made necessary in the administration of the school by the alterations which have sprung from raising the admission requirements and from rearrangement and extension of the teaching schedules. Every one has entered into the spirit of the advance, and by increasing efforts has confirmed and given strength to our purpose.

The changes in our curriculum have been made in such manner as to give greater opportunity to the student than was possible with the larger classes. This commenced with the first year of our new departure, 1908–09, and was continued with the succeeding year. The alterations for the coming year will be put in operation at the opening of the session for this year. Meanwhile, tentative alterations have been adopted for the coming fourth year. For the details of these changes I refer you to the schedule of exercises accompanying our Announcement for the year 1910–11.

The improvements in our clinical courses, especially in the Department of Medicine, are of prime importance. Through an arrangement of the

service at Bellevue Hospital, due largely to the loyal co-operation of Professor Coleman, Professors Thompson and Dana have organized the services in the Cornell Medical Division, so that one continuous service extends from October first to June first, the other covering the remainder of the year. By this plan Professor Thompson assumes control during the college year, with Professors Coleman and Meara in charge of forty beds each. During the remainder of the year the service is arranged under the direction of Professor Dana, with Professor Hastings and Doctor Norton in charge. The trustees of the hospital have equipped a clinical laboratory in connection with our wards, which, under the direction of Professor Hastings and Assistant Professor Thro, co-operates in the work of the attending physicians and will together with them bring the service to a higher plane of efficiency. Through the clinical workers appointed in connection with the Departments of Physiology, Pathology, and Chemistry, every opportunity will be afforded this service to work out problems of diagnosis and treatment which may require such exhaustive investigations as can only be carried on in the laboratories of their several departments. A similar arrangement of the surgical service is desirable, and the intention is to bring it about as soon as possible.

The condition of the Dispensary service is unsatisfactory from several points of view. The chief defect lies in the increasing difficulty in getting adequate service from the attending physicians in some of the departments, which as in the case of the General Medical, cover a large number of patients. The recommendation is made that some of these positions be salaried.

In connection with this subject I desire to call attention to the inauguration of a service to be extended to the homes of such of our patients as are unable to enter a hospital and yet require more attention and supervision than visits to the dispensary permit. To that end one or more trained nurses, in addition to those already employed within the building, should be assigned to this outside duty. Apart from the humanitarian phases of this work, it would, if properly conducted, add to the value of the service we render, and thus increase our influence and the number and quality of our patients.

It is recommended that the X-Ray Department be developed in keeping with the present status of this work in other institutions. The demands upon radiography, as an aid in medical and surgical diagnosis, have increased beyond the capacity of our plant; for this purpose alone we need additional apparatus. The therapeutic uses of this agent should also be further developed and if possible a Department of Electro-Therapeutics should be organized so as to take over the therapeutic development and application of all forms of this element.

The Departments of Medicine, Pediatrics, Neurology, and Psychopathology will be greatly benefitted by the inauguration of these several improvements. The scope of the work in neurology and in psychopathology should be widened so as to afford every opportunity for special workers. This would be gained by the additions asked for to the facilities of our dispensary.

I ask attention to the vacancy in the Department of Anatomy. For the past year the department has been conducted by the heads of its subdivisions. Reference to the reports shows that embryology, histology, descriptive and

applied anatomy have each been admirably presented; but the proper conduct of the department as a whole requires the presence of an administrator as well as an accomplished anatomist, to the end that all the forces now engaged therein (and they are all very capable) may, through fitting organization and co-operation, allow more complete development.

The Professor of Chemistry and Physics gives testimony to the advantages already realized from the better trained students we are now securing in our first year. "Work of instruction is highly satisfactory under the new schedule." "Abbreviation of time allowed for study in this department has been to great extent compensated for by greater capacity for full utilization of time on part of more perfectly trained students." "Class in physiological chemistry has done more satisfactory work than any we have hitherto had."

Permit me to ask attention also to the report of Professor Hatcher. Owing to his service in connection with the labors of the Council of the American Medical Association on Pharmacy and Chemistry of which he is a member, and the work of the Committee of Revision of the United States Pharmacopoeia, Professor Hatcher has at times found greater need than usual for the services of an additional instructor—one that can be used in recitation work and yet give most of his time to the laboratory. The work which Professor Hatcher is carrying on outside the College is of such importance to the profession at large, bringing credit not only to him personally but to his department in our College, that serious consideration should be given his suggestion.

This raises, at the same time, a similar question in regard to each of our departments, and especially the Departments of Chemistry, Physiology, and Pathology, whose chiefs are liable to just such demands from an outside source as have come upon the Department of Pharmacology. It was the expectation that with the better trained students much of the recitation work could be curtailed. The subject is one calling for careful consideration on our part so as to determine the limit to which the machinery for research is to be permitted to encroach on that needed for instruction.

The development of our laboratories, especially in connection with our clinical work, increases our need for animals to such an extent, the question of supply is becoming more pressing each year. When to this is added the question of proper care or housing, it is evident that we must enter upon some plan less wasteful than that we now carry on. To this end I recommend that we make an arrangement which will permit us to house our animals in the country, transferring to our laboratories such only as will be in actual use in connection with the work in hand.

Some indication of the need for a betterment of our present system of "animal supply and keep" is seen in the reports of the Departments of Pathology, Physiology, and Experimental Therapeutics. The extent of the work in all these departments is steadily growing, and the nature and scope of the several problems they have been engaged upon during the past year is outlined in the appended lists of publications and problems now in hand. I ask special attention to each of these reports and in connection therewith to the reports of Professor Thompson, Professor Meara, and

Professor Hastings. Here will be seen the beginnings of that form of co-operation between the clinical and laboratory phases of medical instruction and investigation which we aim to develop to a plane in keeping with our opportunities.

Permit me before closing to call attention to the work of Professor Gwyer in connection with the Animal Hospital. Through the generosity of Mr. Payne Whitney this institution was reopened last January first. The value of the work is increasingly evident each month. Apart from the advantages it offers for the cure of valuable animals, the extent to which the work can be utilized in demonstrating Operative Surgery makes it a valuable asset in our course of instruction.

Respectfully submitted,
W. M. Polk,
Director of the Medical College.

APPENDIX VII

REPORT OF THE SECRETARY OF THE ITHACA DIVISION OF THE MEDICAL COLLEGE

To the President of the University:

Sir: I have the honor to present my eighth annual report as Secretary of the Cornell University Medical College at Ithaca covering the college year 1909–10, the twelfth year of the Medical College.

This year, for the first time, the students of both the first and second-year classes were all college graduates and, as we expected, the number in attendance was less than ever before in the history of the Ithaca Division of the college. There were nine students in the first-year class and nine in the second-year class. Of the second-year students, five were graduates of Cornell University, having taken the combined course, and four were from other institutions. There was but one woman in this class. Of the first-year students, three were taking the combined Arts-Medical course and received their A.B. degree in June, 1910. The others were graduates of other institutions. There were three women in this class. There is no explanation for the small number of students entering the Medical College this year from our own College of Arts and Sciences. I know of no time during the past twelve years when there have not been more students of this class, and the prospects are that there will be at least three times as many entering the Medical College in the combined course next year.

Both instructors and professors have not only been giving the regular work for medical students but, as should be the case in real live departments, have been devoting a considerable amount of time to research in various lines

and to directing the investigations of advanced students. The results of some of this work have already been published in different scientific periodicals and society proceedings and much work is still in progress. Last year to show the scope and character of the research in the Medical College, I gave in my report a list of the investigations under way and completed, and the showing this year is even more creditable.

In the Departments of Anatomy, Physiology, and Histology, there have been as in the past a number of students working for the degrees of A.M. and Ph.D. The Department of Histology conducted the regular required course in this subject for the Veterinary students and gave instruction to students in the College of Arts and Sciences and other colleges of the University. The Department of Physiology also gave instruction to students in the Colleges of Agriculture and of Arts.

It was thought when Stimson Hall was built that it would accommodate two hundred students. Since that time many changes have taken place in the methods of teaching; more stress is laid upon research work; biochemistry has been transferred to the building; and we now find that, even with our small classes, practically the whole of the building is in constant use. The laboratories, of course, will accommodate many more students than we now have but it would be impossible to use part of the room for other departments and to get along with less than the whole building without entire reconstruction. The laboratories are all well equipped and thoroughly modern, and enable us to offer facilities for instruction and research equal to any in the country.

The Faculties in Ithaca and New York have been kept in closer touch with each other than ever before. In furtherance of this, the Secretary of the College at Ithaca has attended seven meetings of the Faculty in New York and the Dean of the Medical College has made one visit to Ithaca. Furthermore, Drs. Ewing, Thompson, Hastings, and Lusk of the New York Faculty visited here during the year and Drs. Moore, Simpson, Hunter, Emerson, and Dresbach visited the Medical College in New York City. In this way the different departments in the two divisions of the college have been able to closely correlate their work. The small size of the classes has been a great advantage to the students as they have received so much individual personal attention from the professors of the various departments.

By the elimination of physics and chemistry from the medical course, it has been possible greatly to improve the curriculum. Besides strengthening the first-year courses in anatomy, histology, physiology, organic chemistry, and biochemistry, the second-year work has also been somewhat extended and a new course has been added in physical diagnosis. To take care of the extra work, it was necessary to make important changes and additions to the Faculty. Professor Baker gave up the course in medicine and confined himself entirely to the work in obstetrics. Dr. Charles P. Emerson was appointed Assistant Professor of Medicine to have charge of the elementary work in this subject. Dr. Melvin Dresbach was appointed Assistant Professor of Pharmacology with direct responsibility for the pharmacological work. Dr. S. A. Munford, Medical Examiner at the Gymnasium, was appointed Instructor in Physical Diagnosis. The in-

creased work in surgery was taken care of by Dr. Tinker. The extended work in pathology was given by Professor Moore and Dr. Boynton.

The new curriculum has proved very satisfactory. I believe, however, that the future will show that it is advisable further to restrict the work in the so-called practical branches of medicine, surgery, and obstetrics, which are now given in the first two years of the course, and to limit these two years almost entirely to the fundamental subjects of anatomy, including histology and embryology; physiology, including biochemistry; and bacteriology and pathology. A brief summary of the reports from the different departments is given below. A more detailed report of the work, aims, and requirements of these departments will be found in the extended reports from the head of each department.

The Department of Anatomy is well equipped with models, apparatus, and specimens. The work of instruction has been normal and satisfactory. Instructor Baldwin has this year been teaching in the anatomical laboratory of the New York Division of the college and it was not possible to obtain in his place a trained man who would devote his whole time to anatomy. Nevertheless, the decrease in the number of students has made it possible for the Professor of Anatomy together with one full time instructor and two assistants, who were practising physicians, to carry on the work satisfactorily. Dr. Jacob Parsons Schaeffer has been appointed Assistant Professor of Anatomy for next year. He is a thoroughly trained anatomist who has taken his M.D. from the University of Pennsylvania, his A.M. and Ph.D. from this University, and I wish especially to commend his faithful and efficient work both in teaching and research.

Dr. Kingsbury reports that the work of the Department of Histology and Embryology has proceeded with regularity along the same general lines as last year. Some new courses have been added for students in Arts and Civil Engineering. The staff has not been changed with the exception of one assistant. Dr. William A. Hilton, who has been connected with the department for some time and who has done splendid work both as a teacher and investigator, has been promoted to an instructorship of the higher grade. Some of the small deficiencies in the equipment have been filled and it should not be difficult to round out each year some more of the many items still needed.

Emeritus Professor Gage has continued his investigation in his rooms in Stimson Hall to the gratification of the Medical Faculty to whom he always finds time as in the past to give advice and help in their research work.

Professor Simpson reports that the work of instruction in physiology has been very satisfactory particularly in the practical classes. A specialized course of lectures on general physiology for medical students was given this year separate from the general course for students of the Colleges of Agriculture and Arts and Sciences. Assistant Professor Dresbach, who was this year in charge of the work in pharmacology, has been appointed Assistant Professor of Physiology for next year in place of Instructor Schrock. It is to be hoped that by another year he may be relieved of his work as assistant medical examiner at the gymnasium and be able to devote his whole time to research and teaching in physiology. Mr. Mayes has been

appointed a full time instructor, taking the place of two assistants. Many new pieces of apparatus and much equipment have been procured during the year and in addition a large number of diagrams have been made for illustrating lectures. Dr. Simpson considers the laboratories now fairly well supplied with apparatus both for teaching and research. The skilled mechanician has proved a most important adjunct to the efficiency of the department and has also made it possible to save much in both repairs and new apparatus. It is hoped a few needed pieces of apparatus may be added next year and that the accommodation for the animals may be improved.

Professor Hunter reports that the work in biochemistry has been most satisfactory. The application of biochemistry to the problems of metabolism and clinical medicine have been especially emphasized and a further extension of this phase of the subject is contemplated for future years. Besides teaching the medical students, Dr. Hunter has given a part of the general course in physiology for Arts students. A full time instructor has been appointed for next year in place of the student assistant heretofore assigned to biochemistry. The laboratory was this year in full working order and is excellently stocked with general apparatus. There is still need of some special pieces of apparatus which should be secured within the next few years. An efficient preparator is also needed.

The work in organic chemistry in the revised curriculum has been extended to include some laboratory work. The course was taken by only a few of the medical students as most of them had previously had satisfactory courses in this subject. This would seem to indicate that in the not distant future this subject may be added to our present entrance requirements.

The work in pharmacology has this year been entirely in the hands of Dr. Melvin Dresbach, who, as already noted, was appointed Assistant Professor of Pharmacology. He is a graduate B.S., 1897, and M.S., 1900, of the Ohio State University and M.D., 1903, of the Ohio Medical University. Since 1905 he has been instructor in physiology and pharmacology in this University. Dr. Dresbach says that the extended time allowed this year for pharmacology has permitted a decided improvement in the course, not only in the thoroughness and unification of the work but also in affording opportunity for demonstrating an additional number of important principles underlying drug action. In spite of the fact that much of Dr. Dresbach's time was occupied, especially during the first term, with his work as assistant medical examiner at the gymnasium, he was able to do some very creditable research. The work in pharmacology has been carried on in the laboratories of physiology and biochemistry, and a large part of the apparatus of these laboratories has been utilized for it so that the equipment has been fairly complete.

Doctor Moore reports that, in the course in bacteriology one laboratory section was changed to a recitation from a text-book and upon the ground covered in the lectures, and that two more university hours of laboratory work have been added in pathology. This additional work in pathology was devoted to the study of both histological and gross pathology. In the gross pathology, the student studied not only human tissues furnished by

Dr. Ewing, Professor of Pathology in the Medical College in New York, but also fresh bovine tuberculosis, glanders, rabies, and other infectious diseases of animals communicable to man. Dr. Moore believes that the study in this way of the tissue of animals afflicted with diseases transmissable to man gives a much broader horizon and an excellent preparation for the study of special pathology in the third year. He expresses much regret that the illness of Dr. S. H. Burnett, Assistant Professor of Pathology in his department, made it necessary at the last moment to find some other experienced teacher to give laboratory instruction in pathology. Dr. W. H. Boynton, a graduate of our Veterinary College, who had had three years of work in the University of California, was secured and has proved a most efficient and enthusiastic teacher.

Professor Tinker reports that the previous college training of the students has permitted this year certain important modifications in teaching the beginning surgery. The students are capable of covering a good deal of ground in a short time and they better appreciate the value of the work. An especial effort has been made to teach methods, particularly in surgical diagnosis. He says, "Judging by the quality of the work and the amount covered, the higher entrance requirements will prove a very important change. Probably largely because of this better preliminary preparation, the work of the class in beginning surgery at Ithaca has been more satisfactory this year than in any previous year." His report deals at length with the methods he has employed in teaching elementary surgery.

The work in obstetrics, under Professor Baker, has been satisfactory. The extra time has been utilized to consider some of the pathological, in addition to the physiological, sides of the subject.

The elementary work in medicine was given this year by Professor Charles P. Emerson. He was graduated A.B. from Amherst, 1894, M.D. from Johns Hopkins, 1899. He was on the teaching staff of the Johns Hopkins Medical School in the department of medicine from 1899 to 1909 when he left there to become the superintendent and medical director of the Clifton Springs Sanitarium. Dr. Emerson has come to Ithaca twice weekly during the second half of the year and has conducted the course as a combined lecture, recitation, and conference course. He has proved a decided addition to our staff and a most excellent and inspiring teacher. An attempt was made to give a "bird's-eye view" of the subject, entirely disregarding all that is doubtful or theoretical, and emphasizing as strongly as possible those points concerning each disease which should be clearly understood and should always be remembered. Since there was no textbook which dealt with the subject with this point in view, Dr. Emerson found it necessary to write a book for the students, the typewritten sheets of which were supplied before each recitation.

The work in physical diagnosis, which was new this year, covered primarily the normal physical signs and methods of examination and was given most excellently by Dr. Samuel A. Munford, B.A., Monmouth College, 1900; M.D., Jefferson Medical College, 1905. He was formerly instructor in physical diagnosis in the Jefferson Medical College, assistant in the Pennsylvania State Tuberculosis Clinic, and chief of the Jefferson Tubercu-

losis Clinic. One exercise was held weekly in Stimson Hall for the study of a paid living model together with skeletons, models, and preserved specimens, and later of selected pathological cases from the university and city. The other exercise was given for the men students in the gymnasium where they assisted in the examination of the entering students. Dr. Munford believes that the 1235 men who were examined afforded excellent material for this course, as in addition to the normal, the physical signs of almost every text-book variation from the normal were encountered save those of disease of the lungs. The additional exercise for the woman student was given at the women's gymnasium under the direction of Dr. Almgren.

Ever since the establishment of the Medical College at Ithaca, the Trustees have been very liberal in supplying the constantly increasing demands made necessary by the advances in medical science and the improvements in the methods of instruction. The acquisition of Stimson Hall; the addition of more and better equipment; and the increasing number of higher grade instructors have likewise increased the yearly cost for maintenance until during the past year the appropriation for the Ithaca Division of the College, including salaries, new equipment, and general maintenance, exclusive of heat, light, and power, amounted to nearly $33,000. With the establishment of the higher entrance requirements, the number of students, as already noted, has fallen off so that the tuition and fees supplied but a small portion of this money and as there is no special endowment for the Ithaca Division of the Medical College, the principal amount of the annual appropriation for the maintenance was of necessity derived from the general endowment fund of the University. Since the students now have had three or four years of college work before beginning their medical course, some of the educational reasons for duplicating the first two years of the medical course at Ithaca have disappeared. The question then arose as to whether or not it was advisable to continue at all the first and second years at Ithaca. The work of the first year consists of anatomy, physiology, histology and embryology, organic chemistry, and biochemistry, subjects which are also taken by students in the other colleges of the University and which have always been given at the University, although in a less extended form, in anatomy, physiology, and biochemistry. It was evident, therefore, that much of this work must be retained even if the medical course at Ithaca was given up. This was not so, however, with the courses in materia medica, obstetrics, medicine, surgery, and physical diagnosis, which were given especially for the medical students. Likewise, it would be true also to a less extent for bacteriology and pathology, for it has become evident that additional special professors and equipment devoted entirely to the Medical College must soon be provided for these subjects. For the above reasons, then, the Executive Committee of the Trustees on March 8 took the following action: "*Resolved*, That at the close of the present year and until further action of the Trustees, the second year course in the Ithaca Division of the Medical College be suspended." Accordingly a one-year course in Medicine has been arranged at Ithaca in which the subjects of organic chemistry, biochemistry, physiology, and histology and embryology are completed and something more than half of the work

in anatomy is finished. The students will then take the second, third, and fourth years at the college in New York City. The first-year course will undoubtedly be taken by the majority of those students who are taking the combined seven-year Arts-Medical course, and who have had their three years of Arts at Cornell and take the first year in the Medical College as the fourth year in Arts. But it is not likely that there will be many graduates of other colleges, except the women, who must take their first year here, who will come to Ithaca for a single year in the Medical College. It remains, therefore, to be demonstrated whether or not a single year in Medicine at the University in Ithaca and separate from the rest of the course will be successful. Cornell University was the first institution to establish the first two years of the course separate from the last two years. These latter should be given in a large center with an abundance of clinical material. The feasibility of this separation of the two parts of the medical course was soon recognized and imitated by a number of leading educational institutions which were located, as we are, at a distance from large hospitals and clinics. Few of them, however, duplicated the first two years at both places. The success of the plan has been repeatedly attested by the teachers in the last two years in our Medical College in New York as well as by the success of the Ithaca students. Therefore, I would urge all friends of the Medical College to exert their efforts to obtain a special endowment for the Ithaca Division of the college so that the work of the second year may be started again. The yearly expense of maintaining the second year in addition to the first would be now about $7,000, but in a few years, because of promotions and natural growth, this would amount to about $12,000 per year. This would require an endowment at first of $150,000, to be later increased to $300,000. It is highly desirable that the whole of the Ithaca Division of the Medical College should have a separate endowment. As already stated the cost of maintaining the two years of medical work at Ithaca was during the past year about $33,000, which in a few years, I believe, would be increased to nearly $50,000 and would require an endowment of approximately $1,000 000. Either of these endowments need not all be supplied by one fund but might be separate endowments for special professorships or departments. The greatest present need of the Medical College at Ithaca is, I believe, funds to enable the Trustees to reestablish the second year of the course.

I cannot close this report without expressing to you our extreme regret at losing the professors and instructors who have given the second-year work. They are an unusually enthusiastic and efficient lot of teachers and it is in no inconsiderable degree due to their painstaking and conscientious work that the past year has been the best and most successful in the history of the Medical College at Ithaca.

Respectfully submitted,

ABRAM T. KERR,

Secretary of the Ithaca Division of the Medical College.

APPENDIX VIII

REPORT OF THE DIRECTOR OF THE NEW YORK STATE VETERINARY COLLEGE

To the President of the University:

SIR:—I have the honor to submit the following report of the work of the New York State Veterinary College for the academic year 1909–10.

FACULTY

At the beginning of this college year there were added to the instructing staff one assistant professor, one instructor, and three assistants. Two assistants were also appointed in connection with the research work at the Veterinary Experiment Station. At present the instructing staff consists of four professors, one acting professor, two assistant professors, four instructors, and three assistants. In addition to these are those who teach veterinary students animal husbandry, chemistry, embryology, histology, and parasites in other departments of the University.

In view of the long and efficient service which Dr. James Law, first Director of this College, has rendered the veterinary profession, it was very fitting for the alumni to present the University with his portrait as an expression of their appreciation of his work as a teacher and leader. This was done with appropriate exercises May 14, 1909.

STUDENTS

In my former report I pointed out the effect, by way of temporarily reducing the number of students, of the higher entrance requirements which went into force in 1905. This year there is a total enrollment of 101 students. There are 44 freshmen, an increase of 15% over the entering class of 1908. Judging from the inquiries, there is every reason to expect that the steady increase in the number of students that has taken place since 1905 will continue.

INSTRUCTION

Several changes have been made in the curriculum. The essential advantages gained were the concentration of the work in such a manner as to avoid the very unsatisfactory practice of extending certain courses in medicine and surgery over two years. The course in general pathology was lengthened to include two university hours in the morbid anatomy resulting

from animal parasitism. The reorganization of the clinical work as outlined in my report for 1908–09 has proved to be very satisfactory. During the year 1908–09 the clinics were, considering our facilities for such work, well patronized. There was a total of 1119 cases treated in these courses of practical instruction. They were distributed as follows:

Consulting and Medical clinics	303	cases
Surgical clinics	138	"
Small animal clinic	327	"
Ambulatory clinic	351	"
Total	1119	"

A special course of lectures with demonstrations on the diseases of small animals was given by Dr. Frank H. Miller of New York. This course was of special value, coming as it did from a man of wide practical experience and a good teacher. Considerable interest has been aroused by a series of lectures by non-resident veterinarians and those especially interested in the live stock industry. Among these were Dr. W. G. Hollingworth, President of the State Veterinary Society; Dr. C. J. Marshall, Professor of Veterinary Medicine, University of Pennsylvania; and Hon. W. D. Hoard, Ex-Governor of Wisconsin.

In January a two-day conference for veterinarians was held, at which about 125, or more than 10% of the practitioners of the state, were present. The Faculty provided a program of as instructive and helpful a nature as possible and opportunities were afforded for general discussion. This conference, which was more largely attended than the one last year, gives an appreciative point of contact between the college and the practitioners. These gatherings indirectly bring the college in closer touch with the live stock interests of the state than would otherwise be possible.

Last summer for the first time the consulting and ambulatory clinics were kept open. The result was very gratifying. The opportunity which this affords for practical clinical teaching was taken advantage of by a few students and it is expected that in the future this will become an attractive and valuable adjunct to the teaching facilities of the college. Dr. J. N. Frost is in charge of the work during the summer vacation.

The Department of Therapeutics and small animal clinic has been separated from the Department of Physiology and placed in charge of Dr. Howard J. Milks. This has been a decided advantage in that it has given relief to the overcrowded Department of Physiology and made it possible for that department to devote more time to research work. Further, it has permitted of more personal supervision of the clinic for small animals by the head of the department than was possible when the work was combined. This change has greatly added to the efficiency of the instruction in each department.

The teaching of clinical medicine with both large and small animals is very unsatisfactory to both teacher and students with the present temporary quarters and inadequate equipment. The need for clinical buildings, in order that we may have the mechanism necessary to give the instruction called for in our curriculum, is very acute. The great necessity for clinical

buildings to complete the unit for giving instruction has been placed before the trustees and by them transmitted to the legislature. As a result, a bill asking for an appropriation of $130,000 for buildings has been introduced. With the equipment completed there is every reason to expect that the teaching in practical medicine will be highly satisfactory.

OPTIONAL FOUR-YEAR COURSES

The rapidly increasing demands upon the veterinary profession for greater knowledge of the diseases of animals and methods for their prevention, together with the knowledge necessary for meat, milk, and dairy inspection, suggest the desirability of extending the course of instruction to four years. After careful consideration the Faculty of this college has voted to introduce into its forthcoming announcement an optional four-year course of study.

DIAGNOSIS

The routine work of diagnosis for the veterinarians of the state and for the State Department of Agriculture has considerably increased during the year. The demand for tuberculin and anthrax vaccine has remained about the same as in previous years. The call for mallein has been less than heretofore, but the number of diagnoses by the agglutination method has been much larger. The examinations for rabies number 588 during the year ending January 1, 1910. The work in veterinary sanitation which the college is rendering to the livestock industry is coming to be more fully appreciated and already it is recognized by many breeders and dairymen as a valuable service to the state.

RESEARCH

The appropriation granted by the last legislature for research, experimentation, and extension work has made it possible for us to undertake a number of investigations and researches into certain phases of some of the more important diseases of cattle, swine, and poultry. While this work could not have been undertaken without the appropriation from the state, it is equally true that the experiments now in hand with bovine tuberculosis, infectious abortion, granular venereal diseases of cattle, and infectious maladies of poultry could not have been made except for the farm provided by the University and which is known as the Veterinary Experiment Station. The value of the Experiment Station has also been felt in affording opportunity to students to come into closer contact with experimental work, and also in providing the clinic with material for physical examination and diagnosis.

In addition to the investigations at the Veterinary Experiment Station, considerable research work has been done in the various departments and findings of value have been recorded. The discovery of the Gid parasite in the investigation of a fatal disease among sheep is worthy of note. Considerable new data have been collected relative to rabies, glanders, and tuberculosis. Dr. Fish has made a valuable contribution on methods for

identifying animals. This work became very desirable and the results obtained are of much importance to the practising veterinarian because of the state law, enacted at the last legislature, requiring the marking of tuberculin-reacting cattle. The results of Dr. Fish's work have been published in a circular from this college and mailed to all legalized veterinary practitioners in the state.

Dr. Williams is making an extended investigation into the nature, extent, and methods for preventing certain disorders resulting in abortion and sterility in cattle. We also have under way investigations relative to the various methods of infection with rabies, and others in connection with methods of diagnosing glanders.

EXTENSION WORK

In the extension work an exhibit illustrating the various methods for shoeing horses to correct different forms of foot troubles, and also exhibits of a helpful and suggestive nature relative to veterinary hygiene and certain diseases of animals, were made by Dr. D. H. Udall at the state and a few county fairs. A number of lectures have been given at farmers' institutes and schools on topics of veterinary hygiene and preventive medicine. One of the most taxing but perhaps helpful lines of extension work is the answering of the numerous inquiries which are made relative to the methods for preventing various diseases and disorders of animals.

During the summer vacation the Director of the College spent several weeks for the Commissioner of Agriculture in the study of the methods employed in several countries in northern Europe for the control of bovine tuberculosis. A somewhat detailed report of the methods employed in Denmark, England, Germany, and Holland, with the results thus far obtained, was made to the Commissioner of Agriculture late in the summer. In the fall of 1909, the Director was appointed a member of the International Commission for the study of methods for the control of bovine tuberculosis. The work on this commission has consumed considerable time which to that extent has interfered with other labors.

The Faculty has made several contributions to veterinary literature. The comprehensive volume on veterinary obstetrics by Dr. W. L. Williams is worthy of special mention.

NEEDS OF THE COLLEGE

The acute needs of the college are at present centered in the necessity for suitable buildings and equipment for teaching clinical medicine of both large and small animals. With the completion and equipment of the buildings asked for, the college will be well provided for until the increase in the number of students demands enlargement for their accommodation.

The appropriations requested for the year 1910–11 are as follows: Maintenance, $35,000; research and experimental work with animal diseases $10,000; for clinical buildings $130,000. The very generous consideration of our needs by the legislature last year gives reason to hope that our requests may be granted.

During the year there has been hearty co-operation on the part of the Faculty in carrying into effect every line of work suggested that seemed to be for the best interests of the veterinary profession. In working for the practitioners, as well as in giving as valuable instruction as possible to undergraduates, the college is striving to render a maximum service to the state.

Respectfully submitted,
V. A. MOORE,
Director of the New York State Veterinary College.

APPENDIX IX

REPORT OF THE ACTING DIRECTOR OF THE NEW YORK STATE COLLEGE OF AGRICULTURE

To the President of the University:

SIR:—I have the honor to submit herewith the report of the New York State College of Agriculture for the year 1909–1910.

The past year has been an active one in the development of the College of Agriculture. The increasing agricultural interest and activity in the state has been clearly manifested by the increased demands on the staff of the College of Agriculture for information and assistance and by a marked increase in the number of students in attendance at the College. The absence of Director Bailey during the year has been a great interruption but the Faculty has co-operated earnestly and cordially with the Acting Director in the prosecution of the work, and the year just closing may be reported as a successful one.

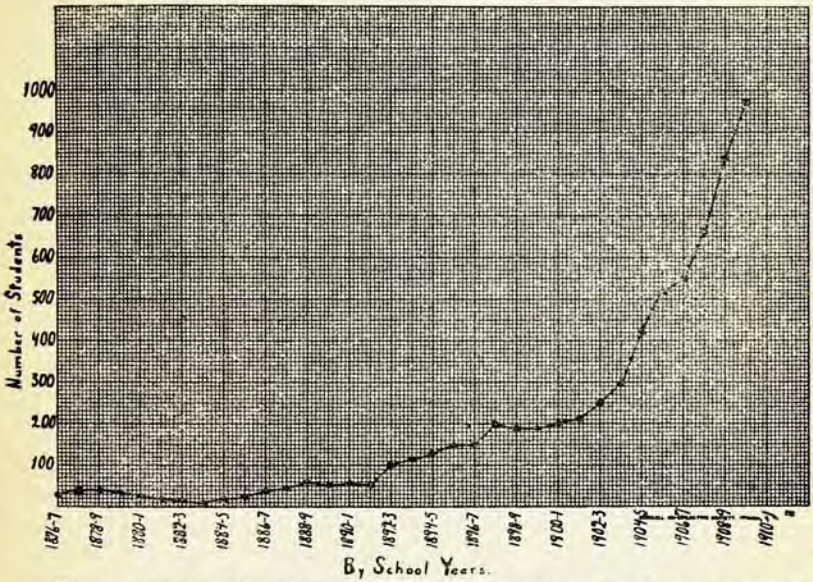
No changes have been made in the higher positions on the staff during the year. The handling of a larger number of students has, however, made it necessary to appoint a number of new assistants in minor places and the staff now numbers 84, exclusive of student assistants and stenographers.

INCREASE IN NUMBER OF STUDENTS

The number of students attending the College of Agriculture has increased very rapidly in recent years. During the first twenty years, from 1868 to 1887, the total number of students in any year did not exceed fifty. In the year 1892–93 the short winter-course was added, and the total number of students reached 103. There followed a gradual increase until in the year 1903–04 the total registration reached 296. In the spring of the year 1904 the College became a State institution, and an appropriation was granted for the erection of buildings. The succeeding year, 1904–05,

the registration advanced to 418. From that time the increase has been constant, and in the five-year period since, the registration has been more than doubled, being this year a total of 968 students in all grades. This increase is graphically illustrated in the accompanying chart.

CHART SHOWING INCREASE IN ATTENDANCE FROM YEAR 1876–77 TO 1909–10



The registration of various grades of students since the College became a State institution is shown in the following table:

REGISTRATION OF STUDENTS FOR LAST SIX YEARS

	1904-5	1905-6	1906-7	1907-8	1908-9	1909-10
Regulars	98	129	145	209	272	419
Specials	90	95	124	138	144	120
Post-Graduates	31	40	36	43	58	58
Winter-Course	199	253	244	270	364	371
Totals	418	517	549	660	838	968

The registration of Winter-course students in 1909–10 would have been considerably larger had it not been found necessary to limit the registration.

PERCENTAGE OF STUDENTS FROM NEW YORK STATE

It has been stated that a large proportion of the students of the College of Agriculture come from foreign countries and other states. A correct idea of the distribution can be obtained from the following table:

Students	1907-8	1908-9	1909-10
From New York	474	610	706
From other states	146	188	213
From foreign countries	40	40	49
	660	838	968

It will be seen from an examination of the above table that for the last three years 72.6 per cent of the students have come from the State of New York. It is important that the significance of out-of-state students be not incorrectly estimated. The number of out-of-state students is one indication of the esteem in which the work of the New York State College of Agriculture is held; and one of the most valuable features of a large institution with a cosmopolitan student body is the contact with persons from other states and other countries with different ideals, practices, and customs.

Moreover, a part of the support of the College of Agriculture is provided from Cornell University funds, and the University does not confine its activities to the State. No State College of Agriculture, so far as the writer can learn, limits its attendance to residents of the state, and it would probably be a mistake ever to make such limitations.

NECESSITY FOR INCREASED FACILITIES

During the year 1908–09 when a total of 838 students were in attendance at the College, considerable difficulty was experienced in finding space to conduct the courses properly. With the greatly increased registration the present year the difficulty has been multiplied and the crowded condition throughout the year has been serious. In several courses it has been necessary to abandon the laboratory work, which in agricultural studies is essential.

The recognition of the seriousness of our crowded condition early in the first term led to urgent recommendations being sent to the President that steps be taken to bring the condition to the attention of the legislature in order that provision might be made for the erection of the necessary buildings to relieve the congestion. Through the hearty co-operation of the President, the Board of Trustees, and the Faculty of this College, a systematic scheme of development has been worked out, which is intended to cover the buildings needed to accommodate the growth of the College of Agriculture for the next ten years. In accordance with this plan of development, which was adopted by the Board of Trustees and presented to the legislature, provision has been made by the State for beginning the development by the erection of three of the needed buildings, namely, a Class Room and Laboratory building with Auditorium, to cost $113,000; a Poultry building, to cost $90,000; and a Home Economics building, to cost $154,000, $200,000 being appropriated to begin the construction this year and the Trustees being authorized to contract for the erection of these three buildings for the full amount indicated.

While these buildings will bring relief, the College is so congested at the present time that the new buildings will quickly be crowded and they are

not sufficient to meet the immediate needs of the College. It is, therefore, my duty to point out that provision should be made at the earliest possible date for the erection of the Central Heating Plant, the Plant Industry building, the Animal Husbandry building, and the extension of the greenhouse laboratories in accordance with the plans adopted. The buildings provided for by the legislature this year will require separate heating systems from any now in operation. The heating plant in the basement of the Main College building cannot be extended and is already overtaxed. The new greenhouses also have a separate heating plant but it cannot well be expanded. The maintenance of so many separate heating plants is expensive of administration and very unsatisfactory. The erection of a central heating and power plant capable of expansion to meet future requirements is of first importance.

In his report last year, Director Bailey called attention to the crowded condition of the Agronomy building, which, he said "is the most congested part of the College buildings at present." Instead of planning to extend the Agronomy building now, it was thought best to plan a separate building to house certain parts of the agronomy work, and a Plant Industry building designed especially to house the Departments of Plant Pathology, Plant-Breeding, Plant Physiology and related work, was urged this year as one of the most pressing needs of the College. This was not granted, however, and therefore remains one of the most urgent needs of the immediate future.

The importance of extending the facilities of our Animal Husbandry Department was urged by Director Bailey in his report last year. Animal husbandry is one of the largest agricultural interests in the state and the work and facilities of this phase of the college service should be materially expanded. The department is now housed in a very inadequate building. When other facilities are provided, it is planned to utilize its present building for the work in Farm Mechanics, an important department now housed temporarily in a part of the basement of the Agronomy building. The space here is too small to accommodate the students in Farm Mechanics, and the work is objectionable in the Agronomy building as the noise and odor from the engines and machinery is a serious and constant interruption to the laboratory and class work in other parts of the building.

The new greenhouse laboratories which have just been completed are so much less extensive than originally planned, as a result of the reduction of the appropriation originally requested for them, that it has been necessary for the College to repair and maintain the old range, which it was intended should be abandoned as soon as the new houses were completed. It should be planned to extend the greenhouses as early as possible, as the old range has been used for many years and is rapidly reaching a condition where t cannot be repaired. Much of the laboratory work in horticulture, farm crops, soils, plant pathology, plant physiology, and plant-breeding cannot be conducted without greenhouse laboratories.

The demands to be made on the College in the near future will doubtless exceed the demands of the past. The people of the State are only just beginning to realize what a college of agriculture can do for them. The students are increasing rapidly in all departments, and the teaching and

extension requirements of the College are growing much more rapidly than the facilities therefor. If the College is to meet its obligations, this condition must be clearly recognized by the authorities of the University and the people of the State, and provision made to supply the increased facilities as they become necessary.

EXTENSION WORK

No part of the service of the College of Agriculture has attracted more attention or is more important than the extension work. The active interest which has recently been aroused in New York agriculture, necessitates greater activity in this department of the college work. For many years New York was the foremost agricultural state, but it has gradually fallen to fourth place in rank among the states. Now, again, there is evident a general awakening of interest among farmers and the state is beginning to move forward again. Agricultural lands are rising in value. The poorer and waste lands must be brought into productive condition. To develop the agriculture of the state the land must be worked by trained men. For the agriculture of the state to be effected in any large way by the young men receiving training in the regular college work will require a decade or longer, and while this is a short period in the life of the State it is too long a period to fulfil the requirements of the present generation. One of the most pressing needs is to spread the knowledge of improved agricultural methods broadcast among the farmers of the State. Only a very few of the older generation of farmers will come to the College or to any of the schools of agriculture to receive instruction, and the instruction must, therefore, be carried to these farmers on their farms.

The extension work has always been an important feature of the activities of the College. The Farmers' Reading-Course and the Farmers' Wives' Reading-Course have attracted more attention during the past year than ever before. This method of reaching the people is capable of great extension. It is very effective as supplementing the bulletins by correspondence and carries the lesson home in a personal and effective way. It is possible that the pushing of these reading-courses more in accordance with the methods followed by commercial correspondence schools will vitalize and improve the efficiency of this part of the work.

The educational exhibits made by the College at the State Fair and at several county fairs last summer attracted much attention and are doubtless an efficient aid in carrying instruction to the people.

Special Railway Farm Trains have been utilized to considerable extent during the past year for lectures and demonstrations. While the value of this method of instruction was at first questioned, the results of the year's work indicate that much good may be accomplished by its use. The following special trains have been run during the year, and others are under consideration:

1. A Fruit Special over the New York Central Railway in the northwestern part of the State. Five days, December 6 to 10. Attendance 15,000. Special cars contained exhibits of fruit grown in New York in

comparison with selected products from the irrigated fruit regions of Oregon, Washington, and Colorado. Demonstrations were made at every stop of the box-packing methods, control of diseases by spraying, and the like, accompanied by special lectures on improved orchard methods.

2. A Farm Special over the Buffalo, Rochester & Pittsburgh Railway. Three days, April 18 to 20. Attendance, 4,429. On this trip lectures and demonstrations were given on dairying, cow testing, butter making, poultry raising, alfalfa growing, improvement of pastures, and other important agricultural topics. A special poultry exhibit was arranged and presented in one car of this train.

3. A Farm Special over the New York Central lines in northern and northeastern New York. Four days, May 10 to 13. Attendance, 8,000. Special lectures and demonstrations on dairying, pastures, forestry, etc., as above.

4. A Farm Special over the Lehigh Valley Railway in central New York. Two days, May 9 and 14. Attendance, 1,711. Special lectures and demonstrations as above.

5. A Farm Special over the Ithaca-Auburn Short-line. One day, May 18. Attendance, 887. Special lectures and demonstrations as above.

The experience gained in the special train teaching indicates that especially good results follow the demonstration and exhibit features. The outfitting of the trains at Ithaca enables the inclusion of illustrative animals, as cows, poultry, etc., and apparatus for demonstration.

In so far as possible it has been the plan to run these trains in co-operation with the State Department of Agriculture and the agricultural schools of the sections traversed by the trains, and we are pleased to acknowledge the efficient aid furnished by the State Department of Agriculture, the State School of Agriculture at St. Lawrence University, and by the State Department of Forest, Fish, and Game. I desire in this connection to call attention to the service to the state and to this institution which the various co-operating railways have rendered. The train service in all cases has been furnished free of expense to the state or the College, and this generous public-spirited policy on the part of the railways of the state is worthy of special commendation.

The other features of the extension work, such as, special lectures, co-operative experiments, Farmers' Week, and the like, are being constantly extended, yet we are ever reminded that the work falls far short of what it should be and what is imperatively demanded to accomplish the results which the conditions require. More work should be done with individual farmers. Demonstrations on their own farms in spraying, growing alfalfa, renovating pastures, selecting and improving corn and potatoes, and the like, bring the lessons home to them. Numerous co-operative experiments of this nature should be arranged in various parts of the state for the benefit of the immediate communities. The College is earnestly endeavoring to enlarge its service to the state in this direction. The available funds, however, are insufficient to allow the work to be expanded fully to meet the obligation resting upon us.

INDUSTRIAL FELLOWSHIPS

A new method of co-operation with companies or individuals is being tested, which it is believed may prove of considerable service to the State and to the College and to the companies concerned. This plan is to facilitate the investigation of agricultural problems which commercial firms are interested in having solved, by accepting from them the endowment of Industrial Fellowships in the College with sufficient funds to enable the employment of a specially prepared graduate student to undertake a thorough investigation of the problem as a principal part of his work for a higher University degree.

Many bright young men are anxious to work for higher degrees. These industrial fellowships will give young men an opportunity to earn their support while working for their degrees. The fact that they are being paid to solve a certain problem will stimulate their work on this problem. The company endowing the fellowship is benefitted by having a man of superior talent employed to solve a problem which is of special importance to it, and by knowing that the work is being conducted under the direct supervision of the experts of the College of Agriculture. Problems may be suggested for such industrial fellowships which are entirely unsatisfactory. To be satisfactory, a problem must be of such a nature that the University authorities are willing to accept it as a suitable subject for a major doctorate thesis.

The following industrial fellowships in the College of Agriculture have been accepted by the University and are now in operation:

Niagara Sprayer Company Fellowship, established by The Niagara Sprayer Co., Middleport, N. Y., July 31, 1909. For the investigation of the fungicidal value of lime-sulphur mixtures as applied to the control of diseases in plants. $1500.00 a year for two years. Held by Mr. Errett Wallace.

The C. W. Stuart & Company Fellowship, established by C. W. Stuart & Co., Nurserymen of Newark, N. Y., November 4, 1909. For the investigation of the diseases of nursery stock, with special reference to fire blight and its control. $750.00 a year, for two years. Held by Mr. V. B. Stewart.

The Herman Frasch Fellowship, established by the Union Sulphur Company, New York City, April 20, 1910. For the investigation of the value of dry sulphur as a fungicide used on the plants or in the soil in the control of plant diseases. $3000.00 a year for four years. Held by C. N. Jensen and F. M. Blodgett.

The John Davey Fellowship, established by The Davey Tree Expert Company, of Kent, Ohio, April 1, 1910. For the investigation of the diseases of shade, forest, fruit, and ornamental trees, with special reference to the cause and nature of heart rots. $750.00 a year, for two years. Held by Mr. W. H. Rankin.

The Department of Plant Pathology has been responsible for the arrangement of all of the industrial fellowships thus far established in the College of Agriculture. I wish to call your attention to the very liberal endowments made in several instances.

INSTRUCTION IN FORESTRY

The time has come in the development of the agricultural interests of the State when this College must provide instruction in forestry. The necessity for this, which was clearly set forth by Director Bailey in his 1907 report, is increasingly borne in upon us. In an old and thickly settled state like New York the forestry problem is largely reduced to the proper handling of the farm woodlot. The handling of the state forests and the forests on extensive estates of wealthy men is comparatively a small problem and demands the attention of but a limited number of trained foresters. However, on almost every farm in the state there exists a considerable area of rough land which is practically worthless in the present state of our agricultural advancement for other than forest purposes. It is highly important, therefore, that students of this College who are going back to the farms of New York in ever increasing numbers should have had sufficient training in forestry to understand the best methods of reforesting such areas and caring for farm woodlots. The farm woodlots or forests which now exist, and there is some forest on almost every farm, are in general handled without method or regard to their maintenance, and are not intelligently looked upon as a farm crop. These are capable in many cases of furnishing a material and continuous source of income if properly handled. In too many cases now they are handled by wasteful and destructive methods. Every agricultural student should receive the training which will prepare him to utilize this resource of the farm to the best advantage.

Recognizing keenly the importance of this problem and our responsibility to the farmers of the state and to our students, I would most earnestly recommend that a Department of Forestry be established in this College where our students may receive the proper instruction in this subject. The technical instruction in forestry which our students should receive will not require an extended period of study and a large force of instructors will not be necessary. The closely allied branches of study, such as plant physiology, plant pathology, principles of agriculture, horticulture, soils, climatology, and the like, are now regularly given in this College, so that a strong course in forestry can easily be arranged.

The importance of instructing farmers of the state on these problems in connection with our extension work will also be clearly recognized.

SUMMER INSTRUCTION IN AGRICULTURE

Up to the present it has not been feasible to introduce instruction in agriculture into the Summer Session of the University. The Summer Session is patronized largely by the public school teachers of the State who desire training in special lines. There is a growing interest in the introduction of agriculture into the public schools of the State. As the legislature has this year provided means for introducing such instruction in the rural schools, it is probable that there will now be a considerable demand for a course of instruction in agriculture, planned to fit teachers to give such instruction in the elementary and high schools. This College of Agriculture is the natural place in the State to which teachers should look for their instruction,

and it is clearly our duty to make provision for such a course of instruction. The difficulty of arranging for work during the vacation period is enhanced by the fact that the Faculty of the College of Agriculture is already required to remain on duty during the summer in connection with the extension work and the investigations of the Experiment Station. Furthermore, the Faculty of the College are already seriously over-worked, and it is certain that no extra work of this kind can be undertaken without the addition of other instructors. A special fund for this purpose was this year included in the appropriation items requested from the legislature but was not granted. Apparently no action can be taken on this matter at the present time, but it is important that a good course in agriculture designed for teachers be given in the summer, and I would urge that every effort be made to accomplish this result.

DEMONSTRATION FARMS

Considerable has been said recently with reference to the establishment of demonstration farms in various parts of the State and numerous requests have come to the College of Agriculture, particularly from certain railways of the state, that we co-operate in the management of such farms, in order that they may be made to teach lessons of value and serve to stimulate the use of better farming methods in the communities in which they are located. There would seem to be no very important reason for the establishment of ordinary demonstration farms to demonstrate that farming pays, which is usually considered to be a fundamental purpose of such farms, as there are dozens of farms in every county of the state already in operation that might just as well serve as such examples. That farming pays requires no demonstration, as many thousands of the farmers of the state are making comfortable livings for themselves and their families. It must be admitted, however, that a considerable part of the lands in certain sections of the state are not being wisely utilized and that there is great opportunity for improvement. Many lands are now being farmed at a small profit or at an actual loss, which if used for a different type of farming might be conducted at a profit. Unfortunately, the information is not at hand to enable farmers in all cases to determine the best type of farming to be pursued on a certain tract of land. This information can be obtained to some extent from the experience of farmers on similar types of soil under similar conditions and by experimentation. The farm surveys which are being conducted by the Department of Farm Management of the College are intended to supply knowledge of this kind. In this work the different types and methods of farming pursued by the farmers of a certain section are being compared with reference to kinds of soil, expenses, profit, and other factors. The data collected in a given region, when tabulated and summarized, indicates rather conclusively the types of farming that pay the best in that region, as the surveys so far as possible include records from all of the farms of the section concerned.

All of the problems, however, cannot be determined from the results of such surveys. The survey may be expected in many instances to indicate certain conclusions that require to be demonstrated by further trial. It is

believed that farms could be run to make such trials, and while used, therefore, as demonstration or, as I prefer to call them, educational farms, would be in considerable measure experimental, to determine the profitableness of a certain type of farming.

As an illustration, it is believed that certain hill land farms in the southern part of the state might be run profitably as special sheep farms. The number of sheep per given area, the kind of crops to grow in connection with such a farm and the proper proportion of each, require to be studied. These factors can be determined only by actual trial. Unquestionably it would be of value to the farming interests of the state to have the data that could be obtained in the running of such a farm. A considerable number of special types of farming believed to be promising for the poorer lands of the state require to be tested in a practical way, and it is believed that, so far as possible, the College should accept advantageous offers of co-operation in cases where it seems probable that results of value to the respective communities can be obtained. This type of co-operation would be similar in a measure to the industrial fellowships discussed in another part of this report, whereby the College co-operates with companies or individual parties by accepting certain funds to be utilized in the solution of specific problems.

Respectfully submitted,

H. J. WEBBER,

Acting Director of the New York State College of Agriculture.

APPENDIX X

REPORT OF THE DIRECTOR OF THE COLLEGE OF ARCHITECTURE

To the President of the University:

SIR:—I have the honor to submit the report of the College of Architecture for the academic year 1909–10.

The increase in attendance this year, though slightly in excess of the increase in the University as a whole, has been small in comparison with the rate for the two years preceding. This is perhaps due in part to the fact that the increase in the two years was abnormal, but there is a further reason in the fact that limited facilities and larger attendance have led naturally to a more rigid enforcement of standards both for admission and in the College.

The alterations made for the Department of Drawing and Painting in Franklin Hall in the summer of 1909 have increased the value of these rooms even beyond our expectations, not only in making space available that was formerly useless, but more effectively in providing an abundance of steady uniform light without which work in drawing and painting cannot be done with any satisfaction or success. As I have taken pains in the past

to point out the effect of environment and light—or the lack of it—on the work, I cannot now refrain from pointing out that every branch of the work affected by this change has been markedly better this year than ever before in the history of the College.

Although I do not anticipate any growth beyond the capacity of these rooms within the next three or four years, the fact remains that they are now used well up to their capacity and I am not entirely free from anxiety in the matter.

In the drafting rooms in White Hall we have been able to find place for the students only by the utmost crowding, and even then it has been necessary to block up aisles and passageways to an extent distinctly inconvenient if not positively dangerous. At the time of writing this report the drafting rooms are being enlarged by the somewhat heroic process of removing four massive stone partitions, thus throwing into the rooms two hitherto unused and unusable halls, increasing the available floor space by about 1000 sq. ft., and making place for nearly 30 additional students.

While this solves the problem of drafting room space at least temporarily, we have much difficulty in finding rooms for the regular classroom work such as lectures, recitations, etc., having under our control just *one* room for the entire college where recitations and lectures can be held, and this room one with a seating capacity smaller than the number of students in some of our classes. Briefly outlined, our most pressing needs in this respect are: an additional lecture room to seat not fewer than 150, a seminary room, and a large room for work that calls for drawing in connection with recitation exercises.

During the present year we have been using rooms in the Department of Mathematics for recitations, but this has been far from simple as a matter of schedule and there is no certainty that the arrangement can be continued for another year, though our present attitude is one of faith that it may be. I hope to find somewhere next year a lecture room available for our large classes in the History of Architecture, but failing in that we probably can continue to give the work as at present, though there are obvious difficulties and some dangers in giving monthly preliminary examinations in a room where each seat occupies but twenty inches in width and the number of pupils is greater than the number of seats.

The standard of work throughout the College during the year has been very satisfactory. In the Beaux-Arts Society competitions our students have quite held their own, especially distinguishing themselves in the March competition—the last in which they took part, where with six entries we received two First Medals (the only firsts given), three Second Medals, and one Mention. Pennsylvania had but one entry and took a Second Medal, while Columbia with ten entries took nothing higher than Mention. Competitors from numerous private *ateliers* received, in general, Mentions and a few Second Medals.

We have this year for the first time had a representative in the competition for the recently established scholarship in the American Academy in Rome, a scholarship paying $1000 a year in money with residence at the ome of the Academy in Rome for two and a half years or longer. This

competition is open only to graduates of schools of approved standing and our representative, Joseph M. Kellogg, '09, with 50 competitors, took second place in a close decision.

The new arrangement providing for the teaching of Descriptive Geometry and the Theory of Construction within the College has been a pronounced success under Assistant Professor Young, B. Arch., Cornell, '00, who comes to us directly from ten years of most valuable experience on the highest class of work.

In addition to the regular exhibitions of student work, the College has held during the year two noteworthy art exhibitions, the first an exhibition of paintings by the Philadelphia Water Color Club; and the second an exhibition of sketches in oils and pastel by F. L. Ackerman, and etchings by J. André Smith, both graduates of the College and now practicing architects in New York. Both exhibitions were well received by the public and were of great educational value, especially to the students in architecture.

After all other problems have been given full consideration, the one problem remaining, the most important of all, and the one more difficult from the administrative point of view than all the others combined, is the problem of holding together an adequate instructing staff under present salary conditions within and without the University. I am not unmindful of the fact that the administration is already acutely conscious of this difficulty as applying to the entire University; but in architecture the demand in professional circles is so great and the salaries and opportunities so good that unless the College positions can be made more attractive we shall be reduced to the necessity of filling in our staff either with young and inexperienced men or with the professional derelicts, except in the rare instances where we find a man of talent to whom the quiet life of the teacher appeals more strongly than the hurly-burly and emoluments of practice.

Thus far we have been extremely fortunate in having at the head of every one of our departments a man imbued with the love of the work, but it is very hard to keep this up and even harder to fill the secondary places at the much smaller salaries; and recently some of the western schools have been practically doubling our salaries in their efforts to secure good men from the eastern schools. I feel that we are rapidly approaching a crisis in this respect and that the time will come very soon when we must meet the situation squarely or give up the position we now hold among the schools of architecture.

Much has been said, by those who need to find argument against Cornell, about the advantages of a large city for the study of architecture, much that is sound and true; but if we could have the money to spend on our school here in Ithaca that it would take to maintain it with anything like its present efficiency in the city of New York we could have a school here unquestionably better than any school in America today. As a matter of fact we come near to having just such a school now, but I do not believe it to be humanly possible to hold our present position on the present financial basis, and it is this conviction that has led me to advise the advance in tuition which goes into effect next year.

In this connection it is interesting to note the relation between salary list, number of students, and the tuition roll during the past twelve years.

	Cost of instruction in architecture for each student registered	Excess of salary list over total tuition.	Excess of tuition over salary list.
1898–99	$239.60	$5,500	
1904–05	198.53	5,000	
Average for 7 years, 1898–99 to 1904–05	224.27	5,010	
1905–06	166.66	3,375	
1906–07	161.58	3,000	
1907–08	132.50	750	
1908–09	110.05		$1,925
1909–10	112.85		1,700

The figures for 1909–10 are not on the same comparative basis as the others because the salary list this year includes $2,000 for instruction formerly given in the College of Civil Engineering. Deducting this to show 1909–10 in its true relation to the preceding years gives the cost per student $97.74 and the excess of tuition over salary list $3,700.

I do not present these figures as showing any accurate account of income and expense, because,

First, the salary list in architecture is not by any means the entire cost of instruction to students in architecture, though it is a much larger proportion of that expense now than ever before.

Secondly, only about 90% of our students pay tuition, but this percentage is probably so nearly constant as to have no material effect upon the comparative value of the figures given.

Thirdly, the general cost of maintenance and equipment has increased with the growth of the College, though aside from money expended on buildings this increase has been a comparatively small item.

What the figures do show is that in the important items of expense the cost to the University of teaching 140 students is only about one-half the rate per student that it has cost to teach 60 students, and that the College with 140 students and their tuition costs the University on a conservative estimate between six and seven thousand dollars a year *less* than it has cost when the number of students ranged from 43 to 65. With the advance in tuition next year and little if any increase in the cost of instruction the tuition roll should exceed the salary list by about $4,000.00, showing a gain to the University of approximately $9,000 over the average year prior to 1905–06, and that without taking any account of the instruction formerly given by other departments of the University but now given by this College and counted as a part of the expense of this College.

I wish to call particular attention to the item of "cost per student", because in work where so much of the instruction must be individual instruction the cost per pupil never can go very low, and I believe that the pendulum has swung to the extreme in this direction and must inevitably swing back to a normal, which I think may well be somewhere between $125 and $150 a student so long as the total number does not go much below 120 students.

In the matter of equipment there is little to be said that has not been said in earlier reports. Our equipment is good, in many respects exceptionally good, but with several weak points that must be strengthened as conditions permit. The proper care and safety of our library, which is now as in the past our great treasure, is a source of considerable anxiety, as I feel that so valuable a collection so much and so constantly used should have an attendant whose sole business would be to care for it, protecting, preserving, indexing, and keeping it in order. Thus far we have been remarkably fortunate in the small annual loss through the disappearance of books and plates, and I do not know of a single case of apparent deliberate mutilation so common in art libraries, but we can scarcely hope always to be so fortunate, and I believe that the demands of reasonable care call for more attention than it is possible to give under present conditions. Since this library is but a branch of the general library, it seems to me that the person in charge should be a member of the library staff rather than of the college staff, both as a matter of administration and efficiency in service.

Respectfully submitted,

CLARENCE A. MARTIN,

Director of the College of Architecture.

APPENDIX XI

REPORT OF THE DIRECTOR OF THE COLLEGE OF CIVIL ENGINEERING

To the President of the University:

SIR:—I have the honor to submit the following report for the College of Civil Engineering for the year 1909–10.

The registration for the year, as shown by the class roll-calls, has been as follows, classifying according to subjects taken rather than by official standing as in the Register:

	First Term	Second Term
Graduates	9	10
Seniors	124	115
Juniors	123	113
Sophomores	122	125
Freshmen	193	163
Total	571	526

This list includes 14 graduates in the undergraduate courses.

Of the new students, 2 entered the freshman, 11 the sophomore, and 1 the junior class.

Instruction has also been given to students from other Colleges as follows:

	First Term	Second Term
Sibley	350	625
Architecture	4	4
Arts	49	51
Agriculture	3	1
Graduates	4	5
Total	410	686

The year opened very auspiciously indeed. The entering class was the largest in the history of the College, numbering 193, or an increase of 23 over the previous year. The senior class also was the largest in the history of the College.

The work of instruction was substantially the same as that of the previous year. Minor changes, such as those necessary to bring the work of the College more fully up to date, were made. Among the more important of these may be mentioned the securing of Mr. A. P. Mills for the work of the testing laboratory. Mr. Mills has made a special study of testing materials, and so brought to the College an excellent experience in this line of work. The importance of this laboratory to the College can hardly be over-estimated. It is an important factor in the work of instruction and at the same time serves the people of a large territory who have need of the work it can accomplish. During the year we have added a new 10,000-pound wire testing machine to the laboratory, and before the year is over will have a new 100,000-pound tension and compression machine in place.

The work of the College in sanitary engineering has made good progress. The establishment in Lincoln Hall by the State Department of Health, of a branch of the State Sanitary Laboratory at Albany, has aided this work materially. The actual seeing of things done in the laboratory has doubled the interest of those students studying sanitary engineering, making them feel that they were in close touch with practical work. For this addition to the College, we are indebted to the efforts of the President, to the kind assistance of the State Commissioner of Health, Doctor Eugene H. Porter, and to the labors of Professor H. N. Ogden of the Department of Sanitary Engineering.

The hydraulic laboratory, while much too small to meet the needs of the College, received some modification during the year. One of the floors has been fitted up for demonstration purposes; that is, the carrying on of certain experiments for the purpose of aiding the teaching of theoretical hydraulics. This work was very successful and again illustrates the importance of a combination of the theoretical and practical in reaching results. The laboratory was the recipient, during the year, of gifts well worthy of mention. The Neptune Meter Company very kindly presented it with seven of its water meters, two of them skeleton ones showing form of construction, together with a complete outfit for testing ⅝ to 2 inch meters. Our sincere appreciation has been expressed for this generous gift. The Hersey Manufacturing Company very kindly presented the laboratory with two of its water meters and we have expressed our appreciation of

their kindness. The Buffalo Meter Company also presented the laboratory with two of its water meters and we have expressed our appreciation of their courtesy. These gifts have added materially to our equipment and serve a most useful purpose in the work of instruction in hydraulics. A small Doble impulse wheel was purchased for the laboratory and will soon be installed. It is fitted with plate glass sides for the purpose of permitting a careful inspection and study of this type of wheel.

Nothing calling for special notice has occurred in the other departments; the usual good reports of their work can be registered.

In regard to the needs of the College, I feel called upon to emphasize the want of more room in all of its buildings. Lincoln Hall is greatly overcrowded. The hydraulic laboratory is no longer large enough to meet the demands put upon it. The great interest that has been aroused in this country during the last few years in cheap power, water power, calls for extensive work along all hydraulic lines. The Fuertes observatory is also too small. While it met the demands of eight or ten years ago when the number of students in attendance was less than 200, it can not be expected to meet the present demands when we have nearly 600 students.

Respectfully submitted,

E. E. HASKELL,

Director of the College of Civil Engineering.

APPENDIX XII

REPORT OF THE DIRECTOR OF SIBLEY COLLEGE

To the President of the University:

SIR:—I have the honor to submit the following report for Sibley College for the year 1909–1910.

Several changes looking to increased efficiency in the work of instruction have been planned during the year.

For many years students of Sibley College have received instruction in Mechanics of Engineering in the College of Civil Engineering, either directly under Professor Church or in his department; and all who have ever studied under him know how great is the advantage and the privilege of knowing him both as a teacher and as a man. The Faculty of Civil Engineering has carried this burden of instruction very efficiently and with great patience even when hampered for room and teachers for its own work. To remove this burden and at the same time to establish a closer relation between the work of Mechanics and that of the mechanical laboratory and the Department of Machine Design, the instruction in Mechanics for students of mechanical and electrical engineering will hereafter be given in Sibley College.

A very important part of the work of a college of engineering is to help to extend engineering knowledge; not only because of the knowledge itself, but also because teaching is vitalized by being in an atmosphere of enthusiasm for research. During the past six years the energies of the Faculty of Sibley College have been so concentrated upon teaching and upon the development of the course of instruction that the work of investigation has received but little attention. Next year systematic work in research will be undertaken under the direction of Professor Carpenter, and it is hoped that henceforth frequent contributions will be made to the data of engineering.

MECHANICAL LABORATORY

The course in Materials of Engineering has previously been given as a class-room course. It has been recognized that lectures and recitations alone are inadequate for the teaching of this subject, and as a result, while the metallurgy is still given as a lecture course, the division of the subject dealing with the properties of materials is taught by actual demonstrations by teachers before small section of students. A new special equipment has been provided for this purpose.

In the Strength of Materials laboratory several obsolete machines have been replaced by machines of latest design.

POWER ENGINEERING

The scope of the course formerly given as "Steam Machinery" has been greatly increased and the time given to it has been extended to include the first term of the senior year. It is now called "Elementary Heat-Power Engineering." The work of this course in the junior year is devoted chiefly to thermo-dynamics, while the senior work will include more advanced topics connected with the development of power from heat.

MACHINE DESIGN AND CONSTRUCTION

Only slight changes have been made in the work of Machine Design, the development of the past few years having brought this course up to a standard that corresponds to the needs of present engineering practice.

Quite important additions have been made to the equipment of the machine shop, pattern shop, and foundry. The floor space of the foundry was insufficient for the accommodation of the class taking the work during the year. The addition now nearly completed—which will double the foundry—will relieve this congestion temporarily. The machine shop room, which has been fully utilized, has been crowded for several years and is entirely inadequate for the future.

ELECTRICAL ENGINEERING

The work of this department has been reorganized into three sub-departments; advanced theory, advanced laboratory, and introductory courses. This has proved a good working arrangement. The imperative need of

the Department of Electrical Engineering is for a suitable laboratory in which to bring together, for effective use, the present scattered equipment.

In conclusion, I can only repeat what has been urged so often, that unless increased building accommodations can be provided for the shops and laboratories of Sibley College, the number of students will have to be limited.

Respectfully submitted,

A. W. SMITH,

Director of the Sibley College of Mechanical Engineering.

APPENDIX XIII

REPORT OF THE DIRECTOR OF THE SUMMER SESSION

To the President of the University:

SIR:—I beg to submit my fifth annual report as Director of the Summer Session which closed August 16, 1910.

THE TEACHING STAFF

The present year the Faculty numbered 99, 44 of whom are considered of professorial grade. Of the entire number 76 belong to the regular teaching force of Cornell, and 23 have come from outside the University. Of the men appointed specially for work in the summer, Messrs. Condra, P. R. Dean, Furlong, Hawkins, Lieder, Mann, Poland, Wood, and Woodburn have been members of the Summer Session Faculty in previous years. This year we have had as members of the Faculty for the first time, Miss Laura Bryant, Supervisor of Music in the Ithaca Schools; Messrs. J. Earl Griffith, head of the department of Drawing in the High School of Commerce, Cleveland, Ohio; H. B. Hilliard, head of the department of Piano Instruction, Ithaca Conservatory of Music; E. E. McCready, Director Manual Training, Public Schools, Syracuse, New York; Thomas Tapper, Lecturer in the Institute of Musical Art, New York City. It is a pleasure to bear witness to the earnest and devoted service of all the teachers in the Summer Session. Those from other institutions do not fall behind the members of Cornell faculties in their interest in the work, or in their unselfish and devoted labor. In looking back over the session, which in the opinion of all connected with it has been a marked success, I cannot but feel that the success is due to the teachers, and to the enthusiasm which they have put into their work and have communicated to all who received their instruction.

I repeat my statement of last year that it is a matter of most favorable comment by those who come here to study that their instructors spare no pains to meet the personal needs and inquiries, and give freely their time and

attention to the needs of their pupils. I feel, furthermore, that what may be considered a characteristic form of the "Cornell spirit" is shown clearly and abundantly in the teaching of the Summer Session. The standards of the University are carefully maintained and Cornell's reputation is not allowed to suffer. The great mass of persons who attend the University in the Summer Session are serious-minded people of earnest purpose, and many of them keen judges of good teaching. That so little criticism is made (it would be next to impossible to have no criticism) is a cause for congratulation.

STATISTICS OF ATTENDANCE

	1905	1906	1907	1908	1909	1910
Teaching staff	58	62	68	71	79	99
Number of students	619	642	755	841	889	987
Cornell University students of previous year	294	225	288	372	375	387
Former Cornell students	59	85	92	84	116	130
Graduates of Cornell University	25	23	19	15	22	37
Graduates of other colleges	100	129	131	125	141	145
Non-graduates from other colleges	59	70	95	107	62	136
Teachers	218	263	302	294	331	377
Holding first degree only	111	133	123	173	153	164
Holding second degree	19	21	27	26	28	18
New York State	238	288	320	326	372	428
Outside New York State	381	354	435	515	517	559

Of the teachers in attendance there were engaged in teaching in:

	1905	1906	1907	1908	1909	1910
Colleges	27	27	22	32	40	26
Normal Schools	12	15	18	12	15	15
High Schools	61	96	111	147	129	160
Grammar or Elementary Schools	93	95	120	82	131	134
Private Schools	5	26	17	8	11	3
Superintendence and Supervision	3	6	14	13	21	39

The figures show a gain of 100 in our registration over last year. This is somewhat more than the average gain for the previous two years, but may be considered about normal. The increase in the number of our own "Undergraduates of the previous year" is but 12. This is an indication of a more satisfactory treatment of students whose work during the previous years has been below standard. For a number of years it was the custom for any student who failed in June to remain through the Summer Session. These cases, for the last two years, have been carefully examined, usually by a standing committee of one of the faculties. Some of these students have been directed by their faculty to take work in the Summer Session, and such work is sometimes specified. Others, whose cases seemed hopeless, have been told that they cannot improve their standing in the regular course by taking summer work. By this treatment men are made to feel that it is not safe to neglect work during the winter and spring with the expectation of making it up as a matter of course in the summer. The present situation is more satisfactory from every point of view. I note with gratification the considerable increase in the number of our own graduates returning for summer work. The direct interest in the work of the Summer Session

of our own graduates engaged in teaching and their attendance here in larger numbers than ever before are very encouraging. Conversations with a number of them have been very helpful, and I have received valuable sugrestions as to the University's work in connection with the training of teachers. The number of undergraduates from other colleges has reached, this year, a much larger figure than before. As with our own undergraduates, two classes of students are represented, the better and more ambitious, and those who have failed in one or more branches of study at their home college. While exact figures are not available, the impression is warranted, I think, that the numbers of the former class are increasing. The number of teachers in attendance shows a gratifying increase. It is quite evident that the drop last year in the number of high school teachers was accidental, and not due to any shortcomings in the work.

THE DEPARTMENT OF MUSIC

It has been a particular satisfaction to be able to offer this year a well considered and fully rounded out program of instruction in Public School Music. The work was laid out with Professor Dann in the winter, and wide publicity was given to the plan among teachers and supervisors of music in the public schools of the country. Professor Dann has had associated with him Messrs. Thomas Tapper, H. B. Hilliard, Edward F. Johnston, and Miss Laura Bryant as instructors. They have given instruction in all the grades of music in the public schools from the kindergarten to the high school. The various branches of instruction are arranged so as to form a complete course of training for a supervisor or director of music in the schools of any city or state. The attendance has been large, the spirit one of remarkable enthusiasm and earnestness. The work has been severe, but none has shirked, and the results for the first year have been extremely gratifying. The work is no longer an experiment. Its success is assured, and we may expect a steady increase in numbers. Nearly all public school teachers are expected to have some training in music. The opportunities for obtaining such training of recognized high standard and quality have been few. It is no small service to education that we are rendering in establishing this work upon a firm foundation. Beyond the services rendered to the students in music, the presence here of so many musicians has added much to the pleasure of the session. Mr. Johnston, the University Organist, has given us a splendid series of recitals on the organ. We have had the kindly assistance at the Thursday evening recitals of Miss Butterfield, Mrs. Chamot, and Mrs. Atwater. On the last Thursday evening of the session, we had a varied program presented by the Department of Music, which included some fine chorus work. For the Sunday evening meeting on the campus, the hearty singing of the students of music, who volunteered to lead in the exercises, was an added pleasure.

OTHER DEPARTMENTS

After a lapse of two summers, we have this year revived the work in Nature-Study, under the direction of Mr. Layton S. Hawkins, a member of

the faculty of the State Normal School at Cortland. Mr. Hawkins is no stranger to Cornell or to our Summer Session. He has had close relations, both as a student and teacher, to our biological work in previous years. His work in the new field this year has been of the finest quality. He has known how to combine popular presentation of scientific truth with the attitude of a true student of science. He has avoided the two great dangers attending nature-study,—that of making it practically identical with elementary zoology on the one hand, and of allowing it to drift off into mere gush on the other hand. There is a place, and an important place, in school work for nature-study rightly viewed and taught, but that it shall be rightly viewed and taught requires thoughtful and judicious preparation for its teaching.

New courses were offered this year in Speaking and Reading by Mr. Blanton. Such large numbers presented themselves for the work that Mr. Blanton was unable to carry all which had been planned. Professor Winans very kindly came to our assistance and took charge of the course in Public Speaking. In this way, Mr. Blanton was able to give his entire attention to the work in Voice Training and in Oral Reading. These courses form a very excellent extension of our previous work in English and ought certainly to be continued. A further extension of work this year was the giving by Mr. Perrine of a course in Elementary Geology. Its success was decided and the demand for work in the subject seems to warrant more courses in it another year. A course in Industrial Geography under Professor Condra has been of great value and it has been a surprise, I think, to many of us here to realize how large a field of possible illustration is presented by the plant of the University itself, especially of the College of Agriculture, and by the industries in and around Ithaca.

We have had, this year, confirmation of the opinion expressed by Director Haskell of the College of Civil Engineering, that there would be a steady demand for instruction during the Summer Session in Concrete Construction. Last year two courses in this subject were offered tentatively. This year, they were put into the regular announcement, and so many applied for the course that Professor Derickson, who had charge of the work, was obliged to have an assistant to handle it properly. Closely allied to this work are two courses, which were offered conditionally upon the demand for the same, in Hydrostatics and Hydraulics. They have been given by Professor Seery, and it seems likely that there will be a sufficient call for these courses each year to warrant our including them in the regular program hereafter.

In Sibley College, a course in Machine Design has been given by Professor Albert. It does not seem to Professor Kimball that this work is as yet so certain to be called for in the summer as to warrant our making it a part of the regular program.

SPECIFIC COURSES FOR TEACHERS

In addition to various courses of instruction in some departments, we have provided specific courses intended to deal primarily with the pedagogic side of the subject matter and have invited here successful teachers from

our best high schools to conduct them. Mr. P. R. Dean of the Curtis High School, New York City, conducted one such course in algebra, and one in geometry; Mr. P. R. Mann, of the Morris High School, New York City, carried a course in high school biology; Mr. R. C. Gibbs, of our own staff, who has had experience in high school teaching, conducted a course in physics from the same point of view. In this course we had the assistance for two weeks of Mr. George C. Hodges, head of the department of physics in the Utica Free Academy, and known throughout the state as one of the most successful high school teachers of physics. The work of these gentlemen was directly helpful. I feel that such courses are of the greatest possible value and must always form a necessary part of our instruction. The teachers' view has also been held steadily in much of the work of the other departments, and the mention of some courses specifically should not be interpreted to mean that other departments were lacking in similar work. All through the work in geography, for instance, the teaching point of view is kept steadily at the front. The work in industrial education has been continued this year with slight extensions and modifications and mainly in the lines which our previous experience has proved to be most efficient and satisfactory. It is a pleasure to note that the leaders of industrial and trades schools in several of the cities of the State are men trained partly or largely in our Summer Session. In all of this work, we have had the constant advice and encouragement of Mr. Arthur D. Dean, Chief of the Division of Trades School of the New York State Education Department.

DEPARTMENT CONFERENCES

Meetings of the various departments in evening conferences once a week have been continued this summer and with gratifying results. In the conferences on Industrial Education, in addition to members of the Faculty of the Summer Session, we have had addresses by Mr. Daniel Upton, Principal of the State Normal School, Buffalo, New York; Professor Harry B. Smith, of the State Normal College, Albany; Dr. A. S. Downing, First Assistant Commissioner of Education, State of New York; Mr. E. S. Barney, Principal Hebrew Technical Institute, New York City; Mr. Alvin E. Dodd, Director North Bennet Street Industrial School, Boston, Mass. These gentlemen served without compensation beyond their necessary expenses in coming here and deserve our hearty thanks for their interest in the work and willingness to give their valuable help. To the students in entomology weekly lectures were given on Monday afternoon by Professors Comstock, Needham, MacGillivray, Herrick, and Crosby. These were attended by a large audience and were of much interest. As these professors were not members of the regular teaching staff, their kindness in volunteering to help with the work was very generous. The Department of Geography offered a course of public lectures once a week, and other departments conducted most successful weekly conferences.

GENERAL LECTURES AND ENTERTAINMENTS

It was a distinct advantage to all connected with the Summer Session this year to have the first public address given by the President of the University, and we are grateful to him for assuming this service in addition to the many cares and responsibilities of a busy time of the year. Our best students expressed their great pleasure at the opportunity of hearing him speak on education and of meeting him personally. The first of the regular lectures on Monday evenings was given by Principal William McAndrew, of the Washington Irving High School, New York City. As a leader of this technical high school for girls, which has done much novel and remarkable work, Mr. McAndrew gave in his address, which was fully illustrated, many practical suggestions of great value. Mr. Lee S. Hanmer, of the Russell Sage Foundation for Child Hygiene, gave the next lecture on "Playgrounds and Games for School Children." Mr. Hanmer made a fine presentation of his work together with interesting views of what has been accomplished in various places. These lectures were followed by a series describing travel in remote countries. The first was by Dr. Fred W. Foxworthy, a graduate of the University, now connected with the government scientific work in the Philippines, who gave a most instructive talk on "Borneo." Mr. Louis A. Fuertes gave an illustrated talk on "Yucatan," and delighted his audience as usual. Mr. Charles W. Furlong carried an interested audience with him on his travels in Terra del Fuego; Mr. O. D. Von Engeln gave us a delightful hour as he described the "Glacial District of Alaska." On one evening at the Sage Chapel, Dr. E. J. Bailey gave a pleasing reading of several poems with accompaniment on the violin by Dr. P. R. Pope, and on the organ by Mr. Edward F. Johnston. All of these gentlemen deserve most hearty thanks for their assistance. No less valuable were the talks of an informal character given to different groups of students: by Dr. Andrew D. White on the "Power of Music," and by Professors T. F. Crane and J. M. Hart on the "Study of Classic Literature." Professor Hiram Corson yielded to repeated requests and gave an evening of readings from English literature. It is needless to say that he had a crowded room and a most appreciative audience. Professor George L. Burr gave an address at one of the Sunday evening out-of-door meetings on "Cornell and Her Ideals," with which the large number of people present were much pleased.

RETROSPECT AND OUTLOOK

In studying the results of the work of five Summer Sessions, I see some mistakes, which we have, I believe, now succeeded in avoiding. Our experience shows pretty clearly that we have certain peculiar advantages for summer work here at Cornell. First, this is a favorable situation for living in mid-summer. While we have days of considerable heat, it is seldom that more than two or three such days come together, and almost without exception the nights are cool and comfortable. The great majority of our students live on East Hill and under favorable conditions for their physical comfort. This is particularly true of the women in Sage College and Cottage. Secondly, the situation of the University is particularly favorable for

all forms of field work. The country in the immediate vicinity is remarkably rich in material for illustration and demonstration in botany, zoology, geography, and geology. The importance of this can hardly be overstated. It permits systematic and serious study to be combined with out-of-door exercise and a most healthful manner of living. A good deal of the book work required in courses which do not call for field work can be done (and a glance at the campus at any hour during the day will show that it is done) in the open air. In addition to study in the fields and forests near the University, excursions are made each year to points on Cayuga Lake, including the wonderfully rich marshes at its lower end; to the gorges at Taughannock and Enfield; to the peat bogs near McLean; to Watkins Glen; and to Niagara Falls. These excursions are taken by considerable numbers of our students who are not primarily interested in them as a part of their work, but who welcome the opportunity of seeing these places of great natural beauty under the favorable conditions attending expert and scholarly guidance. The proximity of the George Junior Republic and the State Reformatory at Elmira, and the opportunity of visiting some of the greatest industrial plants of the world at Buffalo, add greatly to the possibilities of our work.

There is no place where all the kinds of work just mentioned can be done under better conditions than here at Cornell, and there are few, if any, where they can be done as well. Our large library, situated in the country, makes work of a literary, linguistic, and historical nature also possible. There are few libraries anywhere offering better facilities in these lines than our own, and I think it doubtful if there is another as good outside of our large cities. It is used every summer by a considerable number of scholars who take advantage of their vacation season to live in the country and to have at the same time the books needed for their work.

There is another field in which, as yet, we have done nothing directly in the Summer Session. This is agriculture and the training of teachers for it. This duty is placed upon us by our relations to the state, primarily through the State College of Agriculture, and to its public educational interests. There are many problems of education which deal primarily, or even wholly, with social conditions in large cities. I do not feel that we are primarily interested in these problems, or are in a specially favored position to assist in their solution, but the problems of educational and social conditions in the smaller towns of the state, and in the strictly rural districts, we ought to attack without further delay. It is a large field and calls for our best efforts. Much of the necessary preparation for teaching the science of agriculture must be done in the summer, and it is the plain duty of the Summer Session to take up vigorously this matter. The State of New York has just changed by legislation the entire system of supervision and direction of our village and rural schools. A large number of district superintendents are to be chosen, and one qualification which they must possess is a knowledge of the teaching of the science of agriculture. We ought to give them the best and most efficient help in this direction. Without neglecting any department of instruction for which teachers wish to improve their own preparation, our peculiar work seems to me indicated by the considerations stated above.

The organization of our School of Education means a vital relation between its work and that of the Summer Session, and this means a closer relation than ever before between the work of the Summer Session and that of the "regular" year. The experiences of the present year warrant the belief that this relation is steadily improving and that the Summer Session continues to gain friends and supporters.

Respectfully submitted,
GEORGE P. BRISTOL,
Director of the Summer Session.

APPENDIX XIV

REPORT OF THE ADVISER OF WOMEN

To the President of the University:

SIR:—I have the honor to submit herewith my report as University Adviser of Women for the year 1909–10.

ATTENDANCE

The year has shown a slight decrease in the number of women in attendance. Last year there were registered at the office of the Warden of Sage College 371 women the first semester and 360 the second. This year there were registered 356 women the first semester and 350 the second, a decrease of 15 for the first semester and 10 for the second.

The following table shows the distribution of the women students according to place of residence:

		First Term		Second Term	
University Dormitories	Sage College	174		169	
	Sage Cottage	37		33	
	Total		211		202
Other Organized Houses	Alumnae House	23		23	
	Mrs. Kerr's House	11		11	
	Total		34		34
At work in private families		12		13	
At home		64		64	
Scattered		35		39	
Total outside dormitories			145		148
Total registered			356		350

THE "OUTSIDE" WOMEN

The houses described as "other organized houses" are houses accommodating ten or more women students and organized under the rules of the Self-Government Association. It is very desirable that the girls described

as "scattered" be brought so far as possible into these organized groups; not merely because such concentration would greatly facilitate the work of supervision, but still more because it would make possible a fuller and freer social intercourse and a closer acquaintanceship among the women students.

How to bring the "outside" women, as they are called, into closer touch with the life of the University and give them a real share in its many activities, has been indeed a somewhat difficult problem, and will doubtless continue to be so, so long as any considerable proportion of them are scattered over the town in very small groups. The Self-Government Association by organizing house groups as soon as they attain sufficient size, and by giving representation on the central committee to the women scattered in small unorganized groups, as well as by social undertakings of various sorts, has done much to create a sense of solidarity among the women students.

A new plan has been devised and was put into operation just tentatively late this year by which it is hoped to accomplish something more in the same direction. At the beginning of the year every new woman student will be assigned to an upperclassman, whose duty it will be to call upon her, introduce her to her friends, find out what she is interested in, and put at her disposal so far as possible, the resources of the University. Care will be taken in making the assignments to see that "outside" girls and "Sage" girls are brought together. Before the close of the term the upperclassman will report to the Adviser of Women on a card prepared for the purpose what she has done and her estimate of the new student. This information will be regarded as strictly confidential. It is believed that the necessity of reporting will act as an incentive to the upperclassman to do the work assigned her, and that the information thus furnished the Adviser of Women may prove very helpful in her work with the individual girls.

THE HOUSING PROBLEM

Probably the only true solution of this problem would be the housing of all women students in University dormitories. Since that is impossible, the next best thing would be an adequate number of private dormitories, such as Alumnae House and Mrs. Kerr's house. Under existing local conditions, however, it is extremely difficult to secure such houses for the use of women students. Among the householders who have not tried taking women lodgers, there is a tradition current, that in spite of the fact that they are quieter and less destructive than men, they are undesirable because they demand a greater number of "privileges." The householders say, moreover, that they cannot get as good prices from the women as from the men. It is, therefore, not a little difficult to secure a sufficient number of places that meet the requirements imposed by the University.

It is hoped that this difficulty can be partly obviated by giving the householder who does meet the requirements the benefit of a little advertising by the publication of a list of "approved" houses, which will accompany a circular of information to be sent to all women students who cannot obtain places in the University dormitories. This year's experience has demon-

strated very clearly the necessity for such a circular of information, in order to prevent new students, ignorant of the University rules governing the housing of women, from committing themselves for the rental of places which they cannot be allowed to retain.

SOCIAL LIFE

Except possibly in the case of the "scattered" girls, the social life of the women students has been sufficiently full and varied. Besides the annual Sage College reception to the Faculty and Trustees, which was given this year in February, there have been numerous teas and dances given by various groups of girls. The Head of Sage College has been "at home" regularly to the girls one evening each week; and both she and her assistant, Miss Seely, have entertained different groups at frequent intervals during the year. I am convinced that for the students living in the University dormitories and in the organized houses there is an abundance, in many cases unquestionably too much, of social diversion. This is true also of not a few of the girls living at home. There is, however, a comparatively small number of scattered girls whose lives are too poor in this respect, and in whose behalf next year special efforts will be put forth.

SELF-GOVERNMENT ASSOCIATION

Probably the most notable event of the year from the women students' point of view was the Conference of the Inter-Collegiate Association of Student Government Organizations, which met here in November. The president of our association was president of the conference, which was attended by nearly forty delegates, representing seventeen institutions. The Cornell women acquitted themselves most creditably as hostesses and appreciated very warmly the assistance rendered them by Mrs. Schurman, who entertained the delegates at a tea; and by the University Athletic Association, who made them their guests at the Harvard-Cornell football game and at the joint concert of the Harvard-Cornell musical clubs. The discussions held during the conference were stimulating and helpful. I am inclined to think, however, that if a similar conference were organized to embrace the women's self-government organizations of the co-educational institutions of the middle west, our association would find it more profitable to join such a group. Only three of the institutions represented in this year's conference are co-educational; and since many of our problems do not exist for the woman's college at all, there is a whole group of questions, important for us, that receives little or no discussion in this conference.

HEALTH

The health of the women students has been carefully looked after by Miss Canfield and Dr. Almgren. The usual physical examinations have been regularly and carefully made and corrective work prescribed wherever necessary. In addition, there has been held this year for the first time an eye examination of all entering women and of all others under the care of

the physical training department. The examination revealed a very considerable number of cases of eye-strain that without it would almost certainly have been neglected until serious results ensued.

As a result of the Christmas holidays three contagious diseases appeared in the dormitories—diphtheria, measles, and mumps. Prompt diagnosis and isolation of each case prevented any spread of the disease, though there were later in the year two more sporadic cases of measles.

The greatest menace to the health of the women students is their own persistent disregard of the simplest and most obvious rules of right living in the matter of rest, diet, and exercise. It should be said also that their disregard of these rules is not in any way necessitated by the demands of their college work. It is "overplay," not "overwork," that sends the *woman* student, at least, into the Infirmary to recuperate. Throughout the year, as the daily Infirmary report came into the office, I have made careful inquiry into the circumstances in each case, and with just one possible exception, the impairment of health was due to quite other causes than the pressure of university work. As a matter of fact, I believe that if that pressure were considerably increased, and the far more exhausting pressure of social engagements and outside "activities" correspondingly reduced, the effect upon the health of the students would be altogether good. A movement has been initiated by the students themselves this year that may bring about some amelioration of existing conditions. A Health League has been organized for the purpose of disseminating information concerning the laws of health and of awakening in the girls a higher ideal of physical efficiency. It is purely a student movement, begun and carried on among themselves, and, therefore, probably all the more likely to prove effective.

VOCATIONAL WORK

Unquestionably the most interesting, and I believe the most fruitful part of the work of the office this year, has been what I have called, for lack of a better term, the vocational work. Very early in the course of my conferences with the students I became aware that they were almost universally expecting, upon leaving college, to take up the work of teaching, though some of them frankly declared that they "couldn't bear the thought of it." Very few of them even knew that other fields of remunerative work were open to them; still less the attractions or opportunities that other fields offered as compared with teaching, the amount and character of the training necessary to fit for them, or the extent to which the curriculum of the University could be made to yield the necessary special training. By means of talks to groups of girls and innumerable conferences with individual students concerning their own special needs some little information of this kind has been disseminated.

My individual efforts in this direction have also been most ably supplemented by a course of lectures on professional opportunities open to women, given at intervals during the year by non-resident lecturers. You will doubtless remember that I asked for and received early in the year a small appropriation for this purpose. Miss Rose, of our own Department of

Home Economics, kindly gave her services for the opening lecture of the course; and I was able out of the fund to pay the expenses of five other women, prominent in various fields of activity, who were willing to contribute their services. Miss Rose's lecture dealt with the professional opportunities opening up to women in the field of home economics. The second lecture in the course was given by Mrs. Florence Kelly, Cornell, '82, National Secretary of the Consumer's League, who spoke on "Social Work for College Women." Mrs. Kelly also lectured while here to one of the classes in economics on the work of the Consumer's League. Miss Zaidee Brown, library organizer, of the New York State Library, spoke on library work for women; and Mrs. Woolman, of Teachers College, Columbia, on opportunities in domestic art. Miss Sarah Louise Arnold, Dean of Simmons College, was obliged at the last moment to cancel her engagement on account of an outbreak of scarlet fever in the dormitory at Simmons, but will give the opening lecture of the course next year. Miss Laura Drake Gill, formerly Dean of Barnard College and now in charge of the research department of the Women's Educational and Industrial Union of Boston, gave the last lecture of the course this year on the subject "What Shall the College Woman Do?"—a lecture full of inspiration and brimful of practical suggestion. Miss Gill, who is President of the Association of Collegiate Alumnae, also talked to the seniors, while here, on the work and aims of that organization. This work of the non-resident lecturers has been extremely stimulating and helpful and should receive more generous support another year.

In addition to this work of instruction concerning the possibilities open to college women, much time and effort have gone into the work of consultation with individual students in order to assist them so far as possible in the choice of a suitable vocation, and in the selection of such courses from the curriculum as will yield them, so far as the University offers it, the necessary training. In order to do this as systematically and intelligently as possible, I have devised a record slip, which is partially filled out by every woman student entering the University and is gradually completed as she completes her course. In addition to the necessary information as to academic training, etc., the slip calls for information as to whether or not the student expects to take up remunerative work on leaving college and as to preference in the matter of vocation. These slips are filed by classes and it is then a comparatively simple matter to determine in each class the individuals who are in need of assistance or advice. In the case of seniors, graduates, and special students also, these slips will show at a glance the number of women in college who can be regarded as trained for any particular line of work, with the amount and character of such training in each case; so that any department head or other member of faculty receiving a request for a woman with special training can know at once by application to this office whether Cornell has any woman who can meet the requirements. Provision is made also for continuing the record after graduation; and if it is possible to keep the post-graduate record fairly complete for any considerable number of years, the information contained in it ought to prove interesting and valuable.

In addition to the effort made to assist the students in the selection of such work as will either fit them for a special vocation or give them the necessary preparation for later vocational training, no little time has gone into the work of bringing this office into touch with the various employing agencies that are using college trained women, in order that as our students complete their training we may be able to assist effectively in bringing the work and the worker together.

For example, this office is now on the mailing list of the federal civil service commission, the civil service commissions of a number of the states, and the municipal civil service commissions of the leading cities; and notice of all examinations to which women are eligible are received whenever they are issued. Communication has been established also with a considerable number of social service organizations (charity organization societies, bureaus of municipal research, playground associations, women's reformatories, etc.), and the efforts exerted in this field have already resulted in the placing of several members of the graduating class in satisfactory positions. Investigation of the possibilities open to trained women is going forward by means of inquiries sent to large employing agencies in various fields of business and industry, as to the efficiency and desirability of women's work in the field, the remuneration, the kind of preparation needed, etc. The responses to such inquiries have been surprisingly cordial, and the result should be in time the accumulation of a fund of information valuable alike to the student seeking employment in any of these fields and to the institution undertaking to prepare students for them.

In order to assist students desirous of continuing their academic work information has been sought concerning fellowships and graduate scholarships open to women in the leading colleges and universities of the country, and this information has been filed in the office, where it can be readily consulted. Information has also been collected and made accessible to the students concerning the means of obtaining certain kinds of technical training which Cornell does not give, such as library and secretarial training.

As a result of such efforts eight of the women leaving college this year are already placed in positions other than ordinary secondary school teaching. Nearly all of the rest of them, if they take up remunerative work at all, will go into teaching; but if the work begun this year is continued, it may be expected that succeeding classes will show a greater variety in choice of vocation.

In order to multiply my own efforts in this direction and make them effective over a wider area I have written to each of the organized Cornell Alumnae Clubs (New York, Albany, Troy, Buffalo, Rochester, Philadelphia, Washington, Cleveland) asking for the appointment from their membership of a good strong vocation committee whose business it will be to keep me informed of any sort of opening in their vicinity that they think a Cornell woman might fill or to investigate the possibilities in any particular field when requested. The clubs are responding warmly and every effort will be made to keep them as closely in touch with the work of the office as possible.

To this end there is now in course of preparation a circular which is intended to furnish as full information as possible concerning the facilities for vocational training for women offered at the University. It is proposed to include in the circular also information as to the kind of secondary school training required for certain of the vocations (e.g., stenography and typewriting for secretarial work and for admission to many of the positions in the federal civil service), and to send it to all Cornell alumnae now teaching in the secondary schools. I have also during the year addressed meetings of the alumnae in New York, Buffalo, Albany, and Rochester (Ithaca, of course), and have been given the warmest assurance of a willingness to serve the University in any way possible.

Before closing this report I wish to express the warmest appreciation for the very efficient service rendered by Mrs. Barbour and Miss Seely in the work of supervision of the University dormitories. Mrs. Barbour's loyalty, tact, patience, and good judgment have been unfailing and have contributed not a little to such success as has been attained.

Respectfully submitted,
GERTRUDE SHORB MARTIN,
University Adviser of Women.

APPENDIX XV

REPORT OF THE REGISTRAR

To the President of the University:

SIR:—I have the honor to submit herewith my fourteenth annual report as Registrar of the University. The report covers the academic year 1909–1910, including the Summer Session of 1910.

THE YEAR

	Days in Session	Sun-days	Holi-days	Vaca-tion	Total
First term, Sept. 28–Jan. 26	90	15	3	..	108
First term, vacation, Jan. 27, 28	..	..	..	2	2
Christmas vacation, Dec. 23–Jan. 4	..	..	..	13	13
Second term, Jan. 29–June 23	114	19	2	..	135
Easter vacation, Mar. 25–April 4	..	..	..	11	11
Summer vacation, June 24–July 5	..	..	..	12	12
Summer Session, July 6–Aug. 16	36	6	..	..	42
Summer vacation, Aug. 17–Sept. 26	..	..	..	41	41

In addition to the 240 days in session given above, the University Library was open every day in the year except holidays and there was no time during the year when college activities entirely ceased. The shops and some of the laboratories were also open during nearly all the vacation period.

Dept. & Coll. Degrees	Graduate A.M., Ph.D., M.M.E.			Arts & Sciences A.B.			Law LL.B.			Medicine M.D.			Agriculture B.S. in Agr.			Veterinary D.V.M.		
Classification	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
Graduates	257	52	309	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Freshmen	..	..	..	282	68	350	..	..	..	21	4	25	187	24	211	..	..	..
Sophomores	..	..	..	192	73	265	..	..	..	11	1	12	81	12	93	..	..	..
Juniors	..	..	..	112	59	171	79	..	79	50	9	59	61	3	64	..	..	..
Seniors	..	..	..	101	70	171	49	1	50	65	7	72	45	3	48	..	..	..
1st Year Class	..	..	..	..	..	..	125	..	125	..	..	..	..	..	..	46	..	46
2nd Year Class	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	30	..	30
3d Year Class	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	22	1	23
Specials	..	..	..	9	4	13	10	..	10	29	4	33	108	15	123	1	..	1
Totals	257	52	309	696	274	970	263	1	264	176	25	201	482	57	539	99	1	100
Duplicates	19	18	37	..	..	..	..	..	..	4	..	4	..	..	..	..	..	..
Net Totals	238	34	272	696	274	970	263	1	264	172	25	197	482	57	539	99	1	100
Short Winter Agr.	..	..	..	..	..	..	..	..	..	..	..	..	331	40	371	..	..	..
Summer	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	238	34	272	696	274	970	263	1	264	172	25	197	813	97	910	99	1	100
Duplicates	..	..	..	..	..	..	..	..	..	..	..	..	3	1	4	..	..	..
Net Totals	238	34	274	696	274	970	263	1	264	172	25	197	810	96	906	99	1	100

Dept. & Coll. Degrees	Architecture B.Arch.			Civil Eng. C.E.			Mech. Eng. M.E.			Summer Session			Total		
Classification	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
Graduates	..	..	..	..	..	..	..	..	..	..	..	..	257	52	309
Freshmen	71	2	73	231	..	231	470	..	470	..	..	..	1262	98	1360
Sophomores	29	..	29	139	..	139	302	..	302	..	..	..	754	86	840
Juniors	11	1	12	95	..	95	200	..	200	..	..	..	608	72	680
Seniors	18	2	20	92	..	92	195	..	195	..	..	..	565	83	648
1st Year Class	..	..	..	..	..	..	..	..	..	..	..	..	171	..	171
2nd Year Class	..	..	..	..	..	..	..	..	..	..	..	..	30	..	30
3d Year Class	..	..	..	..	..	..	..	..	..	..	..	..	22	1	23
Specials	6	..	6	2	..	2	19	..	19	..	..	..	184	23	207
Totals	135	5	140	559	..	559	1186	..	1186	..	..	..	3853	415	4268
Duplicates	..	..	..	..	..	..	..	..	..	..	..	..	23	18	41
Net Totals	135	5	140	559	..	559	1186	..	1186	..	..	..	3830	397	4227
Short Winter Agr.	..	..	..	..	..	..	..	..	..	..	..	..	331	40	371
Summer	..	..	..	..	..	..	..	..	..	625	362	987	625	362	987
Totals	135	5	140	559	..	559	1186	..	1186	625	362	987	4786	799	5585
Duplicates	..	..	..	..	..	..	..	..	..	371	16	387	374	17	391
Net Totals	135	5	140	559	..	559	1186	..	1186	254	346	600	4412	782	5194

STUDENTS

The table given on page XCI, which shows the attendance for 1909–1910, gives the number of students who have received instruction this year, including those in the 1910 Summer Session and in the Winter Courses in Agriculture, but excluding duplicates, as 5,194, an increase over last year's attendance of 335.

The accompanying table shows the attendance in each course since the opening of the University in 1868. Previous to 1897 optional and special students were separately tabulated but now these are distributed as far as possible among the groups to which they belong.

The attendance for the year is the largest in the history of the University and the increase in the number of regular students this year is 242. Special attention is called to the fact that the above table includes winter and summer course students only as separately tabulated.

MATRICULATES

The following table shows that 1,882 students have registered during the present year for the first time. The table also shows the method of admission.

Graduates	64	Coll. Ent. Board Exams	27
Advanced standing	222	Medical (N. Y. City)	44
Regents' credentials	329	Medical (Ithaca)	6
School certificates	574	Veterinary students	37
By examination	14	Summer session (1910)	470
As special students	95		
		Total	1,882

The small number entering by some of the above methods is due to the fact that two or more methods have been combined in a single case, the student, however, being listed in the group to which the major portion of his entrance belongs.

ADMISSION FROM OTHER COLLEGES AND UNIVERSITIES

The Registrar has charge of all credentials presented by applicants coming from other institutions and this system has given uniformity of action on similar certificates when the applicants enter different courses at this University.

In the following lists should be included properly a number of cases of special students who, coming from other colleges, would have been eligible for admission to advanced standing. Such students, however, preferred to be admitted as specials. Some later changed to a regular course but are not included in these tables.

The number of students admitted to advanced standing as candidates for the first degree during the past twenty-four years is, as nearly as may be ascertained, as follows. The former courses in Chemistry, Pharmacy, Medical Preparatory, and Optional have been omitted from the table but the numbers retained in the totals:

Year	Arts	Phil.	Let.	Sci.	Agri.	Arch.	Civil Eng.	Mech. Eng.	Forestry	Law*	Vet.	Med.	No. of Cases
1886–87	2	8	1	4	1	4	6	18	..	..	..	..	50
1887–88	6	4	1	1	..	..	11	10	..	..	..	..	37
1888–89	5	..	6	6	1	2	12	21	..	..	..	..	58
1889–90	4	5	6	3	2	1	2	25	..	..	..	..	50
1890–91	8	8	2	4	1	..	14	28	..	..	..	..	65
1891–92	7	9	2	5	2	2	10	52	..	..	..	..	89
1892–93	6	6	1	8	..	6	11	44	..	..	..	..	87
1893–94	5	6	5	8	..	6	6	56	..	..	..	..	94
1894–95	4	2	3	3	2	3	6	44	..	..	..	..	71
1895–96	5	11	4	7	3	3	9	33	..	..	..	..	85
1896–97	10	4	2	4	3	3	11	42	..	12	5	..	100
1897–98	11	6	..	7	9	2	15	41	..	15	1	..	108
1898–99	27	6	1	7	5	3	16	56	2	6	3	2	134
1899–00	28	..	..	1	5	3	25	64	1	7	4	..	138
1900–01	37	..	..	..	4	6	6	64	3	10	2	2	134
1901–02	38	..	..	..	9	2	29	92	5	7	..	2	184
1902–03	33	..	..	..	8	2	24	105	9	12	1	..	194
1903–04	31	..	..	..	9	5	39	112	..	9	1	1	207
1904–05	29	..	..	..	9	5	44	101	..	3	..	..	191
1905–06	39	..	..	..	14	8	36	89	..	1	..	..	187
1906–07	40	..	..	..	19	5	55	86	..	15	..	..	220
1907–08	43	..	..	..	22	10	60	79	..	11	..	..	225
1908–09	37	..	..	..	21	10	53	71	..	5	1	5	203
1909–10	47	..	..	..	41	7	30	88	..	9	..	..	222

Of the 222 admitted in 1909–1910, 113 registered as freshmen, 70 as sophomores, 29 as juniors, and 10 as seniors.

During the last twenty-four years there have been admitted from 450 other institutions of collegiate rank, 3,200 students. The distribution of these students can be seen by reference to the table on page xciii of the Report for the year 1907–1908.

ADMISSION ON SCHOOL CERTIFICATE, REGENTS' CREDENTIALS, AND EXAMINATIONS

The Registrar has charge of the credentials of those entering by school certificate, by Regents' credentials, and by examinations, including the examinations conducted by the College Entrance Examination Board.

During the last sixteen years the number of applicants admitted by school certificate, by Regents' credentials, and by examinations, has been as follows:

	'94-5	'95-6	'96-7	'97-8	'98-9	'99-00	'00-1	'01-2	'02-3	'03-4	'04-5	'05-6	'06-7	'07-8	'08-9	'09-10
Certificate	156	164	102	193	199	275	296	357	308	315	317	380	324	465	578	574
Regents'	118	119	131	140	154	164	198	212	219	220	238	233	185	244	278	329
Examination	23	28	28	25	22	24	26	39	19	18	27	16	18	41	12	14
Coll. Ent. Exam. Bd	..	..	..	..	..	..	..	9	11	20	27	29	37	33	23	27
N. Y. C. Ex	..	..	..	..	..	..	..	..	..	..	..	..	20	9	5	..
Total	279	311	361	358	375	463	520	617	557	573	609	658	584	792	905	944

The Regent's credentials mentioned above do not include medical and veterinary student certificates.

*No data prior to 1896–1897.

The discrepancy in numbers in the freshman class compared with those given in the Register, is due to students being there listed as freshmen because of some shortage when otherwise they belong to a higher class.

The small number credited to entrance by examination would become much larger if those taking a few examinations to make up a shortage in another group were included. It is not unusual to have a student enter partially by certificate, by examination, and by College Board examination. The combining of school with Regents' credentials, however, is not a common method of admission and is employed only in very exceptional cases.

It should be noted that the number entering entirely by our examinations is small. The preparatory schools are now better acquainted with our entrance requirements. Certain Regents' credentials admit to the Colleges of Arts and Sciences, of Agriculture, and of Law, and under certain conditions relieve all students from taking entrance examinations. Regents' pass cards for single subjects are accepted if the grade be at least 60%, the University Faculty having agreed to accept the Regents' pass of 60% for the years 1909 to 1913 inclusive. The failure of several students to pass the entrance examinations before completing the high school course has influenced others to complete their course in school and enter the University by certificate.

PETITIONS

The usual form of petition has been continued by the several Faculties. Where the petition relates to routine matters and a mere change of registration of studies, a much simpler method has been adopted for changes in registration, and the strict enforcement of registration rules has made a marked improvement in the students' work. The Faculties of Arts and Sciences, Agriculture, Civil Engineering, Medicine, and Veterinary Medicine have filed the petitions in the offices of these Colleges and have notified the Registrar of the action taken; while the Law and Mechanical Engineering Faculties have returned the petitions to this office and the office has notified the students by mail.

The registration of old students takes place after the matriculation of new students. This allows new students a day to arrange their work before instruction begins. Old students are not required to be at the University until the day preceding the one on which instruction begins. The system of registering new students in September in groups alphabetically arranged, and of sending out by mail permits for registration, has solved the problem of overcrowding at registration and gives each student abundant time to get started aright.

The inserted table gives the number admitted to graduation at the 1910 Commencement as well as those of former years. 12,012 degrees have been conferred, but there are some duplicates between the first and second degrees. One degree (M.D.) was conferred in 1899, but in 1907 was revoked because the candidate declined to accept it. One degree (D.V.M.) was conferred in June, 1905, but owing to a technicality was withdrawn and conferred again June, 1906, while another degree (D.V.M.) was conferred in 1907 but dated

as June, 1906. Care has been taken to discriminate between closely allied degrees, but such have been grouped so as to show at a glance the number in each department.

Respectfully submitted,
DAVID F. HOY,
Registrar.

APPENDIX XVI

REPORT OF THE LIBRARIAN

To the President of the University:

SIR:—I have the honor to submit herewith my annual report on the University Library, for the year ending June 30, 1910.

The following table shows the additions made to the various more or less independent collections composing the University Library, and the present extent of each:

	Volumes	Present extent in	
	Added 1909-10	Volumes	Pamphlets
General Library	11,005	329,306	57,000
Law Library	1,336	41,174	
Flower Veterinary Library	198	3,604	
Barnes Reference Library	66	1,639	
Goldwin Smith Hall Library	461	1,631	
Stimson Hall Medical Library	56	979	
Agricultural College Library	1,512	4,232	
Forestry Library	11	1,131	
Totals	14,645	383,696	57,000

The President White Library, the four Fiske collections and the eight seminary collections are not separately enumerated in the table, but are included in the statistics for the general library. Of the additions to the general library (numbering 11,005 volumes), 3,745 volumes were gifts and of these, 283 volumes were gifts to the newly established library of the Mathematical seminary which has been officially named the Evans Mathematical Library, in honor of the late Professor E. W. Evans. Of the accessions to the other collections named in the table the gifts number 69 volumes for the Law Library, 13 volumes for the Flower Library, 22 volumes for the Stimson Hall Library, and 70 volumes for the Agricultural College Library.

The chief gift of the year was the fund of $4,000 given by the late Goldwin Smith for the increase of the special library in Goldwin Smith Hall, and the

additions for the year to that collection have been almost entirely purchased from this fund. As heretofore the library is indebted to Ex-President White for many valuable gifts, of which fuller mention is made by Professor Burr in his report from the President White Library. Theodore Stanton, '76, has this year completed his gift of the Tauchnitz collection of British and American authors, numbering now 4,150 volumes, and has signified his intention to keep it up to date by presenting the future volumes which may appear. M. Louis LeBlois, of Paris, presented to the library a valuable series of reports of the proceedings in the Dreyfus case, rounding out the Dreyfus collection given by Mr. Stanton. From the Reverend J. A. Staunton, of Utica, we received a complete set of the Journals of the Diocese of Central New York, from its formation in 1868 to the present time; from Professor G. L. Raymond, a complete set of his writings on aesthetics; from Mr. W. K. Bixby, of St. Louis, a copy of the privately printed Inventory of the contents of Mount Vernon in 1810; from Mrs. Bayard Taylor, Repsold's Geschichte der astronomischen Messwerkzeuge; from J. F. Magee, Jr., his facsimile edition of the 13th century manuscript of the Bonus Socius collection of chess problems; from Comptroller Metz, the Manual of accounting and business practice of the city of New York; from Col. Milton T. Foreman, the elaborate Report on Transportation subways in the city of Chicago. From Senator Elihu Root and Congressman John W. Dwight the library has received some important government publications not distributed to the depository libraries. From the national government and from various state and municipal governments the usual supply of federal, state, and municipal documents has been received. To yourself and to various members of the University staff the library is greatly indebted for frequent and valuable additions. These, as well as the other gifts of the year, have all been promptly acknowledged, and a list of the donors is submitted as an appendix to this report.

Among the more important purchases of the year may be noted the rare 1512 edition of the first Spanish translation of Petrarch's Trionfi, and the 1524 edition of the Spanish translation of his De Remediis; facsimiles of the Wolfenbüttel manuscript of Tibullus, and of the miniatures of the Dresden manuscript of Galen; the Oxford edition of Homer's Odyssey in Proctor's Greek type; Grosart's edition of the poems of G. Daniel; Edmonds's Lamport Garland: the latest editions of the complete works of Ruskin, Thoreau, Mark Twain, Pinero, and Rydberg; Harington's translation of the Orlando Furioso, 1607; Hunter's edition of the Magnum Rotulum Scaccarii; Rivoira's Lombardic Architecture; Burnham and Bennett's Plan of Chicago; Latham's English Homes; Macfall's French Pastellists of the 18th century; Thiis's Norske Malere; the orchestral score of Wolf-Ferrari's Vita Nuova; Evans's Scripta Minoa; T. Edwards's Antapologia, 1646; Eyton's Osteologia Avium; Ganglbauer's Käfer von Mitteleuropa; Schubeler's Viridarium Norvegicum; Solereder's Anatomie der Dicotyledonen; complete sets of the Acta Sanctae Sedis, 1865–1908; Archiv für Hygiene, 1883–1909; Archives de Psychologie 1889–1907; Archiv des deutschen Landwirthschaftsraths, 1877–1903; Journal des Museum Godeffroy, 1873–1909; American Monthly Microscopical Journal, 1880–1902;

The Microscope, 1881–97; the Färber-Zeitung, 1889–1907; The Zoologist, 1843–1909. The following sets have been completed: the London Bankers' Magazine, the New York Bankers' Magazine, the publications of the Turin Academy of Sciences, the Proceedings of the American Society for Municipal Improvement, Punch, and the Tropical Agriculturist. The purchases made for the library of the College of Agriculture include the following important sets: Biometrika, the Botanical Gazette, the Proceedings of the American Pomological Society, Thoreau's complete works, and the Journal of the Royal Horticultural Society.

Dr. A. C. White, assistant librarian in charge of accessions and classification, reports that the accessions to the University Library have been promptly classified as received, including the accessions to the general library of the State College of Agriculture and the special entomological library of that college, which have been classified and their titles incorporated in the general series of shelf lists of the University Library. The books belonging to the Romance seminary and the Evans Mathematical library have been classified and card shelf lists of these special collections have been prepared. Dr. White has also, as heretofore, had the care of the binding of miscellaneous gifts and unbound book purchases and of the repair or rebinding of worn-out volumes. The binding of current periodicals has been under the immediate care of Miss Stubbs, the assistant in charge of periodicals.

The report of Miss K. Dame, assistant librarian in charge of the catalogue, shows that the number of volumes, pamphlets, and maps catalogued for the general card catalogue during the year was 14,004. For these 14,711 cards were written and 1817 printed cards were obtained from the Library of Congress. The printed card catalogue, issued by the American Library Association, of the facsimiles of manuscripts in modern languages owned by American University libraries has been received and filed. The absence of Miss Dame on sick leave for several months of the year made necessary the postponement until next year of some work in the analysis of serials and on the cataloguing of the manuscripts of the White Library which will now be taken up. During Miss Dame's absence Miss Fowler took charge of the work in this department, in addition to the routine work necessary on the Dante and Petrarch collections.

Mr. Hermannsson, the curator of the Icelandic collection, prepared a bibliography of the Sagas of the Kings of Norway and related Sagas and Tales which was published in May, forming volume III of "Islandica," the annual relating to Iceland and the Fiske Icelandic collection. In May, Mr. Hermannsson was granted leave of absence until October and is now in Denmark, engaged in investigations in the Scandinavian libraries, largely in the interests of the collection.

From the President White Historical Library, Professor Burr makes the following report:

"I have the honor to report a continuance of the generosity of Dr. White as well as the usual growth from the stipulated funds of the library. Some three months of the past year were spent by Mr. White in Spain; and thence he sent to the library some very interesting volumes—a copy of the rare old Mozarabic liturgy still in use at Toledo, the catalogue of the Columbian

Library at Seville, and sundry other things not easy to pick up outside of the land of their origin. In France, too, he bought for us some rare things, among them an exceedingly interesting body of autograph documents relating to the insurrection of the Paris Commune in 1871.

"The income of his Warfare of Science, too, has continued to make possible for us many purchases. Among the most notable are our acquisitions from the great Jackson collection on the Protestant Reformation. These include a copy of Lorenzo Valla's Notes on the New Testament, as published by Erasmus in 1505, the commentaries on the Gospels by Lefèvre of Étaples (1521), the letters of Oecolampadius and Zwingli (1536)—Conrad Pellican's copy with his marginal notes and an interpolated letter in his autograph,—Bucer's Commentaries (1530), the works of Urbanus Regius (1577), Beza's Icones (1581), and a multitude of other treasures. Among the acquisitions of the past year may be named an unpublished little Nuremberg chronicle of the Reformation period (1487–1547), an old manuscript copy of the earliest instructions of the Spanish Inquisition, and an addition to our body of manuscript witch-trials. In the field of the French Revolution, too, notable additions have been made."

Mr. W. H. Austen, assistant librarian in charge of the reference and loan departments of the general library, has been absent on leave since the end of March, and the routine work in the Reading Room has been carried on by the assistants, Miss Wilder and Miss Gregory, who have supplied the statistics concerning the use of the library. The library has been open 308 days during the year, and was closed only on Sundays and on five general holidays, only one of which fell in term time. The number of registered users recorded at the general delivery desk includes those who have drawn books from the general library only, and does not include those registered at the desk of the open shelf circulating library. This registration is as follows:

University officers	451
Students of all classes	430
Special borrowers	37

The number of reserved books in the reading rooms and seminary rooms in the library building is 13,366, the number kept in locked presses is 1,397, and the number reserved during the year at the delivery desk for special use was 1,712. The number of volumes from the general library at present on deposit in the various laboratory and department collections, in other buildings, is now 19,388. The number of volumes reported as missing from these collections during the year is as follows:

From the reading room shelves	39
From seminary rooms	6
From the open shelf circulating collection	3
From department and laboratory collections	149

During the year we have borrowed 150 volumes from fourteen other libraries and have lent 188 volumes to forty-seven other libraries. These loans, it may be noted, represent an expenditure of time, labor, and money frequently altogether disproportionate to the service rendered and the position taken by the Library of Congress, that " it is no more than fair to

expect that only in cases of real importance shall there be a resort to the device of inter-library loans," seems fully justified.

The following table gives the recorded use of books for the last two years. The use made of the Library, however, is shown only in part by these figures, as no record is kept of the large and constant use of the books on open shelves in the building, or of the use made of the books in the special libraries and those deposited in department collections:

	1908-09	1909-10
REFERENCE AND DEPARTMENT USE		
Volumes used in reading rooms	71,017	66,839
Volumes sent to seminary rooms	3,814	3,711
Volumes sent to departments	6,682	6,047
HOME USE		
Volumes from general library	20,311	20,766
Volumes from open shelf circulating library	5,860	5,921
Volumes lent to other libraries	155	188
Total recorded use	107,839	103,472

The slight decrease in the recorded use in the general reading rooms is probably largely due to the use made of the growing reference collection in Goldwin Smith Hall. The open shelf circulating collection continues to be largely used, especially by students. The number of students who have registered and taken books for home use from this collection was 855, as compared with 430 who drew books from the general library. On the other hand, the number of officers who have drawn books from this collection is only 179, as compared with 451 taking books from the general library. During the year ten volumes from this collection were reserved for class use in the general reading room. The number of readers who used the books of this collection in the room without taking them for home use was 3,832.

Mr. W. W. Ellis, curator of the shelves, reports that in addition to the daily inspection of new books for correction of possible errors in call numbers or bookplates, which must be done before they are sent to the stacks, or to the department libraries, the regular inventory has been taken. The inventory revealed 281 volumes standing on the wrong shelves as against 207 last year. The number of volumes missing from their proper places in the stacks, and unaccounted for when the inventory was taken, is this year 381 as against 351 last year. The number reported missing at the time of the inventory shows a slight increase from year to year; many of these, of course, are only temporarily misplaced, and, with the large numbers who have access to the shelves in the stacks, it is doubtful if any measures can prevent a considerable amount of misplacement. In the absence of Mr. Austen, Mr. Ellis has also undertaken the checking of the laboratory and departmental collections in June of this year, with the following results: 121 volumes could not be found at that time, 14 volumes were found at various places without record, and 24 volumes were found to be in the stacks though recorded elsewhere. During the year some progress was made in the exchange of duplicates, and 59 volumes and 278 parts have been received from other

libraries, while 43 volumes, 196 pamphlets, and 2,508 parts have been sent to other libraries on exchange account. The duplicates have also been rearranged in systematic order. In place of the annual dusting of the books by the janitors during the summer vacation, Mr. Ellis recommends the purchase of a vacuum cleaner, by means of which it might be possible to carry on the dusting at any convenient time, without annoyance to the users of the library, and with much less risk of injury to the bindings. The ordinary vacuum cleaner, however, is not well suited for dusting the books on the shelves, and it would seem to require a machine giving a combination of blast and suction to do the work satisfactorily; but the matter calls for further investigation.

The growth of the library since 1907, when the new stacks for the newspaper and document collections were fitted up in the former lecture room, has brought us again almost to the point of congestion in many places. In April, Mr. Ellis made a careful measurement of all the shelving in the library and found that, in the stacks and White Library, of the total shelf space available if every shelf were filled solidly with books, an average of over 79 per cent of the space is actually filled and in the White library 88 per cent is actually filled. But in a growing library, classified or arranged by subjects, it is simply impossible to fill the shelves to their nominal capacity. Vacant space must everywhere be left between classes to permit the insertion of new books and of books returned from circulation, for it is a physical impossibility to shift quickly any large collection of books. We must face the fact that a classified library necessarily must occupy more space than one not classified. How misleading are the ordinary estimates of shelf capacity may be judged from the following statement made by the Librarian of the Boston Public Library in 1909: "When the central building in Boston was first occupied it had an estimated shelf capacity of 1,500,000 volumes. Within less than 15 years we find the space severely taxed with 750,000; principally, of course, because the various classes or departments do not increase symmetrically."

In our own case this overcrowding of the shelves has again begun to be felt. More shelf room is urgently needed and, unless some steps are promptly taken to provide it, we shall soon have to resort again to the unsatisfactory and inconvenient expedient of packing away large numbers of our books in boxes, or removing them to some other building, and thus decreasing the usefulness of the library. I, therefore, respectfully urge that immediate provision be made for additional shelf room to relieve the congestion.

In the first term of the year, Mr. Austen gave his regular course of lectures on the use of books. In the second term the Librarian gave the usual course in general bibliography. The annual record of publications by the University and its officers has been prepared by Miss Dame. The list of donors has been prepared by Miss Thornburg.

Respectfully submitted,

GEO. WM. HARRIS,
Librarian

APPENDIX XVII

PUBLICATIONS, 1909–1910

Under the Auspices of the University

The University records. 9 s. no. 5–10 s. no. 9. *m.* Ithaca, 1909–1910. 10 nos. 8°. *Illus.*

Contents:—ix. 5. Announcement of N. Y. State Veterinary College 1909–1910.

x. 1. Courses of instruction.
x. 2. President's report, 1908–1909.
x. 3. The register, 1909–1910.
x. 4. The College of Arts and Sciences.
x. 5. Announcement of the 19th summer session, 1910.
x. 6. Announcement of the Graduate School, 1910–1911.
x. 7. Announcement of the College of Law, 1910–1911.
x. 8. Announcement of the N. Y. State College of Agriculture, 1910–1911.
x. 9. The N. Y. State Veterinary College.

Official publications of Cornell University. Vol. i. no. A. Ithaca, 1910. 8°. pp. (2) + iii. + 70.

Contents:—i. A. College of Arts and Sciences: courses of instruction, 1910–1911.

Abstracts of work done in the laboratory of veterinary physiology, under the direction of P. A. Fish. No. 7. Ithaca, 1910. 8°. pp. 36. *Plate.*

A brief account of some portions of Cornell University for the Japanese Commercial Commissioners, October 8, 1909. [Ithaca, 1909.] 8°. pp. (34). *Photo-engrs.*
Japanese and English.

Circular of the New York State Veterinary College. No. 2. Ithaca 1910. 8°. pp. 16.

The Cornell civil engineer: monthly publication of the Association of Civil Engineers of Cornell University. Vol. xviii. Oct., 1909–June, 1910. Ithaca, 1909–1910. 8°. pp. ii. + 421. *Illus.*

The Cornell countryman. Vol. vii. Oct., 1909–June, 1910. Ithaca 1910. 8°. pp. 326. *Illus.*

Directory of resident officers of instruction and government and of students, Oct. 13, 1909. [Ithaca, 1909.] sm. 8°. pp. 75.

Same, Feb. 7, 1910. [Ithaca, 1910.] sm. 8°. pp. 77.

Exercises attending the presentation of the portrait of Dr. James Law by the Alumni of the New York State Veterinary College to Cornell University, May 14, 1909. [Ithaca, 1909.] sm. 8°. pp. 15. *Port.*

In memoriam, Ross Gilmore Marvin, 1905: service at Sage Chapel, Cornell University, Sunday, April twenty-fourth, 1910; memorial address by Commander R. E. Peary. [Ithaca, 1910.] 8°. pp. 14 + (1).

Islandica: an annual relating to Iceland and the Fiske Icelandic collection in Cornell University Library, edited by G. W. Harris. Vol. iii. Ithaca, 1910. 8°. pp. (5) + 75.

iii. Bibliography of the sagas of the kings of Norway and related, sagas and tales, by H. Hermannsson.

The journal of physical chemistry, editor, W. D. Bancroft. Vol. xiii. no. 7–xiv. no. 6, Oct., 1909–June, 1910. *m.* Ithaca, 1909–1910. 9 nos. 8°. *Illus.*

Issued monthly except in July, August and September.

Needs of the New York State colleges at Cornell University, the New York State College of Agriculture, the New York State Veterinary College, showing their immediate needs and a forecast of their building requirements for ten years. [Ithaca], 1910. l. 8°. pp. 31. *Plans.*

The philosophical review; edited by J. E. Creighton, with the co-operation of J. Seth. Vol. xviii., no. 4–xix. no. 3, July, 1909–May, 1910. *2m.* New York, 1909–1910. 6 nos. 8°.

The physical review; a journal of experimental and theoretical physics, conducted by E. L. Nichols, E. Merritt and F. Bedell. Vol. xxix.–xxx., July, 1909–June, 1910. *m.* New York, 1909–1910. 2v. 8°. *Illus.*

Publications of Cornell University Medical College: researches from the Department of Medicine, edited by F. L. Keays. Vol. ii. New York, 1909. 8°. *Illus*

Publications of Cornell University Medical College: studies from the Department of Pathology. Vol. ix. New York, 1909. 8°. *Illus.*

Seventh annual music festival, Cornell University, April 28, 29 and 30, 1910, given by the Department of Music. Ithaca, 1910. 8°. pp. 72 + (4). *Portrs.* and *plates.*

Some facts concerning the New York State College of Agriculture at Cornell University, by H. J. Webber, presented to a hearing of legislative committees, Albany, April 5, 1910. Ithaca, 1910. 8°. pp. 20. *Diagr.*

Bulletin of the Agricultural Experiment Station. No. 268–277, June, 1909–May, 1910. Ithaca, 1909–1910. 10 nos. 8°. *Illus.*

Circular of the Cornell University Agricultural Experiment Station. No. 7, May, 1910. Ithaca, 1910. 8°. pp. 16.

Cornell reading-course for farmers. 10 s. no. 46–50, Nov., 1909–March, 1910. *m.* Ithaca, 1909–1910. 7 nos. 8°. *Illus.*

Cornell reading-course for farmers' wives, M. Van Rensselaer, supervisor. N.S. vol. i., no. 6–8, Oct., 1909–Feb., 1910. Ithaca, 1909–1910. 3 nos. 8°. *Illus.*

Cornell rural school leaflet, A. G. McCloskey, editor. Vol. iii., Sept. 1909–May, 1910. Ithaca, 1909–1910. 13 nos. 8°. *Illus.*

Home nature-study course, by A. B. Comstock. N.S. vol. vi., Oct. 1909–April, 1910. *2m.* Ithaca, 1909–1910. 4 nos. 8°. *Illus.*

By Officers

In the present list are included the titles of books, pamphlets and contri butions to periodicals, transactions, etc., published by officers and fellows of the University during the period extending from July 1, 1909, to June 30, 1910, with some titles omitted in previous lists.

Adams, J. Q., *jr.* The original performances of "The rivals." (Nation, 14 April, 1910, vol. xc., p. 374.)
Also in N. Y. Evening Post, 19 April, 1910.

—— The text of Sheridan's "The rivals." (Modern Language Notes June, 1910, vol. xxv., p. 171.)

—— *editor.* The rivals, a comedy by R. B. Sheridan, with an introduction and notes. Boston, 1910. 12°. pp. xxvi. + 160. *Illus.*

Albee, E. The meaning of literature for philosophy. (Internat. Jour. of Ethics, Oct., 1909, vol. xx., p. 1.)

—— [Review of] Clavis universalis, by A. Collier; edited by E. Bowman. (Philosophical Review, May, 1910. vol. xix., p. 348.)

—— [Review of] Valuation, its nature and laws; by W. M. Urban. (*Same*, March, 1910, vol. xix., p. 205.)

Allen, A. A. The English sparrow. (Cornell Rural School Leaflet, Oct., 1909, vol., iii., p. 1.)

—— The food of birds. (*Same*, March, 1910, vol. iii., p. 118.)

—— The song sparrow. (*Same*, Jan., 1910, vol. iii., p. 28).

—— The vesper sparrow. (*Same*, Nov., 1909, vol. iii., p. 10.)

—— *See also* **Wright, A. H.,** *and* **A. A. Allen.** The early breeding habits. of amblystoma punctatum. — The increase of austral birds at Ithaca. — Regular summer crossbills at Ithaca.

Andrews, A. Le R. Dr. Röll's proposals for the nomenclature of sphagnum. (Bryologist, Jan., 1910, vol. xiii., p. 4.)

Bailey, E. J. Studies in English masterpieces. Nos. XIII–XVIII. Albany 1909–1910. 6 nos.

—— A Cornell poet. (Cornell Era, Dec., 1909, vol. xlii., p. 45.)

—— Outlines of English masterpieces: a series of nine articles. (Amer. Education, Sept., 1909–June, 1910.)

Bailey, H. C. A clinical study of crystalline strophanthin. (Jour. of Pharmacology and Experimental Therapeutics, Oct., 1909, vol. i., p. 349.)

Bailey, L. H. Manual of gardening: a practical guide to the making of home grounds and the growing of flowers, fruits and vegetables for home use. New York, 1910. sm. 8°. pp. xvi + 539. *Illus.*

—— The nature-study idea: an interpretation of the new school-movement to put the young into relation and sympathy with nature. 3d ed., revised. New York, 1909. 8°. pp. ix. + 246.

—— The training of farmers. New York, 1909. sm. 8°. pp. viii. + 263.

—— The agricultural situation. (Cornell Countryman, Feb., 1910, vol. vii., p. 158.)

—— The call of the hoe. (Collier's National Weekly, 11 Sept., 1909, vol. xliii., p. 15.)

—— The country school. (Cornell Countryman, May, 1910, vol .vii., p. 263.)

—— The field of research in horticulture. (Proceedings of the Soc. for Horticultural Science, 1908–1909, 6th Annual Meeting, p. 42.)

—— The good problem of weeds. (Collier's National Weekly, 17 July, 1909, vol. xliii., p. 19.)

—— Moon-farming. (Independent, 21 Oct., 1909, vol. lxvii., p. 907.)

—— The point of view on the scope and work of the irrigation congress. (Cornell Countryman, Oct., 1909, vol. vii., p. 3.)

—— A statement on the agricultural situation in New York State. (Bulletin of the N. Y. State Agricultural Department, 1909, no. 12, p. 1.)

—— *editor.* The principles of agriculture: a text-book for schools and rural societies. 15th ed., revised. New York, 1909. 8°. pp. xv. + 336. *Illus.*

Baldwin, W. M. An adult human pancreas, showing an embryological condition. (Anatomical Record, Jan., 1910, vol. iv., p. 21.)

—— The relation of the pancreas to sugar metabolism. [Proceedings of the Amer. Physiological Soc.. (Amer. Jour. of. Physiology, March, 1910 vol. xxv., p. xxi.)

Bancroft, W. D. The chemical reactions of phosphorescence. (Zeitschrift für Physikalische Chemie, Jan., 1909, vol. lxix., p. 15.)

—— The electrochemistry of light. VII–IX. (Jour. of Physical Chemistry, June–Oct., 1909, vol. xiii., pp. 449, 538; April, 1910, vol. xiv., p. 292.)

—— The photographic plate. I–III. (*Same*, Jan.–March, 1910, vol. xiv., pp. 12, 97, 201.)

—— [Papers from the laboratory of W. D. Bancroft, published in the Jour. of Physical Chemistry, 1909, vol. xiii.]

Some zinc alloys, by B. E. Curry, p. 589; Experiments on solarization I., by G. A. Perley, p. 630; The phosphorescence of some inorganic salts, by J. A. Wilkinson, p. 671.

Professor Bancroft has also published about 60 book reviews in the Jour. of Physical Chemistry.

Barnard, W. N., *and others.* Elementary heat-power engineering, by W. N. Barnard in conjunction with C. F. Hirshfeld and A. W. Smith. Pts. 1–4. Ithaca, 1910. 8°. pp. 254 + iv.

Barnes, F. A. Discussion of paper on the study of engineering contracting in engineering colleges. (Jour. of the Amer. Soc. of Engineering Contractors, March, 1910, vol. ii.)

—— *See also* **Crandall, C. L.,** *and* **F. A. Barnes.** Field book for railroad surveying.

Barringer, T. B., *jr.* A practical hospital polygraph. (Amer. Jour. of the Medical Sciences, Nov., 1909, N.S. vol. cxxxv., p. 410.)

—— Report of a case of Stokes-Adams disease. (Archives of Internal Medicine, Aug., 1909, vol. iv., p. 186.)

—— *joint author.* The effect of digitalis on the ventricular rate in man by Hewlett and T. B. Barringer, jr. (*Same*, Feb., 1910, vol. v., p. 93.)

Barrows, C. C. Acute complete inversion of the uterus. (Amer. Jour. of Obstetrics, March, 1910, vol. lxi., p. 488.)

—— Appendicitis in children. (N. Y. Medical Jour., 25 Nov., 1905, vo lxxxii., p. 1097.)

—— Dermoid cyst delivered through rectum and anus by advancing head. (Amer. Jour. of Obstetrics, March, 1910, vol. lxi., p. 492.)

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Announcement of Sibley College of Mechanical Engineering and Mechanic Arts,
Announcement of the College of Civil Engineering,
Announcement of the College of Law,
Announcement of the College of Architecture,
Announcement of the Medical College,
Announcement of the New York State College of Agriculture,
Announcement of the Winter Courses in the College of Agriculture,
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VOLUME 1 NUMBER 5

COLLEGE OF CIVIL ENGINEERING
COURSES OF INSTRUCTION
1910-11

DECEMBER 1, 1910
PUBLISHED BY CORNELL UNIVERSITY
ITHACA, NEW YORK

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VOLUME 1 NUMBER 5

COLLEGE OF CIVIL ENGINEERING COURSES OF INSTRUCTION 1910-11

DECEMBER 1, 1910
PUBLISHED BY CORNELL UNIVERSITY
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COLLEGE OF CIVIL ENGINEERING

FACULTY

Jacob Gould Schurman, A.M., D.Sc., LL.D., President.

Eugene Elwin Haskell, C.E., Director of the College of Civil Engineering and Professor of Experimental Hydraulics.

Charles Lee Crandall, C.E., M.C.E., Professor of Railroad Engineering.

Irving Porter Church, C.E., M.C.E., Professor of Applied Mechanics and Hydraulics, in charge of the College Library.

Henry Sylvester Jacoby, C.E., Professor of Bridge Engineering.

Henry Neely Ogden, C.E., Professor of Sanitary Engineering.

David Albert Molitor, B.S. in C.E., C.E., Professor of Topographic and Geodetic Engineering.

John Thomas Parson, Assistant Professor of Drawing, in charge of the Photographic and Drawing Collections.

Ernest William Schoder, B.S., Ph.D., Assistant Professor of Experimental Hydraulics, in charge of the Hydraulic Laboratory.

Fred Asa Barnes, C.E., M.C.E., Assistant Professor of Railroad Engineering.

Ora Miner Leland, B.S., C.E., Assistant Professor of Geodesy and Astronomy.

Miles Albion Pond, Ph.B., Assistant Professor of Civil Engineering, in charge of Descriptive Geometry.

Francis Joseph Seery, S.B., Assistant Professor of Civil Engineering.

Donald Derickson, C.E., Assistant Professor of Structural Engineering.

Samuel Latimer Boothroyd, B.S., M.S., Assistant Professor of Topographic and Geodetic Engineering.

Ernest William Rettger, A.B., Ph.D., Assistant Professor of Applied Mechanics.

Sidney Gonzales George, C.E., Assistant Professor of Applied Mechanics and Secretary of the College Faculty.

Charles Leopold Walker, C.E., Assistant Professor of Applied Mechanics.

Kenneth Bertrand Turner, C.E., M.C.E., Assistant Professor of Hydraulics.

Latta Vanderion Edwards, B.E., Instructor in Civil Engineering.

Paul Halladay Underwood, C.E., Instructor in Topographic and Geodetic Engineering.

Roland Parker Davis, S.B., M.C.E., Instructor in Bridge Engineering.

Leonard Alexander Lawrence, B.S., Instructor in Surveying.

John Clarence McCurdy, B.S., Instructor in Surveying.

Ralph McLane Bowman, C.E., Instructor in Bridge Engineering.

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William Harley Morris, C.E., Instructor in Civil Engineering.

Edward Vahan Baron, B.S., C.E., Instructor in Civil Engineering.

Earle Nelson Burrows, C.E., Instructor in Civil Engineering.

Thomas Jefferson Smull, C.E., M.E., Instructor in Civil Engineering.

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Gertrude Marsh Sanford, College Librarian.

Eleanor E. Illston, Secretary to the Director.

Lena K. Haylett, College Stenographer.

Clinton D. Cass, College Mechanician.

COLLEGE OF CIVIL ENGINEERING

COURSES OF INSTRUCTION

1910–11

The registration of new students will take place from 9 A. M. to 4 P. M., Tuesday and Wednesday, September 27 and 28, 1910. Seniors, juniors, and sophomores in good standing, may register in the College between 9 A. M. and 4 P. M. on Wednesday and Thursday, September 28 and 29, 1910.

A student must register for at least 12 hours each term.

The required courses in mathematics, physics, chemistry, geology and political economy are given in the College of Arts and Sciences; for a description of these courses see Courses of Instruction for that College for 1910–11. The required work in electrical engineering and steam machinery is given in Sibley College; for a description of these courses see Announcement of that College 1910–11.

A FOUR-YEAR COURSE LEADING TO THE DEGREE OF CIVIL ENGINEER

Freshman year	No. course	First term	Second term
Analytics	1	4	–
Differential Calculus	1	1	2
Integral Calculus	1	–	4
Physics	1	4	–
Physics	6	–	4
Chemistry	1	–	6
Descriptive Geometry and Drawing	1	5	2
Elementary Surveying	10	3	–

In addition to the above the required Drill must be taken.

Sophomore year	No. course	First term	Second term
Geology	31	3	3
Mechanics of Engineering	20	5	5
Engineering Laboratory	22	–	4
Drawing	4	4 or	4
Advanced Surveying	11	–	3
Materials of Construction	25	3 or	3
Chemistry	6	5	–

In addition to the above the required Physical Training must be taken.

Junior year	No. course	First term	Second term
Political Economy	51	3	3
Railroad Engineering	60	4	4
Structural Design	71	4	4
Hydraulics	23	5	–
Hydraulic Laboratory	40	1	–
Municipal Engineering	52	–	4
Engineering Problems	29	–	2
Geodetic and Topographical Surveys	15	–	4

(Four and one-half weeks at close of year.)

Senior year	No. course	First term	Second term
Geodetic Surveying	13	5	–
Cartography	16	–	3
Water Supply	51	3	–
Reinforced Concrete Arch	72	–	2
Specifications and Contracts	90	–	2
Electrical Engineering (E.)	12	3	–
Steam Machinery (P.)	11	–	3
Thesis	92	–	3
Elective	–	6	3

For the thesis, work in engineering design or in investigation may be substituted; but such substitution must be approved by the professor in charge of the group in which the six hours mentioned in the next paragraph are taken.

At least six hours of elective must be chosen from one of the following groups, Engineering Design, course 91, being included. Engineering design shall not be elected in any group unless the elective subject corresponding and preparatory to that design shall be or has been previously elected. If Sanitary Engineering be elected, it is required that the entire group, as well as the thesis, be taken. Course 31 or 32 may be substituted for Engineering Design, course 91, in group a; and course 76 or 77 may be substituted for Engineering Design, course 91, in group d.

(a) Hydraulic Engineering

	No. course	First term	Second term
Hydraulic Construction	31	3	(or 3)
Water Power Engineering	32	(or 3)	3
Hydraulic Measurements	41	–	3
Experimental Hydraulic Motors and Pumps	42	3	–
Experimental Hydraulic Investigation	43	–	3
Engineering Design	91a	–	3

(b) Sanitary Engineering

	No. course	First term	Second term
Design of Sewerage Works	54	3	–
Engineering Design	91b	3	–
Purification and Control of Water Supplies	53	–	3

(c) Railroad Engineering

	No. course	First term	Second term
Maintenance of Way	61	3	–
Operation and Management	62	–	3
Testing Materials	30	3	–
Masonry and Foundations	74	3	–
Concrete Construction	77	3	(or 3)
Engineering Design	91c	–	3

(d) Bridge Engineering

	No. course	First term	Second term
Advanced Mechanics	26	3	–
Higher Structures	73	3	(or 3)
Concrete Construction	77	3	(or 3)
Steel Buildings	76	–	3
Masonry and Foundations	74	(or 3)	3
Engineering Design	91d	–	3

Free choice is given for the three or more hours remaining. The following subjects are suggested for work outside of the College:

Bacteriology, course 43. [Preparation, Microscopy, course 1, one hour.]

General Biology, course 1, three hours.

Sanitary Science, two hours.

Chemistry, Potable Water, course 75, two hours; Water Analysis, course 76, three hours; Assaying, course 18, three hours.

Contracts, six hours (in the College of Law).

Electrical Engineering. Elements of Electric Railway Practice, course 25, two hours.

Oratory. Public Speaking, course 1a, three hours; Public Speaking, course 1b, three hours; Public Speaking for Engineers, course 3, two hours; Argumentation and Debate, course 3, two or three hours.

Geology. Determination of Minerals by the Blow-Pipe Method, course 13, one hour.

Physics. Physical Experiments, course 14, one or more hours; Electrical Laboratory Practice, course 34, three hours.

Political Economy. Principles of Business Management, course 62, two hours; Municipal Government in the United States, course 74b, two hours; Money, Credit, and Banking, course 64, four hours.

Engineering Calculations, course E. X. 30, two hours, first and second terms.

A Five-Year Course Leading to the Degree of Civil Engineer

First Year—In College of Arts and Sciences

	No. course	First term	Second term
Solid Geometry, Trigonometry	6a, 7a	6	–
Advanced Algebra	4b	–	5
Chemistry	1, 6	6	5
Other Art Subjects. (See lists, etc., below)		5	6

In addition to the above, the required Drill must be taken.

Second Year—In College of Arts and Sciences

	No. course	First term	Second term
Analytic Geometry	1	4	–
Calculus	1	1	6
Physics	1, 6	4	4
Other Art Subjects. (See lists, etc., below)		3	6
Descriptive Geometry and Drawing	1	5	2

In addition to the above, the required Physical Training must be taken.

List of Courses open to Freshmen without Special Permission of the Administrative Board in Charge of Freshmen and Sophomores

Greek, 1, 3, 5, 6; Latin, 1, 3, 4; Germanic Languages, 1, 2, 3, 4, 5, 6, 7, 8; Romance Languages, 1, 2, 3, 12, 30, 32, 40, 42; English, 1; Music, 1; History 1, 21; Bibliography, 1, 1a; Mathematics, 1, 2a, 2b, 3, 4 6, 7; Physics, 1, 5, 6, 10; Chemistry, 1, 6, 7; General Biology, 1; Botany, 1, 2; Entomology, etc., 2, 4, 5; Vertebrate Zoology and Neurology, 2, 5; Geology, 1, 2a, 2b, 2c.

This list is subject to the following restriction:

"He may not register or receive credit, during those years for any courses in mathematics, physics, or chemistry, or for any courses outside the College of Arts and Sciences, other than those there specified; nor may he register during his freshman or sophomore year, for any course in the College of Arts and Sciences, which is specified for a later year of the outline which he is following."

THIRD YEAR—IN THE COLLLEGE OF CIVIL ENGINEERING

	No. course	First term	Second term
Geology	31	3	3
Physical Experiments	14	2	–
Mechanics of Engineering	20	5	5
Engineering Laboratory	22	–	4
Surveying	10, 11	3	3
Materials of Construction	25	–	3
Drawing	4	4	or 4

FOURTH YEAR—IN COLLEGE OF CIVIL ENGINEERING

	No. course	First term	Second term
Political Economy	51	3	3
Railroad Engineering	60	4	4
Structural Design	71	4	4
Hydraulics	23	5	–
Hydraulic Laboratory	40	1	–
Municipal Engineering	52	–	4
Engineering problems	29	–	2
Geodetic and Topographic Surveys	15	–	4

(Four and one-half weeks at close of year.)

FIFTH YEAR—IN THE COLLEGE OF CIVIL ENGINEERING

	No. course	First term	Second term
Geodetic Surveying	13	5	–
Cartography	16	–	3
Water Supply	51	3	–
Reinforced Concrete Arch	72	–	2
Specifications and Contracts	90	–	2
Electrical Engineering (E.)	12	3	–
Steam Machinery (P.)	11	–	3
Thesis	92	–	3
Elective		6	3

A Six-Year Course Leading to the Degree of Bachelor of Arts at the End of Four Years and of Civil Engineering at the End of Six Years

Seniors in good standing in the College of Arts and Sciences, who have been in actual residence at least six terms, exclusive of summer sessions, and have a credit of at least 90 hours, may be registered both in the College of Arts and Sciences and in the College of Civil Engineering.

In accordance with this provision the following suggestion is given for a six-year course leading to the degrees of A.B. and C.E.

The following subjects are to be included in the course of study of at least 90 hours in the College of Arts and Sciences during the first three years of residence:

	No. course	First term	Second term
Analytic Geometry	1	4	–
Calculus	1	1	6
Physics	1, 6	4	4
Physics	10	1	1
Chemistry	1	6 (or 6)	
Chemistry	6	5 (or 5)	
Geology	31	3	3
Descriptive Geometry and Drawing	1	5	2

The following subjects in Civil Engineering are to be taken during the fourth year, when registered in both colleges.

	No. course	First term	Second term
History and Political Science	51	3	3
Drawing	4	4 (or 4)	
Elementary Surveying	10	3	–
Advanced Surveying	11	–	3
Mechanics of Engineering	20	5	5
Engineering Laboratory	22	–	4
Materials of Construction	25	–	3

The satisfactory completion of the above courses will lead to the degree of A.B. The work for the fifth and sixth years is to include the subjects of the junior and senior years of the regular four-year course leading to the degree of C.E., except that course 51 in Political Economy is replaced by an elective.

Students desiring to take this course are recommended to confer with the Deans of the Faculties concerned.

Graduate Study and Advanced Degrees

The facilities for study and research offered by the various laboratories of this College are available for graduate students; they will find also among both the regular and the elective courses given in the College, many that are suitable for graduate study.

The degrees of Master of Civil Engineering (M.C.E.) and of Doctor of

Philosophy (Ph.D.) are granted upon fulfilment of the condition prescribed by the Faculty of the Graduate School.

COURSES OF INSTRUCTION

1. **Drawing and Descriptive Geometry.** Freshmen. Credit, five hours first term, and two hours second term.

Drawing and Lettering. Six hours a week during first term. The work is sub-divided and is taken up in the following order. Geometrical Problems, which includes the drawing of the problem in pencil and ink; also a study of simple forms of projection in plan, elevation and section; thirty actual hours. Cross Sections, which includes practice in using drawing instruments in making the conventional signs of sections through different materials; nine actual hours. Tracing Details, which includes the use of tracing cloth in making tracings from blue prints of standard drawings, and from pencil drawings; also making blue prints from tracings; twenty-one actual hours. Freehand Lettering, which includes instruction and practice in a one-stroke freehand letter for working drawings. It is intended that the student shall acquire proficiency in the use of a letter applicable for shop and other drawings where a finished letter is not required but where rapidity and clearness are essential; thirty hours' actual time.

Descriptive Geometry. A study of the representation of lines, planes, surfaces, and solids, and their inter-relations. Warped Surfaces. Tangencies. A text-book is used and recitations are held upon the problems there stated or explained. A drawing period serves to allow the student to make drawings of original problems which are illustrations and applications of the problems in the book. Recitations, two hours a week. Original problems, two and one-half actual hours a week. Two hours' credit in second term. Intersections, shades and shadows, perspective. The intersections include various forms of the intersections of planes with surfaces and solids, of surfaces with solids and of solids with solids. The work in shades and shadows includes shade lines on solids and the shadows of solids on planes and other solids. Original problems are assigned for work in the drawing room. Recitations, one hour a week. Original problems, two and one-half actual hours a week. Assistant Professor Pond and Instructors Taylor and Morris. First term. Six sections in drawing, four sections in recitations, and eight sections in problems. Second term. Six sections in recitations, and six sections in problems.

4. **Drawing and Lettering.** Sophomores. Credit, four hours first term, for one-half of the class; and for the other half a credit of one hour first term and three hours second term. Preparation required: course 1. The work is sub-divided and is taken up in the following order: Lettering, which includes a study of and practice in different styles of letters, as Roman, Gothic, and Stump, together with their combination into appropriate titles; seventy-five actual hours. Isometric Drawing, which includes the principles involved in isometric projection, with practice in drawing from models and from dimension drawings; twelve actual hours. Line Shading, which includes the shading of flat and curved surfaces by lines variously spaced and by lines of different thickness; eighteen actual

hours. Detail and Dimension Drawing, which includes the tracing of typical dimension drawings and in making detail drawings from sketches, models, and from other drawings on different scales; forty-eight actual hours. Topographic Signs, which includes practice in the different kinds of standard topographic signs for mapping; twelve actual hours. Tinting and Shading, which includes instruction in and practice with water colors, in the rendering of flat and curved surfaces, together with the use of crayon. Each student is required to make a number of plates and to become reasonably proficient with handling the brush and with the use of crayon; fifteen actual hours. Assistant Professor PARSON and ————. Three sections for each half of the class.

Topographic and Geodetic Engineering

10. **Elementary Surveying.** Freshmen. First term, credit, three hours. The recitations cover the principles, uses and adjustments of the level and transit, and the application of steel tapes to ordinary measurements; also the theory and practice of topographic surveying with transit and stadia. The field work covers the application of the tape, level and transit to the various fundamental operations finally leading to a topographic survey of the Campus with transit and stadia, including computations, plotting notes and drawing a field sheet with contours. Text-book, Johnson's Surveying. One recitation and six hours field work a week. Professor MOLITOR, Assistant Professor BOOTHROYD, and Instructors LAWRENCE and MCCURDY. Eight sections in recitations, and six sections in field work.

11. **Advanced Surveying.** Sophomores. Second term, credit three hours. Pre-requisite, course 10. The recitations cover the applications of the fundamental surveying operations to land, railroad, city and hydrographic surveying, including the use of the sextant and plane table; also the subjects of precise leveling and triangulation, including base lines, angle measuring and determination of azimuth by single altitudes of the sun. The field work reviews the adjustments of transit and level, and covers land and city surveying, more accurate tape measurements, base line measurements with standardized tapes according to the most approved methods, angle reading for the triangulation, use of sextant and plane table in connection with hydrographic and topographic work, precise leveling and determination of azimuth from the sun. Computations and plotting notes. Text-book, Johnson's Surveying. Three recitations a week before the Easter recess and nine hours a week field work after the Easter recess. Professor MOLITOR, Assistant Professor BOOTHROYD, and Instructors LAWRENCE and MCCURDY. Eight sections in recitations and three sections in field work.

12. **Elementary Surveying** for students in Sibley College. Second term, credit two hours. This course is in every respect like course 10 except in amount of field work. Two recitations per week before the Easter recess and six hours a week field work after the Easter recess. Instructors LAWRENCE and MCCURDY. Six sections in recitations, and three sections in field work.

13. **Geodetic Surveying.** Seniors. Credit, five hours. Preparation required: course 15 or its equivalent. The course is divided into three parts, namely, astronomy, geodetic surveying, and the adjustment of observations by the method of least squares. The work in astronomy is devoted to the elements of practical astronomy with reference to the needs of engineers in the determination of azimuth and the auxiliary determinations of time and latitude. One afternoon a week is given to practice in computation including the reduction of the astronomic observations made at the junior camp of the preceding summer. In geodetic surveying, the methods of triangulation, base measurement, and precise leveling are studied, especially from the standpoint of economics. Methods of computation and reduction are considered. The application of the method of least squares to engineering problems is studied with special reference to the adjustment of triangulation and leveling. Campbell's Practical Astronomy and Crandall's Least Squares and Geodesy are used as text-books. Four recitations and one three-hour computing period a week. Assistant Professors LELAND and BOOTHROYD and Instructor UNDERWOOD. Recitations and computations, six sections.

14. **Least Squares; Adjustment of Observations.** Elective. Preparation required: calculus and physics. First term, credit, two hours. Lectures and recitations. The course is designed for students who have experimental investigations in view. Applications are made to problems in physics, astronomy, mechanics, hydraulics, surveying, etc., with some attention given to the derivation of empirical formulae. Two hours a week, as may be arranged. Assistant Professor LELAND.

15. **Topographic and Geodetic Survey.** Juniors. End of second term, credit, four hours. Preparation required: courses 10, 11, and 60. This work is intended to give the student some practical experience in the methods of conducting extensive surveying operations in the field. All of the various problems connected with a complete topographic and geodetic survey are taken up in detail and each student is given ample opportunity to participate in the work, serving at different times, in every capacity from chief of party down to helper and rodman. A system of triangulation is planned proceeding from a base line with determinations of azimuth and geodetic positions and the topography is filled in with transit and stadia and partly with plane table and stadia. Precise levels are run from U. S. bench marks to the proximity.

16. **Cartography.** Seniors. Second term, credit, three hours. Preparation required: courses 13 and 15. One-third of the time is devoted to the computations resulting from the field work of the previous summer surveys, course 15, embracing base-line measurement, triangulation, and trigonometric and precise leveling. The work results in a set of permanent records, with the geographic positions, azimuths, distances and elevations of the various triangulation stations. The remainder of the course consists of the construction of a final topographic map of a portion of the area covered in the preceding summer survey. Several of the field sheets are combined for this purpose, and reduced in scale from 1:4800 to 1:12000, using the

triangulation system as a basis for the work. Computing, three hours, and drawing, six hours per week. Assistant Professor LELAND and Instructor UNDERWOOD. Eight sections.

17. **Geodesy and Geodetic Astronomy.** Elective. Seniors and graduates. Preparation required: course 13. Second term, credit, three hours. A special course for the consideration of the more advanced portions of the subject, as the investigation of the figure of the earth and allied problems. Lectures, reading, and discussions. Three hours a week. Assistant Professor LELAND.

18. **Geodetic and Astronomic Laboratory.** Elective. Seniors and graduates. Second term, credit, three hours. Special work at Fuertes Observatory in the investigation and use of geodetic and astronomic instruments and apparatus. Circles, levels, micrometer microscopes, standards of length, thermometers, and pendulums. Astronomic observations of various kinds. Nine hours a week, as may be arranged. Assistant Professor LELAND.

19. **Photographic Surveying.** Elective. Preparation required: course 11. Second term, credit, two hours. Methods of making topographic surveys with the camera, and of plotting the data. Lectures and recitations, followed, perhaps, by a survey of small extent to illustrate the principles involved. Hours subject to special arrangement. Assistant Professor LELAND.

Applied Mechanics and Hydraulics

20. **Mechanics of Engineering.** For sophomores in Civil Engineering and students specializing in chemistry. Throughout the year, credit, five hours for each term. Preparation required: Mathematics, course 1. A study of the principles, and applications to engineering, of the mechanics of solids; as relating to the mutual actions, motions, pressures, strength, stiffness, and resilience of the members of structures and machines. Original problems form a prominent feature. Statics of a material point and of rigid bodies. Centers of gravity. Chains and cords. Dynamics, (kinetics) of a material point. Impact. Virtual velocities. Centrifugal and centripetal forces. Pendulums. Moments of inertia of plane figures and of rigid bodies. Dynamics (kinetics) of rigid bodies. Work. Power. Energy. Fly-wheels. Friction. Graphical statics of mechanism. Dynamometers. General theorem of work and energy applied to machines. Stresses and strains. Tension. Shearing. Compression. Torsion. Flexure. Elastic curves. Safe loads. Columns. Text-books: Church's Mchanics of Engineering, and Notes and Examples in Mechanics, supplemented by other printed notes and problems. Lectures and recitations, daily except S, throughout the year. Professor CHURCH, Assistant Professors GEORGE, RETTGER, and SEERY. Eight sections.

22. **Engineering Laboratory.** Sophomores. Second term, credit, four hours. Must be preceded by, or taken with, course 20. Use of engineers' computing devices, viz: The common slide rule, the Fuller spiral slide rule, Thacher calculating instrument, and Goodchild chart. Use of the planimeter, adjustments and use of the cathetometer. Experiments involving

the parallelogram of forces (funicular polygons.) Determination of specific gravity with the Jolly balance. Centers of gravity of plates and prismoids (models). Efficiency of the inclined plane and of the compound crane. Systems of levers. Harmonic motion of masses, etc. Experiments in testing materials. Use of the 50,000 lb. and the 100,000 lb. Olsen machines, in tensile tests of bars of iron and steel. The Thurston and Riehlé torsion machines; determination of their constants; and tests of specimens for the determination of shearing stresses and of the modulus of elasticity for shearing. Flexure of wooden and steel bars; deflections and modulus of elasticity. Elongation of steel wires with observations by cathetometer or dial extensometer. Breaking tests of wooden columns. Moments of inerta of beam sections by graphic and analytical methods; and also by the use of the mechanical integrator. Use of the Kew magnetometer. Determination of specific gravity, fineness, normal consistency, soundness (normal and accelerated tests), time of set, and strength (both in tension and compression), of cements, neat and with sand. Determinations of voids in sands and broken stone. Laboratory work, five hours a week. Computations and reports five hours a week. Professor CHURCH, Assistant Professor MILLS, and Instructors TAYLOR, MORRIS, and ———. Six sections.

23. **Hydraulics.** Juniors. First term, credit, five hours. (With topics in hydrostatics and pneumatics.) Preparation required: course 20. Fluids at rest. Hydrostatic pressure. Manometers. Strength of pipes. Pressure of water against walls and dams. Earth pressure. Immersion and flotation. Compressed air motors. Air compressors. Gas engines. Barometric leveling. Steady flow of liquids through pipes and orifices, and over weirs. Fluid friction. Losses of head. Time of emptying vessels. Steady flow of water in open channels. Kutter's formula and diagrams based thereon. Steady flow of gases through pipes and orifices. Overshot, breast, and undershot water wheels. Theorems for flow in a revolving pipe. Impulse wheels (Pelton, Girard, etc.). Turbines and reaction wheels. Backwater. Theory of turbine testing. Other hydraulic motors and machinery. As part of the work of instruction, experimental demonstrations are given in the Hydraulic Laboratory, at intervals of two or three weeks, to illustrate the principal phenomena of hydrostatics and hydraulics. Text-books: Church's Mechanics of Engineering, and Hydraulic Motors. Lectures and recitations, daily except S. Professors CHURCH and OGDEN, Assistant Professors SCHODER and TURNER. Six sections.

25. **Materials of Construction.** Sophomores. Either term (one-half of the class each term), credit three hours. Must be preceded by, or taken with, course 20. Text-book, Johnson's Materials of Construction. The materials studied are: lime, cement, stone, brick, sand, timber, ores, cast iron, wrought iron, steel, and some of the minor metals and alloys. The chemical and physical properties, uses, methods of manufacture, methods of testing, and unit stresses of each material are considered, particular stress being laid on those points of importance to engineers. The work is planned to coordinate with the course in economic geology and supplements that work where necessary. One lecture and two recitations a week. Assistant Professors MILLS and GEORGE. Four sections each term.

26. **Advanced Mechanics.** Elective. Seniors and graduates. First term, credit, three hours. Preparation required: course 20. Linear arches. Curved beams. Special cases of flexure. Problems in the mathematical theory of elasticity. Thick hollow cylinders and spheres. Plates. Castigliano's Theorem of Least Work. Internal Work and its derivatives. Applications. Recitations. Three hours a week. Professor CHURCH. T Th S, 10.

29. **Engineering Problems.** Juniors. Second term, credit, two hours. Preparations required: courses 20 and 23. The object of this course is to provide additional practice in using the principles and methods of Applied Mechanics, both of solids and fluids. A series of problems, such as occur in ordinary engineering practice, and covering a wide range of topics is given out for solution. Computations and reports; six hours a week. Professor CHURCH, Assistant Professors SEERY, GEORGE and TURNER. Four sections.

30. **Testing Materials.** Elective. Seniors and graduates. First term, credit three hours. Preparation required: courses 22 and 25 or their equivalents. Special investigations of an advanced nature of the properties of structural units and the materials of construction.

Tests may be made upon full-sized sections in iron and steel upon wooden columns, beams, and trusses; standard tests of paving brick and macadamizing materials; standard tests of cement and concrete aggregates; special investigations of the properties of concrete plain and reinforced upon full sized beams and columns; tests upon the bonding strength of steel and concrete; tests upon riveted steel joints; tests upon wire cables; etc. Johnson's Materials of Construction and the publications of the American Society of Civil Engineers and of the American Society for Testing Materials are used as reference works. The aim of the Course is not only to provide a knowledge of materials by observation of their behavior under stress, but also a knowledge of the technique of testing materials; a training in precise methods of observation and interpretation of results; and an appreciation of the relation of theoretical investigation to engineering practice. Advanced students are encouraged to make use of the laboratory facilities for special research work. Seven and one half hours a week as arranged. Professor CHURCH and Assistant Professor MILLS.

Hydraulic Engineering

31. **Hydraulic Constructions.** Elective. Seniors and graduates. Credit, three hours. Lectures, recitations, and reports. Preparation required: courses 20 and 23; must also be preceded by or taken with course 51. Textbooks: Wilson's Irrigation Engineering, with parts of Turneaure and Russell's Water Supplies and Thomas and Watt's River Improvement. Problems are assigned and must be completed before credit will be allowed. The work is divided into four parts, as follows:

Design and Construction of Dams, which includes the derivation of Wegman's formula for the profile of a high masonry dam and the working of a problem involving all the factors affecting the form of the cross section. The design and construction of earthen, timber, and metallic dams, are also

considered. Water Storage, which includes the investigations of a reservoir site, surveys, borings, and cost of storage; the design of spillways and flood channels; and the effect on the stream discharge for various capacities of storage. Irrigation Engineering, which includes the problems peculiar to the irrigation of land with the necessary storage and distribution and with some attention to the agricultural problems involved. River Engineering, which includes a general study of river hydraulics with special reference to regulation, and bank protection. Either term. Assistant Professor SEERY. First term, T Th S, 11; second term, M W F, 11.

32. **Water Power Engineering.** Elective. Seniors and graduates. Either term, credit, three hours. Preparation required: courses 23 and 40. Text-book: Mead's Water Power Engineering. The development of power on a stream, including the economic and commercial features affecting the value of a mill site; river hydraulics; the selection of turbines and a study of their characteristics; speed regulation; design of penstocks; the conveyance of water in canals, flumes, and pressure conduits; arrangement of machinery, etc., effect of pondage, storage and load factor, on capacity and equipment. The mechanical equipment is taken up and a problem illustrating the subject in a concrete example is worked by each student. Problems are assigned and must be completed before credit will be allowed. Assistant Professor SEERY. First term, M W F, 11; second term, T Th S, 11.

Experimental Hydraulics

40. **Hydraulic Laboratory.** Juniors. First term, credit, one hour. Must be preceded by, or taken with, course 23. The course is intended to familiarize the student with the simpler hydraulic phenomena and with the observations and calculations involved. Written reports are required. The work includes: Logarithmic plotting and its applications; experiments on the flow of water over a weir, through several types of orifices, through a pipe, through a Venturi meter, and through a nozzle; and a test of a water motor. Text-book: Schoder and Turner's Hydraulic Laboratory Manual. One three-hour period a week. Assistant Professors SCHODER, TURNER, and WALKER. Six sections.

41. **Hydraulic Measurements.** Elective. Seniors and graduates. Second term, credit, three hours. Preparation required: courses 23 and 40. The experimental portion of this course is intended to test the accuracy of measuring devices and methods as well as the exactness of hydraulic formulae. The work includes: Construction of pipe-flow diagrams; the Pitot tube; water-meters; nozzles; weirs; current-meters and floats in open channels; lectures on measurement of flowing water in large streams. Three afternoons a week. Professor HASKELL, Assistant Professors SCHODER and TURNER. M W F, 2–5.

42. **Experimental Hydraulic Motors and Pumps.** Elective. Seniors and graduates. Second term, credit, three hours. The determination of efficiency, capacity, and characteristics of hydraulic machinery. Assistant Professor SCHODER.

43. **Experimental Hydraulic Investigation.** Elective. Seniors and graduates. Second term, credit, three hours. This course is intended for those

students who desire to carry on experimental investigations in hydraulics under more immediate direction and supervision than prevails in case of thesis work. Written reports are required, but need not be typewritten nor bound in thesis style. These reports are kept by the department. It is often possible and desirable for two students to work together on the same investigation. The field and scope of the investigation should be selected during the first two weeks of the term. For the experimental portion of the work the equivalent of three three-hour periods a week, is required. Assistant Professor SCHODER. T Th S, 8–11.

44. **Advanced Experimental Hydraulics.** The facilities of the hydraulic laboratory are available for thesis work and for experimental investigations by graduate students. Subject to special arrangements in each case. Professor HASKELL and Assistant Professor SCHODER.

Municipal and Sanitary Engineering

51. **Water Supply.** Seniors. First term, credit, three hours. Preparation required: course 23. Text-book, Turneaure and Russell's Public Water Supplies, except Chaps. 8–10 and 19–23. Problems are assigned and must be completed before credit is allowed. These problems cover the various features of water works development as follows: Estimate of future population and consumption; hydrology of a drainage basin; rainfall and probable run-off; use of a mass diagram in determining necessary volume of storage; location of a conduit on a topographic map with calculation of size of conduit; determination of size of a distributing reservoir; design for adequate fire pressure in a distribution system; pumping and economic sizes for force mains for city supply with assumed topography; and computations for capacity of a ground water supply. One lecture and two recitations a week. Assistant Professor SEERY. Five sections in recitations.

52. **Municipal Engineering.** Juniors. Second term, credit, four hours. Preparation required; course 23. Four hours per week, divided between lectures and recitations, as follows: Fifteen lectures and forty-five recitations. The lectures are divided as follows:

Specifications, earthwork, trenching, rockwork, illustrated description of sewer construction and sewage disposal plant, garbage collection and disposal.

The recitations are on the following books: Ogden's Sewer Design; Spalding's Roads and Pavements; Notes on Sewage Disposal.

There are also required from the students problems illustrating the matters taken up in the lectures as follows, one for each week: specifications of tennis court; city sewage flow; city outfall sewer; pipe flow diagram; septic tank design; sedimentation tanks; disposal plant; culvert design; road location; pavement designs; estimates and specifications. Professor OGDEN and Assistant Professor WALKER. Four sections in recitations.

53. **Purification and Control of Water Supplies.** Elective. Seniors and graduates. Second term, credit, three hours. Preparation required: course 23. Examination of water, physical, chemical and bacteriological; normal quality of surface and subterranean waters, with effects of storage; communicable diseases and water supplies; epidemics of typhoid fever and

cholera with studies of etiology, etc.; purification of water, sedimentation and coagulation; slow sand filtration, theory, construction and operation, with examples; rapid sand filtration, theory, construction and operation, with examples; miscellaneous purification processes, aeration, softening, iron removal, sterilization, distillation, and purification by chemicals. Professor OGDEN. M W F, 11.

54. **Sewerage Works.** Seniors and graduates. First term, credit, three hours. Preparation required: course 52. Three hours per week for 15 weeks, divided between lectures and recitations. Text-book is Ogden's Sewer Construction. The lectures are upon the construction and operation of Sewage Disposal works, illustrated by lantern slides and by reference to recent descriptions of sewage disposal plants in the current literature. There are, generally speaking, three recitations or one week's work on each of the following topics in these lectures: disposal by dilution (salt and fresh water); chemical precipitation; broad irrigation, with special reference to institutions; natural and artificial filtration beds; sedimentation and septic tanks; contact beds and sprinkling filters. It is intended to differentiate this course from the junior work by making the latter chiefly a discussion of principles involved while the senior course is a detailed investigation of the methods of construction with the reasons involved. Professor OGDEN. M W F, 11.

55. **Sanitary Laboratory.** Elective. Seniors and graduates. Either term, credit, three hours. Preparation required: course 52 and chemistry, course 6. This course offers a practical demonstration of some of the topics considered in courses 52, 53, and 54. Through the courtesy of the N. Y. State department of Health, students in Sanitary Engineering are permitted to work in the laboratory established by that department at Cornell University and may thereby become familiar with practical methods of water examination. Sand analyses are made, experiments in sedimentation carried on, and the operation of the city water filtration plant checked. Measurements of velocities and grades in the city sewers and a study of their inter-relation with sizes of pipes and depths of flow are made. Seven and one-half hours a week. Assistant Professor WALKER. T Th, 2–4:30; S, 9–11:30.

Railroad Engineering

60. **Railroad Surveying, Construction and Economics.** Juniors. Throughout the year, credit, four hours a term. Preparation required: courses 10 and 11. The campus field work includes the laying out of circular and transition curves; the fixing of grade lines, cross sectioning and the staking out of masonry structures; the realigning of track and the location of turnouts. The Saturday field work consists in making the reconnoissance, preliminary, and location surveys for some ten miles of railroad. The topography is taken, the line is cross sectioned and data are obtained for estimates of cost, including the structures and rights of way. The drawing includes a map and a profile of the located line and a plan for one or more of the structures. The earthwork is computed from the cross sections, and complete estimates are made of quantities and costs, including structures

The recitations and lectures take up the field problems; the computation of earthwork; the cost of graduation, including tunnels, sub grade and track structures; track work; and the economics of railroad location and operation. Mimeograph notes on Railroad Surveying and on Railroad Construction, Crandall's Transition Curve and Earthwork Tables, Beahan's Railway Location, and Gotshall's Electric Railway Economics, form the bases of the work. Professor CRANDALL, Assistant Professor BARNES and Instructors EDWARDS, LAWRENCE, UNDERWOOD, and ———. First term, two three-hour periods of field work a week, and alternate Saturdays. Six sections. Second term, three recitations a week, six sections; and one period of two and one-half hours a week in mapping, five sections.

61. **Railroad Maintenance of Way.** Elective. Seniors and graduates. First term, credit, three hours. Preparation required: course 60. The subjects treated are: track materials, with especial reference to the section, method of manufacture, and composition of steel rails; to the economics of tie preservation and the use of metal ties; and to the effect of quality of ballast upon maintenance. Machine and other methods of grading for second track; drainage; track laying both by machine and hand methods; ballasting and bringing new track to line and grade. Turnouts and switches; derailing switches; side tracks and yard tracks; sorting and terminal yards. Track maintenance; track tools; work trains. Action of car wheels on curves; widening of gage. Double tracking; separation of grades; and improvement in grades and alignment. Camp's Notes on Track is used as a text. Lectures and recitations three hours a week. Professor CRANDALL. M W F, 11.

62. **Railroad Operation and Management.** Elective. Seniors and graduates. Second term, credit, three hours. Preparation required: course 60. The course is based on Byer's Economics of Railway Operation and Adam's The Block System, both of which are used as text-books. Under organization the following subjects are treated: The general principles underlying organization and the effect of each on efficiency; principal departments of railway service with a brief outline of the work of each; departmental and divisional systems of organization, with examples on various roads and discussion of adaptability of each. The duties of officers and the work of the different departments are taken up in considerable detail. The most important laws affecting railroads are given in discussing the work of the legal department. Freight traffic, freight houses, classification yards, car service rules, accounting, etc., are among the topics considered under operation. Signaling and interlocking and train rules are also considered. Lectures and recitations three hours a week. Assistant Professor BARNES. M W F, 11.

63. **Railroad Construction and Maintenance.** Special course for students in Sibley College. Second term, credit, two hours. Preparation recommended: course 12. Second term. Webb's Railroad Construction is used as a text-book. Railroad Surveying; reconnoissance, preliminary survey and location, simple curves with methods of laying out; purpose and nature of transition and vertical curves. Railroad Construction; earthwork, surveys, methods and costs; rockwork; culverts and minor

structures; trestles and bridges; and tunneling. Railroad Maintenance; ballast, purposes, kinds and cross sections; ties, materials and treatment; rails and rail fastenings; joints; switches and crossings. Railroad Economics; statistics; cost of distance, curvature, rise and fall and change in rate of ruling gradient and tonnage rating. Attention is given to comparing capitalized cost of structures, changes in weight of locomotives, etc. Two recitations a week. Assistant Professor BARNES. Hours to be arranged.

Structural Engineering

71. **Structural Design.** Juniors. Throughout the year, credit, four hours a term. Preparation required: course 20.

Structural Details. The recitations cover the graphic analysis of simple beams and roof trusses in Chapters I and II of Merriman and Jacoby's Roofs and Bridges, Part II. The computations and drawing include complete detail designs and working drawings of wooden joints to resist large tensile stresses, and of a wooden roof truss for given specifications. The object of the course is to show how to apply the principles of mechanics to the design of every detail of the simple structures named, and to study the forms and strength of joints and fastenings used in heavy framing. The computations required are to be arranged in systematic order in the form of reports. Reference book: Jacoby's Structural Details. First term for 10 weeks. Computation and drawing, six hours a week.

Bridge Stresses. Stresses due to dead, live, and wind loads, initial tension, and impact. Panel loads and locomotive axle loads. Determination of the position of live loading for greatest stresses. Maximum and minimum stresses. Analytic and graphic methods are used. The principal types of simple trusses employed in modern construction are considered, in several cases both with and without counterbracing. Historical notes on truss bridges. The solution of many numerical examples taken from practice forms a prominent part of the class work. Each student is required to compute all the stresses in the main trusses and lateral bracing for a through Pratt truss railroad bridge which is to be designed subsequently. Text-books: Merriman and Jacoby's Roofs and Bridges, Parts I and II. First term. Recitations two hours a week for 10 weeks, thereafter four hours a week.

Bridge Design. Computations and drawing for the complete design of a steel railroad bridge of six or seven panels, the stresses for which were computed in connection with the previous study of bridge stresses. The computations to determine the sections of all members and of pins, pin plates, splices, and other details as well as of connecting rivets are to be written up in the form of systematically arranged reports. The drawings consist of general detail plans showing the location of all rivets as well as the composition and relation of all members and connections. The final report is to give a full list of shapes and plates, and a classified analysis of weight for the span. Text-book: Merriman and Jacoby's Roofs and Bridges, Part III. Second term. Computation and drawing, 12 hours a week. Professor JACOBY, Assistant Professor DERICKSON, and Instructors DAVIS,

BOWMAN, and BURROWS. First term, eight sections in recitations and six sections in computations. Second term, four sections.

72. **Reinforced Concrete Arch.** Seniors. Throughout the year, credit, two hours a term. Preparation required: course 20 and first part of course 71. The design of an arch of reinforced concrete including its abutments and centering. The general form and proportions are determined by two preliminary investigations. The final investigations of the arch ring under partial and full live loading are made in accordance with the elastic theory. The design is supplemented by several illustrated lectures on the different types of concrete arch bridges of recent construction, their principal details, methods of erection, and influence on design. Lectures, computation and drawing, six hours a week. Professor JACOBY, Assistant Professor DERICKSON and Instructor BOWMAN. Two sections in each term.

73. **Higher Structures.** Elective. Seniors and graduates. Either term, credit, three hours. Preparation required: courses 20 and 71. Determination of the loading and stresses in continuous girders and trusses, swing bridges, and metallic arches. The arches include arch ribs and trussed arches with three and two hinges respectively. Both analytic and graphic methods are used. The latter include displacement diagrams to find the deflections of trusses and the reactions of statically indeterminate structures, and the use of influence lines to find their loading and stresses. These studies are accompanied by historical notes on arches, drawbridges and cantilever bridges. Text-book: Merriman and Jacoby's Roofs and Bridges, Part IV. Recitations, three hours a week. Professor JACOBY and Instructor DAVIS. First term, T Th S, 11. Second term, M W F, 11.

74. **Masonry and Foundations.** Elective. Seniors and graduates Either term, credit, three hours. Preparation required: course 20. Coffer dams, cribs, sheet piling, metal cylinder piers, pumping and dredging, the foundation, and the location and design of piers. Piles and pile driving. Pneumatic caissons. Open caissons. Caisson sinking. Deep and difficult foundations. Foundations of buildings: pile, caisson, steel, concrete. Underpinning. Examination of selected modern example described and illustrated in the engineering periodicals and transactions. Recitations, collateral reading and illustrated reports. Fowler's Ordinary Foundations. Three hours a week. Instructor DAVIS. First term, M W F, 11. Second term, T Th S, 11.

76. **Steel Buildings.** Elective. Seniors and graduates. Second term, credit, three hours. Preparation required: courses 20 and 71. Mill buildings and tall steel buildings. Framing, trusses, beams and columns. Eccentric loading, wind bracing, connections and details. Roofs and floors. Weights and costs. Specifications. Design of a small mill building. Investigation of the effect of wind on a knee-braced mill building bent. Recitations, lectures, and reports. Six hours a week for eleven weeks, after that three hours a week. Assistant Professor DERICKSON. T Th S, 11–1.

77. **Concrete Construction.** Elective. Seniors and graduates. Either term, credit, three hours. The purpose of this course is to continue the study of reinforced construction and design begun in courses 20 and 25. While examples of actual construction are continually cited, special atten-

tion is paid to fundamental principles of design, to theoretical discussions, and to the interpretation of the results of experiments. It is the aim to give theory and practice equal weight, and to present the limitations as well as the advantages of this type of construction. The text used is Turneaure and Maurer's Principles of Reinforced Concrete-construction, of which all chapters excepting Chapter VIII (on the arch) are studied. The subject matter covered is as follows: Properties of the material; general theory; tests of beams and columns; working stresses and general constructive details; formulae; diagrams and tables, building construction; retaining walls and dams; miscellaneous structures. At each recitation a problem is assigned, requiring about an hour's time to solve. One recitation and two drawing periods a week. Assistant Professor DERICKSON and Instructors DAVIS and BOWMAN. Four sections in recitations and three in computations and drawing for each term.

Specifications, Designs, etc.

89. **Cost Keeping and Management.** Elective. Seniors and graduates only. First term, credit, two hours. An elementary course on the principles which govern the organization and management of forces on construction, systems of payment, measurement of efficiency and cost keeping; with illustrative examples. Assistant Professor BARNES. T Th, 11.

90. **Specifications and Contracts.** Seniors. Second term, credit, two hours. Synopsis of the law of contracts as applied to engineering work. Study of the general and of the special clauses in specifications; classification of specifications; typical contracts and specifications. Practice in writing specifications. Acquisition, ownership and conveyance of land; rights and liabilities in streams, surface and underground waters; property rights defined by boundaries; and determination of boundaries of land. Johnson's Contracts and Specifications is used as a text, and Wait's Law of Operations in Engineering Construction as a reference book. Lectures and recitations, two hours a week. Professor CRANDALL, Assistant Professor BARNES. Six sections.

91. **Engineering Design.** Seniors. Credit, three hours. The student is required to make complete designs in one of the following sub-divisions, subject to approval; hours to be arranged.

(a) **Hydraulic Engineering.** Second term. Preparation required: courses 23 and 29. Design of hydraulic works, plants and appliances, such as aqueducts, canals, irrigation works, locks, lift-locks, lock-gates, dams, reservoirs, stand-pipes, elevated tanks, systems of water works (gravity, pneumatic or pumping systems), drainage works, power plants, water turbines and other hydraulic motors and machinery, etc. Professor CHURCH and Assistant Professors SEERY and GEORGE.

(b) **Sanitary Engineering.** First term. This course must be preceded by or taken at the same time with course 54 and may not otherwise be elected. The following problems assigned in 1909–10 indicate the scope of the work:

1. Computations, design and detail drawings for the wooden forms

needed for brick or concrete sewers of various diameters and forms of cross section.

2. Computations, design and detail drawings for a pile foundation to support sewers from 3 to 10 feet diameter.

3. Design and detail drawings for patterns of cast iron manhole covers.

4. Computations, design and detail drawings for flap valve at outlet of settling tank; the design involving a lifting device.

5. Design and detail drawings of a sewage screen, involving a device for raising screen for cleaning.

6. Computations, designs and detail drawings for an inverted siphon for sewage flow. The problem involves a flushing gate and overflow as well as manholes.

7. Design of disposal plant for a small community as an asylum or school. Professor OGDEN.

(c) **Railroad Engineering.** Second term. Must be preceded by, or taken with course 61. Individual problems are assigned in conference with the student. These include: designs for track layouts and details, small depot buildings and freight houses, culverts, bridge masonry, subway construction; grade separation structures; water tanks, track and elevated, of steel, timber or reinforced concrete; coaling plants, etc. Bills of material and estimates of cost are usually required. Professor CRANDALL.

(d) **Bridge Engineering.** Second term. Course 71 is required as general preparation for engineering design in bridges and buildings. Course 73 is required in preparation for designs relating to draw, cantilever, suspension and metallic arch bridges. Course 77 is similarly required for designs of bridges and buildings in reinforced concrete, course 72 being taken at the same time as engineering design, or previously. Professor JACOBY, Assistant Professor DERICKSON.

92. **Thesis.** Seniors. Credit, three hours. The thesis is intended to demonstrate the ability of the student for independent investigation, or his capacity to apply the fundamental principles acquired in this course to the study of some special problem related to Civil Engineering. The latest date for filing the subject with the Dean of the College is October 15 for the first term, and January 15 for the second term. The plan of work is to be submitted to the professor having charge of the subject, to whom also regular reports are to be made, showing the progress of the investigation. The latest date for presenting the completed thesis is June 1. Regarding the approval of the subject or substitution for thesis see notes under the requirements for the four-year course.

Special and Graduate Courses

All of the elective courses are suitable for graduate and advanced students, and may be taken by them in the regular classes. Other special courses will be arranged to suit the requirements of graduate students. These courses are intended to be pursued under the immediate direction of the professor in charge, the student being usually free from the restrictions of the class room and working either independently or in conjunction with others taking the same course. See p. 8.

OFFICIAL PUBLICATIONS OF CORNELL UNIVERSITY

Issued at Ithaca, N. Y., monthly from July to November inclusive, and semi-monthly from December to June inclusive.

[Entered as second class matter, August 31, 1910, at the post office at Ithaca, N. Y., under the Act of July 16, 1894.]

These publications include the annual Register, for which a charge of twenty-five cents a copy is made, and the following publications, any one of which will be sent gratis and post-free on request:

General Circular of Information for prospective students,
Announcement of the College of Arts and Sciences,
Courses of Instruction in the College of Arts and Sciences,
Announcement of Sibley College of Mechanical Engineering and the Mechanic Arts,
Announcement of the College of Civil Engineering,
Announcement of the College of Law,
Announcement of the College of Architecture,
Announcement of the Medical College,
Announcement of the New York State College of Agriculture,
Announcement of the Winter Courses in the College of Agriculture,
Announcement of the New York State Veterinary College,
Announcement of the Graduate School,
Announcement of the Summer Session,
Annual Reports of the President and the Treasurer.
Pamphlets on scholarships, fellowships, and prizes, samples of entrance and scholarship examination papers, special departmental announcements, etc.

Correspondence concerning the publications of the University should be addressed to

The Registrar of Cornell University,
Ithaca, N. Y.

OFFICIAL PUBLICATIONS
OF CORNELL UNIVERSITY

VOLUME I NUMBER 6

SIBLEY COLLEGE OF MECHANICAL ENGINEERING AND THE MECHANIC ARTS

ANNOUNCEMENT

1910-11

DECEMBER 15, 1910
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ITHACA, NEW YORK

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VOLUME 1 NUMBER 6

SIBLEY COLLEGE OF MECHANICAL ENGINEERING AND THE MECHANIC ARTS

ANNOUNCEMENT

1910-11

ITHACA, NEW YORK

DECEMBER 15, 1910

This announcement is intended to give detailed information to prospective students in the Sibley College of Mechanical Engineering and the Mechanic Arts of Cornell University.

For general information concerning the University and its various colleges, the requirements for admission, etc., the General Circular of Information should be consulted. This and the other Official Publications of Cornell University are listed on the last page of the cover of this pamphlet. Any one of the informational publications there mentioned will be sent gratis and post-free on application to The Registrar of Cornell University, Ithaca, N. Y.

FACULTY

Jacob Gould Schurman, A.M., D.Sc., LL.D., President.

Albert William Smith, B.M.E., M.M.E., Director of the College, Dean of the Faculty, and Professor of Power Engineering, in charge of the department.

Rolla Clinton Carpenter, M.S., C.E., M.M.E., LL.D., Professor of Experimental Engineering, in charge of Engineering Research.

Dexter Simpson Kimball, A.B., Professor of Machine Design and Construction, in charge of the department.

Henry Hutchinson Norris, M.E., Professor of Electrical Engineering in charge of the department.

George Robert McDermott, Professor of Structural Design. Absent on leave during 1910–11.

Herman Diederichs, M.E., Professor of Experimental Engineering, in charge of the Mechanical Laboratories.

William Nichols Barnard, M.E., Professor of Power Engineering, and Secretary of the College.

Vladimir Karapetoff, C.E., Professor of Electrical Engineering.

Clarence Floyd Hirshfeld, M.E., Professor of Power Engineering.

Howard Drysdale Hess, M.E., Professor of Machine Design.

Edgar Harper Wood, M.M.E., Professor of Mechanics of Engineering.

George Stanley Macomber, M.E., Assistant Professor of Electrical Engineering.

Calvin Dodge Albert, M.E., Assistant Professor of Machine Design.

Will Miller Sawdon, B.S. in M.E., Assistant Professor of Experimental Engineering.

Walter Stebbins Ford, M.E., Assistant Professor of Electrical Engineering.

George Burr Upton, M.M.E., Assistant Professor of Experimental Engineering.

Frank Arthur Burr, M. E., Assistant Professor of Power Engineering.

Leslie David Hayes, M.E., Assistant Professor of Machine Design.

——— ———, Assistant Professor of Mechanics of Engineering.

——— ———, Assistant Professor of Mechanics of Engineering.

Albert Edward Wells, Superintendent of Shops and Instructor in Machine Construction.

John Tainsh Williams, Instructor in Machine Design.

Charles Homer Tower, S.B., Instructor in Electrical Engineering.

William Edward Hogan, M.E., Instructor in Electrical Engineering.

Fred Hutton Kroger, B.S., M.S., Instructor in Electrical Engineering.

John F. H. Douglass, B.Sc., Instructor in Electrical Engineering.

Anson Munson Holcomb, B.S., Instructor in Electrical Engineering.

Henry Livingston Freeman, M.E., Instructor in Machine Design.

Clarence Walter Ham, M.E., Instructor in Machine Design.

Victor Raymond Gage, M.E., Instructor in Experimental Engineering.

Frank Girard Tappan, M.E., Instructor in Electrical Engineering.

John Floyd Stevens, M. E., Instructor in Electrical Engineering.

Tom Bruce Hyde, M.E., Instructor in Experimental Engineering.

Robertson Matthews, M.E., Instructor in Power Engineering.

Armin George Kessler, M.E., Instructor in Power Engineering.

Alexander Dawes Du Bois, B.S., Instructor in Electrical Engineering.
Frank Gibbs Anderson, M.E., Instructor in Electrical Engineering.
Daniel Robert Francis, E.E., B.A., Instructor in Machine Design.
Preston Littlepage Peach, M.E., Instructor in Machine Design.
Charles Everett Torrance, M.E., Instructor in Experimental Engineering.
Herbert McNair Douglass, M.E., Instructor in Machine Design.
W. Rodney Cornell, B.Sc., C.E., Instructor in Mechanics of Engineering.
Arthur Graham Bierma, M.E., Instructor in Experimental Engineering.
Guy Leroy Current, B.S. in E.E., Instructor in Experimental Engineering.
Leroy Alonzo Wilson, M.E., Instructor in Experimental Engineering.
William Roy Wigley, M.E., Instructor in Experimental Engineering.
Henry Mark Parmley, M.E., Instructor in Power Engineering.
Arden Benjamin Holcomb, A.B., Instructor in Electrical Engineering.
Fred Edgar Klinck, M.E., Instructor in Machine Design.
William Rayner Straus, M.E., Instructor in Machine Design.
Myron A. Lee, M.E., Instructor in Machine Design.
Charles Azariah Carpenter, M.E., Instructor in Machine Design.
Jerome Arthur Fried, M.E., Instructor in Machine Design.
Charles Dudley Corwin, M.E., Instructor in Machine Design.
Robert Long Daugherty, A.B., Instructor in Mechanics of Engineering.
———— ————, Instructor in Mechanics of Engineering.
Warren Howard Hook, M.E., Instructor in Experimental Engineering.
Joseph Franklin Putnam, M.E., Instructor in Experimental Engineering.
Stephen Remington Wing, M.E., Instructor in Experimental Engineering.
Paul Wheeler Thompson, M.E., Instructor in Power Engineering.
Tomlinson Carlile Ulbricht, M.E., Instructor in Power Engineering.
John George Pertsch, M.E., Instructor in Electrical Engineering.
———— ————, Instructor in Mechanics of Engineering.

Assistants

James Eugene Vanderhoef, Foreman in Foundry.
Clinton Byron Burke, Foreman of Wood Shop.
Walter Liston Head, Foreman of Forge Shop.
Raynor Egbert Seamon, Assistant in Wood Shop.
Frank A. Lynham, Assistant in Machine Shop.
Birdette Newton Howe, Assistant in Machine Shop.
Howard Stanley Bush, Assistant in Wood Shop.
Leroy Hooper, Foreman of Wood Shop.
Ward Brown Smith, Assistant in Machine Shop.
Charles Albert Brooks, Assistant in Forge Shop.
Hugh Gallagher, Assistant in Foundry.
George Washington Race, Mechanician in Sibley College.
Edgar Warren Gregory, Mechanician.
Margaret Isabelle Colquhoun, Clerk in Experimental Engineering.
Charles Alfred Culligan, Mechanician.
Fanny Elma Mix, Secretary to the Director.
Charles Bedell, Engineer.
Rowena L. Shephard, College Librarian.

PURPOSES OF INSTRUCTION

The College is organized not only to teach the fundamental principles that underlie all mechanical engineering, but also to give such practical training and such instruction in the economics of engineering as is possible in a technical school.

It is well recognized that theoretical instruction must be supplemented by experience in practice and by contact with life before one can attain his greatest usefulness in the profession; hence, in Sibley College, an effort is made to bring the student into contact with teachers who are closely in touch with commercial engineering practice, to the end that he may thus become familiar with problems encountered in modern engineering and with commercial methods of solving them. It is hoped in this way to shorten somewhat the period of adjustment for the graduate when he begins actual engineering work.

The success of an engineer has come more and more to depend upon his ability to meet men of education and culture on equal terms; and, since the work in the regular four-year course in this college is almost wholly technical, the student before entering the college should have a thorough general education, and if possible, the training of a liberal college course. Those who have not had this broader education should, if possible, spend one or two years in the College of Arts and Sciences. A Five-year Course for mechanical engineers, including the equivalent of one year in this latter college, is outlined on page 20; and a Six-year Course leading to the degrees of A.B. and M.E. is described on page 21. The entrance requirements for these courses are the same as for the College of Arts and Sciences and demand less mathematical preparation than is specified for the Four-year Engineering Course.

In addition to the prescribed courses in Sibley College those students who have the necessary time available may elect, with the permission of their class adviser, any course in any college of the University, provided they have had the required preparation for the work.

ADMISSION AND CLASSIFICATION

The following four classes of students are admitted to the work of the Sibley College of Mechanical Engineering and the Mechanic Arts.

1. Persons that desire to begin as freshmen the regular undergraduate course leading to the degree of Mechanical Engineer.

2. Persons that have already attended some technical or similar institution and desire to enter with advanced standing the regular course in Sibley College leading to the degree of Mechanical Engineer.

3. Persons that desire to enter as special students not candidates for the degree of Mechanical Engineer.

4. Graduate students.

For the five years' course leading to the degree of Mechanical Engineer, see page 20.

For the combined course of six years leading to the degrees of Bachelor of Arts and Mechanical Engineer, see page 21.

1. REQUIREMENTS FOR ADMISSION TO THE FRESHMAN CLASS

All correspondence concerning admission to the freshman class should be addressed to the Registrar of Cornell University.

For admission to the four-year course the applicant must be at least sixteen years of age and must offer fifteen entrance units which must include English 3, History 1, Mathematics 4, and French or German 3. The four remaining units may be chosen by the student from group d, or they may be additional units from groups b and c. Not more than 2½ units, however, may be offered from group b. The term unit means the equivalent of five recitations a week for one year in a subject.

Subject	Units
Group a	
English	3
Geometry Plane	1
Geometry Solid	½
Algebra, Elementary A	1
Algebra, Elementary B	½
Algebra, Advanced	½
Trigonometry	½
Group b	
History—Ancient	½ or 1
" Modern	½ or 1
" American	½ or 1
" English	½ or 1
Group c	
German, Elementary	2
German, Advanced	1
French, Elementary	2
French, Advanced	1
Group d	
Spanish, Elementary	2
Spanish, Advanced	1
Latin Grammar and Caesar	2
Latin Composition and Cicero	1
Virgil	1
Greek Grammar and Xenophon	2
Greek Composition and Homer	1
Physics	1
Chemistry	1
Botany	1
Physiography	1
Zoology (Vert., Invert.)	1
*Biology (Zoology, Botany)	1
Drawing	½ or 1

*Biology may not be counted if either Botany (1 unit) or Zoology (1 unit) has been offered.

For details concerning entrance subjects and methods of admission see pages 4 to 21 of the General Circular of Information.

2. ADMISSION TO ADVANCED STANDING

All correspondence concerning admission to advanced standing should be addressed to the Registrar of Cornell University.

A student who, having already attended some technical or similar institution, desires advanced standing in the regular course in the Sibley College of Cornell University should file with the Registrar of Cornell University, on an official blank to be obtained from him, a formal application for admission to advanced standing in Sibley College along with an official certificate from the institution already attended, of (1) his honorable dismissal, (2) his entrance examinations in detail, (3) his terms of attendance and the amount of work that he has completed, and (4) a detailed statement of the courses pursued for which he desires credit at Cornell. He should send also a catalogue of the institution, writing on it his name and marking the entrance requirements that he has satisfied and each subject that he has completed.

3. ADMISSION AS SPECIAL STUDENTS

All correspondence concerning the admission of special students should be addressed to the Secretary of Sibley College.

Men at least twenty-one years of age may be admitted as special students in mechanical engineering not candidates for a degree, provided they have had considerable experience in some line of mechanical engineering work and give evidence of ability to do creditable work in the college; and provided they have neither been previously admitted to the University nor have been refused admission.

They will be required to have completed before admission the mathematical preparation of the regular students,—plane and solid geometry, elementary and advanced algebra and plane trigonometry,—and may be held for examination in these subjects. Special students must conform to all the regulations to which the regular students are subject. Upon fulfillment of all entrance requirements special students may become regular students and candidates for the degree. Special students will not, however, be permitted to make up deficiencies in entrance subjects by attending University instruction in those subjects.

4. ADMISSION AS GRADUATE STUDENTS

All correspondence relating to graduate work should be addressed to the Dean of the Graduate School.

In all departments in Sibley College, work is arranged to meet the special needs of graduate students. Graduate students register in the Graduate School and not in Sibley College. To be registered as a candidate for the degree of Master of Mechanical Engineering, the student must have satisfied the equivalent of the requirements of Sibley College for the M.E. degree. For further information regarding admission, registration, etc., see Announcement of the Graduate School.

GENERAL OUTLINE OF INSTRUCTION

The instruction in mathematics, in chemistry, in physics, and in general economics is given in the College of Arts and Sciences. All other regular subjects in the course are of an engineering nature and are given in Sibley College in the following departments:—1. Mechanics of Engineering; 2. Machine Design and Construction; 3. Experimental Engineering; 4. Power Engineering; 5. Electrical Engineering.

The following is a brief outline of the scope and purposes of instruction in the various departments.

1. DEPARTMENT OF MECHANICS OF ENGINEERING

Instruction in this department begins with the course in the fundamentals of theoretical and applied mechanics, which is open to those who have had the necessary preliminary courses in analytical geometry and calculus. As the instruction in this subject is in direct preparation for nearly all of the engineering work that follows, the training is made most thorough. In brief, the course includes the mathematical and graphical treatment of statics as applied to material points and rigid bodies (centers of gravity, moments of inertia, forces, couples, framed structures, graphical statics, etc.); the kinetics of material points and rigid bodies, with applications to mechanisms (motions, velocities, accelerations, centrifugal and inertia forces, energy, power, resistance, etc.); and the mechanics of materials, (stresses, strains and resiliance of materials, the forces and moments produced by the loads acting on structural members, and the strength, deflection and curvature of these members).

Instruction is also given in this department in the elements of hydraulics, including hydrostatics and hydrokinetics, and in the theory of hydraulic machinery. The laboratory instruction in hydraulics is given in the Department of Experimental Engineering.

2. DEPARTMENT OF MACHINE DESIGN AND CONSTRUCTION

The courses in shopwork, drawing, and design are organized under one department to secure the close correlation of these subjects. Many of the exercises in the drawing room, pattern shop, foundry, and machine shop severally involve work on individual machine parts. In this way the student has presented to him all the necessary steps in the inception and production of finished machine parts.

Shopwork. The object of the instruction in this branch of the department is to not only familiarize the student with modern shop operations and processes, and with the workability of materials used in engineering construction, but more particularly to give him instruction in the principles of manufacturing and duplication of parts, in the selection and arrangement of shop equipment, and in the organization and administration of industrial works. The student attends lectures on the general principles of engineering; he receives instruction in the foundry in moulding, core making, mixing of metals, operation of cupola, the use of moulding machines, etc., with consideration given to the methods and appliances for sweep-

work, large work, and production in quantities; and he is given manual instruction in the forging and heat treatment of both iron and steel, supplemented with illustration of drop hammer work and methods used in manufacturing in large quantities.

Wood working is taught with the object not only of familiarizing the student with wood working tools and machines and their use, but more especially to teach him pattern and core-box making. Instruction is also given in large pattern work and sweep-work.

The principles of manufacturing are taught by lectures, supplemented by work of illustrative character in the machine shop, where carefully graded instruction is given in the use of measuring instruments, hand tools, and machine tools, including automatic and semi-automatic tools, and in the use of jigs and special fixtures for manufacturing in large quantities. The administration of this shop in particular is intended to illustrate as far as possible approved methods of shop management and operation, and to give the student a general idea of time keeping, piece work, premium plan, and wage systems. The instruction is given to a great extent in connection with the construction of commercial machines.

Instruction is also given in the organization of industries, the finance of manufacturing, factory legislation, welfare work, rewarding labor, etc.

Machine Design. Instruction in this branch of the department begins with lettering, the use of drawing instruments, and descriptive geometry, followed by the elements of mechanical drawing according to the best modern practice in commercial drafting rooms.

Following this the student is taught empirical design and the principles of mechanism. The drawing room work in the latter course is closely related to the class room instruction in cams, gearing, and linkages, with application to the kinematic design of machines.

After the student has received instruction in mechanism and applied mechanics, he takes up the mathematical side of machine design, the instruction being given by lectures, recitations, and drawing room work. The student "lays out" mechanisms on the drawing board, analyzes the force, velocity, and energy transformations involved; proportions the members with consideration of strength, rigidity, and shop operations; and makes working drawings for the complete designs of machines.

In the senior year the student has the option of continuing the work of the preceding year, undertaking larger, broader, and more complex problems in the design of engineering structures and in the design, construction, and equipment of mills, factories, power houses, etc.

3. DEPARTMENT OF EXPERIMENTAL ENGINEERING

Instruction in this department begins with the study of materials of engineering, their manufacture, properties, and uses.

Throughout the junior and senior years the student receives instruction in the very completely equipped mechanical laboratories (described on page 12) not only to familiarize him with the various types of testing apparatus and to give him skill in their use, but to teach him the best methods of research. Briefly, the courses include the use of computing machines;

the testing of engineering materials, with determination of influences of composition and heat treatment; the calibration and use of indicators, gauges, thermometers, dynamometers, etc.; tests of lubricants; fuel calorimetry; steam calorimetry; valve settings; tests of boilers, steam engines, turbines, pumps, heaters, condensers, and injectors and other steam apparatus; test of air compressors and refrigerating machines; tests of external and internal combustion gas and oil engines; and tests of hydraulic machinery.

Research engineering is encouraged in this department and is in charge of a separate corps of specialists who devote their entire time to this work. Seniors and graduates who have shown proficiency in experimental engineering may have opportunity to conduct original investigations under expert guidance and as occasion offers, may assist in commercial tests made at the University or elsewhere, of materials, prime movers, power plants, etc.

4. DEPARTMENT OF POWER ENGINEERING

All students in Sibley College receive instruction in this department in their junior and senior years with the object of training them in the methods of solution of problems involved in the theory, design, and economics of heat engines and their auxiliary apparatus, considered both separately and in combination in power plants.

The work in this department begins with lectures and recitations on the elements of heat-power engineering, which includes the study of elementary thermodynamics of gases and vapors, theoretical and actual cycles, internal and external combustion engines, steam engines, fuels, boilers, producers, and accessories. This course is open to those who have had the necessary preparatory courses in sophomore mechanics and physics.

In their senior year all students in the college take the more advanced lecture, recitation, and computation courses devoted to problems involved in the selection and arrangement of power plant equipment with special attention to economic factors. In addition the student may specialize in this year in the design of steam engines or of internal combustion engines, by taking the lecture and drafting courses specially devoted to these subjects. He may also attend special lecture courses on steam turbines, steam boilers, and gas manufacture.

5. DEPARTMENT OF ELECTRICAL ENGINEERING

Instruction in electrical engineering is based on the required courses in physics and mechanics. The instruction begins with the elements of electrical engineering taught by experimental lectures, recitations, and laboratory exercises. Briefly, this introductory course covers a review of the fundamental laws of electric and magnetic circuits, electrical measurements, and the theory, structural features, and operating characteristics of electrical apparatus.

In the senior year the students who are specializing in mechanical engineering have a brief advanced laboratory course and receive instruction in the solution of such electrical problems as are encountered in general engineering practice.

Those who specialize in electrical engineering receive in the senior year

more advanced instruction by lectures, computation exercises, and laboratory experiments. This subject is approached from three points of view: (a) experimental; (b) analytical; and (c) graphical. Each senior follows through a series of problems in which, starting with the data given, he makes application of the fundamental principles involved and predicts the performance of the mechanism or apparatus under various conditions of operation. In the laboratory a large variety of experiments show the characteristics of machines under operating conditions, and familiarize the students with the construction and operation of the various types of apparatus.

During the second term of the senior year a number of courses are offered by specialists in the different departments of the field of electrical engineering, these courses being planned simply to illustrate the manner in which the several industrial requirements are met. Electric railway engineering, telephone engineering, wireless telegraphy, power generation and transmission, and the design of electrical machinery are the topics treated this year. The students do not become engineers or designers in these various fields, but they learn enough of each to appreciate the kind of problems which predominate. In addition to these courses the electrical engineering students may elect work in other departments subject to the approval of their class adviser.

Non-Resident Lecturers. Supplementing the regular course of instruction, lectures are delivered from time to time by non-resident specialists in the profession.

BUILDINGS AND EQUIPMENT OF SIBLEY COLLEGE

The Sibley College of Mechanical Engineering and the Mechanic Arts receives its name from the late Hiram Sibley of Rochester, who between the years 1870 and 1887, gave $180,000 toward its endowment and equipment. Mr. Hiram W. Sibley has added more than $130,000 for later constructions. The Sibley buildings are situated at the north end of the Campus, and stand upon ground leased from the University for the purposes of the College, under an agreement with the late Hiram Sibley. There are five large buildings and several smaller ones. The college is supported by the general University endowment.

The main building is three hundred and seventy feet long, fifty feet in width, and three stories in height. It contains the reading room and reference library, drawing rooms, lecture rooms, offices and class rooms, and a large and well-lighted auditorium.

Franklin Hall is occupied on its first two floors and basement by the Department of Electrical Engineering, which in addition uses a portion of the basement of the main building for laboratories.

The Department of Experimental Engineering occupies a two story building one hundred and fifty feet long by forty feet wide, a gas engine laboratory forty by sixty feet, a boiler plant thirty by forty feet, an engine room forty by fifty feet, a refrigeration laboratory thirty by forty feet, and the east basement of the main building.

The machine shop and pattern shop occupy a two story building one hundred fifty feet by forty feet; and the foundry and forge shops, a one-story building one hundred and eighty by forty feet.

WORKSHOPS

The Shops are fully equipped throughout with standard hand and machine tools, selected with the view not only of giving manual instruction but also of illustrating modern manufacturing methods. The pattern shop has recently been completely re-equipped with new benches, lathes, and other power tools. The foundry contains five moulding machines of the various types and is equipped with a two-ton cupola, core ovens, crane, and over-head trolley, as well as with an ample supply of modern flasks and hand tools. The forge shop is equipped with twenty-eight standard forges and also contains a drop hammer, power shears and punch press. The machine shop is equipped with twenty-five standard lathes, two shaping machines, one large radial drill press, two standard drill presses, one horizontal and one vertical boring mill, two semi-automatic lathes, one automatic lathe, two grinding machines, and one key-seater, as well with as an ample supply of small hand tools. This shop has been equipped particularly for the purpose of illustrating modern manufacturing methods.

MECHANICAL LABORATORIES

The instruction in the Department of Experimental Engineering is given in several separate laboratories, each of which is thoroughly equipped with the machines, apparatus, and instruments necessary for instruction in research.

The Materials Testing Laboratory. This laboratory is equipped for tension and compression tests with an Olsen 300,000 pound machine, a Riehlé 100,000 pound machine, a 200,000 pound Emery hydraulic machine, together with several other machines varying in capacity from 10,000 to 100,000 pounds. For transverse tests there is a Riehlé machine of 200,000 pounds capacity and a Fairbanks machine of 10,000 pounds capacity. There is one Olsen torsion machine of 200,000 inch-pounds capacity, and two Thurston autographic torsion machines. The equipment includes measuring instruments, such as extensometers, a cathetometer, gas furnaces, tempering baths, and other apparatus required for the determination of the physical qualities of engineering materials under tensile, compressive, transverse and torsional stress, and under different kinds of heat treatment.

The Steam Laboratory. In this laboratory there is a 150 H.P. triple expansion Allis-Corliss engine so fitted up that it may be run as a simple, compound, or triple engine, condensing or non-condensing. There are also many smaller engines, including a McEwen, a Straight Line, a Russell, a Harris-Corliss, and two Payne engines, together with three surface condensers which may be connected up to these engines as desired. There is one 35 K.W. horizontal Curtis turbine and one 15 K.W. De Laval turbine. These turbines drive electric generators and may be run condensing or non-condensing.

There is a two-stage steam driven Ingersoll-Rand compressor, and three air-brake pumps of different types, together with meters, nozzles, and other instruments used in testing. The action of the air-brake may be studied in a complete brake equipment for a 25-car train. This part of the laboratory also contains several motor-driven fans, including one of the Sirocco type.

The equipment of apparatus and instruments used for engine testing comprises about 80 indicators of different types, about 75 steam gauges, a number of calorimeters for the determination of the quality of steam, speed counters, tachometers, planimeters, etc., besides a number of dynamometers of various kinds.

The boiler section of this laboratory has one 150 H.P. Babcock & Wilcox water-tube boiler of the marine type, and one 100 H.P. Babcock & Wilcox water-tube boiler of the standard type, both of which are fitted with internal superheaters. There is also one 80 H.P. Heine water-tube boiler and one 25 H.P. Roberts safety boiler connected with a Foster outside superheater. The auxiliary apparatus consists of one Cochrane open heater, one Wainwright closed heater, steam pumps, traps, injectors, etc. A full set of scales, measuring tanks, gauges, flue gas apparatus, separating and throttling calorimeters, pyrometers, etc., completes the boiler equipment.

The Gas Engine Laboratory. The equipment consists of an 8 H.P. Westinghouse gas engine, an 8 H.P. Olds gasoline engine, an 8 H.P. Fairbanks gasoline engine, a 6 H.P. Hornsby-Akroyd oil engine, a 12 H.P. Priestman oil engine, and a 16 H.P. Acme gas engine run on producer gas from a 15 H.P. suction gas-producer. A 50 H.P. suction gas-producer is in course of erection. This engine equipment is chosen to give as great a variety as possible in fuel used, type of governing, etc. Hot air engines are represented by one Rider and one Ericsson engine. This laboratory is well equipped for work of investigation and testing, having a special testing floor. The supply of testing instruments includes several outside-spring indicators, optical indicators, and a manograph. For temperature measurements there are available high reading thermometers and pyrometer of the expansion and electrical types.

The Hydraulic Laboratory. In this laboratory are several small water wheels of the Pelton type, a small American turbine, several rotary and centrifugal pumps, and three hydraulic rams of different types and capacities. For the determination of the flow of water there are weir boxes and weir tanks, weir notches of different types, nozzles, hook gauges, a current meter, and several Venturi tubes.

The Oil Testing Laboratory. This laboratory contains a Cornell oil testing machine, a Thurston standard railway testing machine and several smaller Thurston machines. The rest of the equipment consists of several viscosimeters of different types, together with the necessary hydrometers and thermometers.

The Refrigeration Laboratory. For the study of refrigeration in all its phases, the mechanical laboratory possesses a very complete York refrigerating plant having a capacity of 15 tons of ice, besides a Brunswick and a De La Vergne machine of small size.

The Cement Laboratory. This laboratory not only contains the ordinary apparatus for the testing of cement and concrete but in addition is equipped with crushing and grinding machinery and a small vertical kiln for making investigations on the manufacture of cement from raw material.

The Fuel Testing Laboratory. This laboratory contains a complete equipment of fuel calorimeters, and other apparatus needed for the determination of the composition and calorific value of fuel, whether gaseous, liquid, or solid.

The laboratory equipment includes apparatus for the study of power transmission, such as Morin and Webber transmission dynamometers, a Reeves variable speed transmission, and a belt testing machine, by means of which not only the efficiency of transmission but also the amount of belt slip and the coefficient of friction may be determined.

THE ELECTRICAL EQUIPMENT

The Department of Electrical Engineering is fully equipped with modern apparatus for experimental lectures, laboratory practice, plant testing, standardizing of instruments, and investigation. This apparatus has been selected primarily to exemplify modern shop tests and to familiarize the student with the practical apparatus as well as with the theory of operation of electrical devices.

The Lecture Equipment. In addition to the usual complement of apparatus for demonstration, the lecture equipment includes an air-insulated, high-pressure transformer, with necessary regulators for subjecting insulators and insulating material to alternating pressures up to 60,000 volts. This can be supplemented by additional transformers for raising the pressure still higher. A 30,000 volt inductorium provides current for wireless telegraphy. Large cathode ray tubes, supplied from a special multiple plate, power driven, static machine, are used for the demonstration of alternating current phenomena. All the standard equipment, as well as many pieces of specially designed apparatus, are employed to illustrate the operation of the principal laws applied in electrical engineering. Exhibits of apparatus, such as street railway car controllers, rail sections, insulating and line material, etc., are provided in profusion. This list includes a complete outfit for exhibiting in actual operation the mutiple system of electric car control.

The Laboratories. The laboratory apparatus comprises a full complement of modern alternating and direct current machinery of all kinds. The alternating current equipment includes single and polyphase alternators and synchronous motors, induction motors, transformers, and all apparatus auxiliary thereto. A large variety of direct current dynamos and motors suitably mounted for testing, cover the field of direct current machinery. A De Laval steam turbine, geared to a double current generator, a direct connected marine set and circuit breakers, switches, water rheostats, and other auxiliaries are in use for plant test experients. The plant testing is done largely outside of the college building, and for this purpose a large variety of ammeters, voltmeters, wattmeters, and other instruments are maintained in adjustment at a high standard of accuracy. These nstruments have capacity great enough for testing the largest power plants

Special facilities are provided for the standardization of all electrical apparatus. Board of Trade and Reichsanstalt standards of resistance with large current carrying capacity, potentiometers and galvanometers, and reference standards of electro-motive forces are among the facilities provided for this purpose. A remarkable set of generators recently installed produces a pressure of 14,000 volts direct current by connecting in series and most carefully insulating twenty-four 550 volt dynamos. The pressure thus available gives opportunities for a wide field of investigation. In addition to the apparatus in the laboratories, the students may observe in operation a three-phase power transmission in the local power and lighting service. Large direct-connected generators, rotaries, constant current regulators and induction motors, as well as the lighting and railway system are convenient for inspection. The University has recently installed a modern hydro-electric plant containing large three-phase alternators direct driven by Doble impulse water wheels. The power station also contains smaller units for direct current supply with all necessary auxiliary apparatus.

ENGINEERING LIBRARY

In addition to the well equipped engineering library located in the main building the student has access to the General Library of the University and to the special libraries of the other colleges of the University.

SCHOLARSHIPS AND PRIZES

A special pamphlet on scholarships and prizes is published by the University. It may be had on application to the Registrar.

A detailed description of the scholarships that are open to members of the entering freshman class is given in the General Circular of Information.

Particular attention is directed to the following which are open only to students in the Sibley College of Mechanical Engineering and the Mechanic Arts.

Sibley Prizes in Mechanic Arts. Under the gift of the late Hon. Hiram Sibley, made in 1884, the sum of one hundred dollars will be annually awarded to those students in the Sibley College who shall, in the opinion of the Faculty of that institution, show the greatest merit in Sibley College work.

The Frank William Padgham Scholarship, covering tuition and fees in Sibley College, will be assigned to the best competing candidate in the scholarship examination in the studies required for entrance to the regular course in Mechanical Engineering, who shall have had his preparatory education in the public schools of Syracuse, N. Y. The holder shall pursue the regular course in Mechanical Engineering in Sibley College, and will be excused from the payment of tuition and the regular Sibley College fee.

This special undergraduate scholarship cannot be held in connection with a New York State Scholarship.

COURSES OF STUDY

The following courses of study are offered:

1. The regular course in the Sibley College of Mechanical Engineering and the Mechanic Arts, leading to the degree of Mechanical Engineer and covering a period of four years.

2. A five years' course, in which the student is during his first two years of residence registered in the College of Arts and Sciences. The five years' course leads to the degree of Mechanical Engineer.

3. A six years' course, in which the student is during his first three years of residence registered in the College of Arts and Sciences. The six years' course leads to the degree of Bachelor of Arts at the end of the fourth year and to the degree of Mechanical Engineer at the end of the sixth year.

These courses are separately described on pages 16, 20, and 21.

1. THE FOUR YEAR COURSE LEADING TO THE DEGREE OF MECHANICAL ENGINEER

In the regular four-year course leading to the degree of Mechanical Engineer, instruction is the same for all students during the first three years. In the fourth year, some opportunity is offered for specializing in the different branches of mechanical and electrical engineering.

The sequence of subjects in the four-year course and the time devoted to each course, are tabulated below. The detailed descriptions of the courses are given on pages 23 to 35.

Schedule of Four Year Course

In referring to courses the following abbreviations are used:—Mechanics of Engineering, M; Power Engineering, P; Experimental Engineering, X; Electrical Engineering, E; Machine Design, D; Shop, S. For description of courses given in Sibley College see pages 23–35; for description of courses given by other colleges, see pages 22 to 23.

About three hours of actual work in shops, laboratories, computing work, and drawing count as one hour credit in the schedule.

FRESHMAN YEAR

Course	Page	No. Course	Hours 1st Term	Hours 2d Term
Analytic Geometry	22	1a	4	0
Differential Calculus	22	1b	1	2
Integral Calculus	22	1c	0	4
Chemistry	22	1	0 or 6	6 or 0
Physics Lectures	22	1	4 or 0	0 or 4
Physics Recitations	22	5	2 or 0	0 or 2
Drawing and Desc. Geom	24	D1	3	3
Foundry	24	S3	2 or 0	0 or 2
Forge	24	S4	0 or 1	1 or 0
Engineering Principles	24	S2	0 or 1	1 or 0
Military Drill		1	1	1

Sophomore Year

Course	Page	No. Course	Hours 1st Term	Hours 2d Term
Mechanics of Engineering	23	M5, 6	5	5
Physics Recitations	22	8, 9	2	2
Physics Laboratory	22	14	2	2
Chemistry	23	6	0 or 5	5 or 0
Kinematics	25	D6	0	2
Drawing	25	D5, 7	3	3
Materials	27	X6	2 or 0	0 or 2
Pattern Making	24	S7	3 or 0	0 or 3

In addition to the above, three hours a week of either Military Drill or Physical Culture must be taken in the sophomore year.

Junior Year

Course	Page	No. Course	Hours 1st Term	Hours 2d Term
Heat-Power Engineering	29	P10	3	3
Electrical Machinery, Lectures, Recitations and Laboratory	31	E10	4	4
Mechanical Laboratory	27	X10	3*	0
Mechanical Laboratory	28	X11	0	3
Machine Design				
(a) Lectures and recitations	26	D16	3	2
(b) Drawing	25	D10	2	2
Machine Work	24	S10	2	2
Principles of Manufacturing	24	S11	2	0
Hydraulics	23	M12	2 or 0	0 or 2

*Replaces former sophomore course X7 and not regularly given for juniors in 1910–11. Juniors who have not had course X7 should take X10 in the second term with the seniors.

Senior Year

In the senior year the student must complete one of the following groups:

Group A. Steam Power Engineering

Course	Page	No. Course	Hours 1st Term	Hours 2d Term
Power Plant Design	30	P20	3	3
Mechanical Laboratory	28, 27	X20, 10	3	3
Electrical Laboratory	34	E29	3 or 0	0 or 3
*Electrical Engineering Problems	35	E31	0 or 2	2 or 0
*Industrial Organization	24	S20	2	0
Economics	23	52	2	2
Steam Machinery Design	30	P21	3	3
Designing and Drawing	30	P22	3	3
Steam Turbines	31	P25	0	2

*By petitioning the Faculty on or before Oct. 31 a thesis, or investigation, may be offered as a substitute for these subjects. A bound copy of this thesis, in the original typewriting (not a carbon copy) and in standard form, must be delivered to the Director's office before May 15th. This copy will become the property of the University.

Group B. General Mechanical Engineering

Course	Page	No. Course	Hours 1st Term	Hours 2d Term
Power Plant Design	30	P20	3	3
Mechanical Laboratory	28, 27	X20, 10	3	3
Electrical Laboratory.....	34	E29	3 or 0	0 or 3
*Electrical Engineering Problems	35	E31	0 or 2	2 or 0
*Industrial Organization	24	S20	2	0
Economics	23	52	2	2
General Engineering Design ..	26	D22	3	3
Design and Drawing	26	D23	3	3
Steam Turbines	31	P25	0	2

Group C. Gas Power Engineering

Course	Page	No. Course	Hours 1st Term	Hours 2d Term
Power Plant Design	30	P20	3	3
Mechanical Laboratory	28, 27	X20, 10	3	3
Electrical Laboratory.....	34	E29	3 or 0	0 or 3
*Electrical Engineering Problems	35	E31	0 or 2	2 or 0
*Industrial Organization	24	S20	2	0
Economics	33	52	2	2
Gas Machinery Design	31	P26	3	3
Designing and Drawing	31	P27	3	3
Gas Manufacture.....	31	-P28	0	2

Group D. Electrical Engineering

Course	Page	No. Course	Hours 1st Term	Hours 2d Term
Power Plant Design	30	P20	3	3
Mechanical Laboratory	28 , 27	X20	3	0
Electrical Laboratory.....	34	E28	4	4
Electrical Engineering	32	E20	2	2
Electrical Engineering	32	E21	4	4
*Industrial Organization	24	S20	0	2
Economics	23	52	2	2
*Elective— E22, 23, 24, 26, or 27,	32–35		0 or 2	2 or 0

*By petitioning the Faculty on or before Oct. 31 a thesis, or investigation, may be offered as a substitute for these subjects. A bound copy of this thesis, in the original typewriting (not a carbon copy) and in standard form, must be delivered to the Director's office before May 15th. This copy will become the property of the University.

Suggested Technical Electives

These electives may be taken only with the approval of the Class Adviser and of the departments concerned. For detailed information see announcements of the departments giving the courses.

For Seniors Only

Course	Page	No. Course	Hours 1st Term	Hours 2d Term
*Steam Boiler Design	30	P23	2	0
Steam Turbines	30	P25	0	2
Gas Manuf. and Distribution	31	P28	0	2
Gas Power Machinery	31	P29	2	0
Advanced Design	31	P39	1–3	1–3
Engineering Research	28	X22	1–3	1–3
Power Plant Testing	29	X23	1–3	1–3
Motor Car Construction	29	X24	0	1
Heating and Ventilating	29	X25	0	2
Mechanical Refrigeration	29	X26	0	2
Engineering Calculations	34	E30	2	2
Research in Elect. Eng	35	E33	1–3	1–3
*Structural Engineering	26	D24	2	0
*Ship Design	27	D26	0	3
*Structure and Strength of Ship	27	D27	0	3
*Resistance, Propulsion, etc	27	D28	0	2
*Aerial Engineering	26	D25	2	0
Advanced Designing	27	D39	1–3	1–3
Research in Elect. Eng	35	E33	1–3	1–3
Railway Cons. and Maintenance		C.E.63	0	2
Concrete Construction		C.E.77	3	3
Alternating Currents		Phys.33	2	0
Electrical Lab. Practice		Phys.34	3 or 0	0 or 3

*Not given in the year 1910–11.

For E.E. Seniors Only

Course	Page	No. Course	Hours 1st Term	Hours 2d Term
Design of Elect. Machinery	32	E22a	0	2
Design of Elect. Machinery	33	E22b	0	2
Gen. and Dist. of Elect. Energy	33	E23a	0	2
Gen. and Dist. of Elect. Energy	33	E23b	0	2
Telephone Engineering	33	E24	3	0
Advanced Electric Railways	33	E26a	0	2
Advanced Electric Railways	34	E26b	0	2
Wireless Teleg. and Teleph	34	E27	0	2
Current Electrical Topics	35	E34	1	1

Students having the necessary preparation and having the approval of their Class Adviser may take subjects in the following list (as well as any other subjects in the University) in any year, except when the year is indicated by a figure immediately following the subject.

Course	No. Course	Hours 1st Term	Hours 2d Term
Surveying	C.E.12	0	2
Spec. and Contracts (3 or 4)	C.E.90	0	2
Elem. of Elect. Ry. Pract. (3 or 4)	E25	2	0
Illuminating Eng. (3 or 4)	E32	0	2
Assaying	Chem.18	3	0
Adv. Quant. Anal.	Chem.14	1–3	1–3
Adv. Quant. Anal	Chem.15	2	0
Qual. and Quant. Gas Anal.	Chem.19	1	0
Tech. Gas Anal.	Chem.20	2	0
Photometry	Phys.15	1–3	1–3
Photom. and Illum.	Phys.43	2	0
Photography	Phys.18	2 or 0	0 or 2
Bldg. Stone and Clay Prod.	Geol.30	0	2 or 3
Practical Geology	Geol.31	3	3
General Econ. Geol.	Geol.32	2 or 3	2 or 3
Mining of Mineral Deposits	Geol.34	2	2

2. A FIVE-YEAR COURSE LEADING TO THE DEGREE OF MECHANICAL ENGINEER

Requirements for Admission

The requirements for admission to the five-year course are those of the College of Arts and Sciences, in which college the student will be registered for the first two years. For these requirements see page 6 of the Circular of Information for Prospective Students. Before transferring to Sibley College at the beginning of his third year of residence, the student must have satisfied all the entrance requirements for the regular four years' course in Sibley College.

Outline of Course

The following outline gives the subjects which must be taken in the first two years in order that the student may enter the third year properly prepared.

In referring to courses of instruction the following abbreviations are used: Mechanics of Engineering, M; Power Engineering, P; Experimental Engineering, X; Electrical Engineering, E; Machine Design, D; Shop Work, S. For description of courses given in Sibley College see page 23; for description of courses given by other colleges, see the announcements of those colleges.

FIRST YEAR (in the College of Arts and Sciences)

Course	No. Course	Hours 1st Term	Hours 2d Term
Solid Geometry	6a	3	0
Trigonometry	7a	3	0
Advanced Algebra	5a	0	5
Chemistry	1	0	6
Descriptive Geometry	D2	3	0
Engineering Principles	S2	0	0
Elective in Arts		9	6

SECOND YEAR (in the College of Arts and Sciences)

Course	Page	No. Course	Hours 1st Term	Hours 2d Term
Analytical Geometry	22	1a	4	0
Differential Calculus	22	1b	1	2
Integral Calculus	22	1c	0	4
Chemistry	23	6	5	0
Physics Lecture	22	1	0	4
Physics Recitation	22	5	0	2
Drawing	25	D_3	0	3
Foundry	24	S_3	2	0
Elective in Arts			6	3

THIRD YEAR (in Sibley College)

Course	Page	No. Course	Hours 1st Term	Hours 2d Term
Mechanics of Engineering	23	$M_5, 6$	5	5
Physics Recitations	22	8, 9	2	2
Physics Laboratory	22	14	2	2
Kinematics	25	D6	0	2
Drawing	25	$D_5, 7$	3	3
Materials	27	X6	2	0
Forge Work	24	S_4	1	0
Pattern Making	24	S_7	0	3
Elective in Arts			4	2

FOURTH AND FIFTH YEARS

The fourth and fifth years are identical with the third and fourth years of the regular four-year course (see page 17, 18).

3. A SIX-YEAR COURSE LEADING TO THE DEGREES OF A.B. AND M.E.

A student in the College of Arts and Sciences who has satisfied at least six terms of residence, no one of them under the provisions of paragraphs (2) or (3) page (i of Announcement of Courses of Instruction the College of Arts and Sciences) and who has a credit of at least ninety hours, may, with the permission of the faculties concerned be registered both in the College of Arts and Sciences and also in any other college of Cornell University.

This provision enables a student who so desires, to obtain the degree of A.B. from the College of Arts and Sciences at the end of four years, and the degree of M.E. from Sibley College at the end of six years. Advice and assistance in arranging such a course may be had by applying to the Director of Sibley College and the Dean of the College of Arts and Sciences.

COURSES OF INSTRUCTION

The following courses required of students in Sibley College are given in the college of Arts and Sciences.

1. **Analytic Geometry and Calculus.** Twenty-four sections, daily except S, first term; daily, second term.

1a. Analytic Geometry. Credit four hours first term.

1b. Differential Calculus. Credit one hour first term, two hours second term.

1c. Integral Calculus. Credit four hours second term.

1. **Introductory Experimental Physics.** Repeated in second term, credit four hours. Professors NICHOLS, MERRITT, and SHEARER. M T W Th, First term 9 or 12, second term 12, Rockefeller A.

Entrance Physics is not accepted as an equivalent for this course.

5. **Introductory Physics.** Class room work. Repeated in second term, credit two hours. Messrs. GIBBS, HOWE, MURDOCK, FORMAN, and ZELLER. M W, or T Th, Rockefeller, to be assigned.

8. **General Physics.** Theory. First term, credit two hours. Prerequisite courses 1 and 5 and Mathematics 1. Messrs. FISHER, GALAJIKIAN, MOLBY, RICHTMYER, RODGERS, TAYLOR, GOLDBERG, HARRINGTON, and WING. Two days as assigned, Rockefeller, as assigned.

Text-book work in statics, dynamics, properties of matter, and heat, including thermometry, expansion, calorimetry, radiation and conduction. Two hours of course 14 must be taken in connection with course 8.

9. **General Physics.** Theory. Second term, credit two hours. Prerequisite courses 8 and the first term of 14. Instructing staff as in course 8. Two days as assigned, Rockefeller as assigned.

Text-book work. A continuation of course 8. Magnetism and electricity properties of vapors, and an introduction to the kinetic theory of gases and thermodynamics. Two hours of course 14 must be taken with course 9.

14. **Physical Experiments.** Throughout the year, credit two hours a term. Prerequisite courses 1 and 5. Assistant Professor BLAKER, and Messrs. RICHTMYER, FISHER, DORSEY, GALAJIKIAN, MOLBY, RODGERS, TAYLOR, GOLDBERG, HARRINGTON, and WING. Rockefeller 250–257 as assigned.

Physical measurements, properties of matter, mechanics, heat, light, sound, magnetism, and electricity; the adjustment and use of instruments of precision. Results and errors are carefully discussed. Two hours of course 14 must be taken with course 8 and two hours with course 9.

1. **Introductory Inorganic Chemistry.** Lectures, recitations, and laboratory. Repeated in second term, credit six hours.

1a. Lectures. First term, T Th S, 11, Professor DENNIS and Mr. SUTHERLAND; M W F, 11, Professor BROWNE and Mr. SUTHERLAND. Second term, M W F, 11. Morse 1.

1b. Recitations (one hour a week), and laboratory (two 2½ hour periods a week) to be arranged. Professors DENNIS and BROWNE, Mr. WELSH, and Messrs. HOLMES, HOULEHAN, GAUB, FINK, HOLLINGSHEAD, and NUNEZ.

6. **Qualitative and Quantitative Analysis.** Repeated in second term, credit five hours. Prerequisite course 1. Dr. LUNDELL, Mr. LEMON, and Messrs. MILLER, RIEGGER, DILLON, WALKER, RHODES, and UHLRICH. Lectures, T Th, 12, Morse L. R. 1.

Laboratory sections: M W F, 2–5; T Th S, 8–11; T Th S, 9–12.

Qualitative work: the properties and reactions of the common elements and acids and their detection in various liquid and solid mixtures.

Quantitative work: the preparation and use of volumetric solutions and work in elementary gravimetric analysis.

52. **Elements of Economics.** A special course for engineering students. Seniors. Throughout the year, credit two hours a term. Production and distribution of wealth, emphasizing particularly the financial or practical view instead of the theoretical. Lectures, text book readings, and class discussions. Assistant Professor BAUER.

ELECTIVES

Sibley students who have the time available may take any course in any college in the University provided they have the approval of their Class Adviser, and of the department concerned.

SUBJECTS GIVEN IN SIBLEY COLLEGE

The courses in each department in Sibley College are numbered in accordance with the following plan:

Numbers	1 to 4	inclusive	denote	freshman	subjects.
"	5 to 9	"	"	sophomore	"
"	10 to 19	"	"	junior	"
"	20 to 39	"	"	senior	"
"	40 to 45	"	"	graduate	"

About three hours in shops, laboratories, computation work and drawing count as one credit hour in the schedule.

Department of Mechanics of Engineering

M. 5 and 6. **Mechanics of Engineering.** Sophomores. M. 5 in first term, M. 6 in second term. Credit five hours a term. Prerequisites, mathematics 1. Theoretical and applied mechanics with mathematical and graphical treatment; statics of a material point and of rigid bodies,—centers of gravity, moments of inertia, resolution and composition of forces and couples, framed structures, graphical statics; kinetics of a material point and of rigid bodies, with application to mechanisms,—motions, velocities, initial velocities, acceleration, centrifugal and inertia forces, impact, energy, work, power, friction, and graphics of machines; and mechanics of materials,—stresses, strains, resilience, forces and moments produced by loads acting on structural members (beams, cantilevers, continuous girders, columns, cylinders, plates, etc.), and strength, rigidity, and flexure of members, etc. Professor WOOD, Assistant Professors ———, ———, Messrs. ———.

M. 12. **Hydraulics.** Juniors. Either term, credit two hours. Prerequisites M. 5 and 6. Hydrostatics,—pressures in tanks, centers of pressure and floatation; hydrokinetics,—flow through orifices and pipes and over

weirs, losses of head, Kutter's Formula, impulse and reaction; and theory of hydraulic machinery, including motors and pumps.

Professor WOOD and Assistant Professor ———.

Department of Machine Design and Construction

Machine Construction

S. 2. **Engineering Principles.** Freshmen. Either term as assigned, one hour credit. First half of the term, discussion of the general principles that underlie the transmission of energy from natural sources. Professor SMITH. Second half of the term, a discussion of the applications of energy. Mr. WELLS.

S. 3. **Foundry Work.** Freshmen. Either term, two hours credit. Six hours of work per week. Moulding, core making, mixing and casting of metals, use of molding machines. Demonstration of large work and production in quantities. Daily 8–11, 11–12, 2–5, as assigned. Messrs. VANDERHOEF and GALLAGHER.

S. 4. **Forge Work.** Freshmen. Either term, one hour credit. Three hours of work per week. Forging, welding, tool dressing, tempering, etc., together with demonstrations in the production of drop forgings. Daily 8–11, 11–2, 2–5, as assigned. Messrs. HEAD and BROOKS.

S. 7. **Pattern Making.** Sophomores. Either term, three hours credit. Nine hours of work per week. Prerequisite, S. 3. Use of hand and machine tools, for wood working followed by graded instruction in pattern making, construction of core boxes, etc. Daily 8–11, 11–2, 2–5, as assigned. Messrs. HOOPER, SEAMAN, BUSH, and ———.

S. 10. **Machine Work.** Juniors. Throughout the year, credit two hours a term. Six hours of work per week. Prerequisites S. 3, 4 and 7. Use of measuring tools, hand and machine tools, fitting and assembling. Operation and use of jigs and other manufacturing fixtures. Operation of semi-automatic and automatic machines and the illustration of manufacturing methods generally as discussed in course S. 11. Must be accompanied by S. 11. Daily 8–11, 11–2, 2–5, as assigned. Messrs. WELLS, LYNHAM, HOWE and SMITH.

S. 11. **Principles of Manufacturing.** Juniors. First term only, two hours credit. This course must be taken in connection with course S. 10. Lectures on theory of measuring instruments, shop tools and equipment; shop processes; manufacturing methods; theory of costs and time keeping systems; factory management. Mr. WELLS.

S. 20. **Industrial Organization.** Seniors and Graduates. Either term, two hours credit. Requires S. 10 and S. 11. Lectures giving a more extended discussion of the finance of manufacturing, supplemented by an inquiry into the reasons for certain modern tendencies such as factory legislation and factory welfare work; methods of rewarding labor, bonus and profit sharing schemes, etc., etc. Professor KIMBALL.

Machine Design

D. 1. **Drawing and Descriptive Geometry.** Freshmen. Throughout the year, credit three hours a term. Nine hours of work a week. Letter-

ing, (proficiency in at least one style of simple lettering); descriptive geometry (lectures and drawing)—including lines, planes, solids, tangents, intersections, sections, developments, with solutions in all quadrants; isometric projection; mechanical drawing; working drawings,—including conventions, standards, etc., following the best practice of commercial drafting rooms. Messrs. WILLIAMS, FRANCIS, DOUGLASS, FRIED, LEE, ———, ———, and ———.

D. 2. **Descriptive Geometry.** First year students in the Five-year Course only. First term, credit three hours. Nine hours of drawing a week. The same work in descriptive geometry as that give in connection with course D. 1. Messrs. WILLIAMS, FRANCIS, and DOUGLASS.

D. 3. **Drawing.** First term, for those taking the special course in chemistry in the College of Arts and Sciences. Second term, for second-year students in the five-year course. Credit three hours. Nine hours of drawing a week. Mechanical drawing; working drawings, including conventions, standards, etc. following the best practice of commercial drafting rooms. Drawing same as that given in connection with course D. 1. Messrs. WILLIAMS, and DOUGLASS.

D. 5. **Machine Drawing.** Sophomores. First term, credit three hours. Nine hours of drawing a week. Requires course D. 1. Application of the work of course D. 1 to machine drawing in connection with empirical designing; proportioning of machine details as fixed by common practice rather than by mathematical theory; making and using standard data sheets; making of assembly drawings. Assistant Professor HAYES, Messrs. PEACH, STRAUSS, and KLINCK.

D. 6. **Kinematics.** Sophomores. Second term, credit two hours. Requires course D. 1 (or D. 2 and 3) and must be taken with course D. 7. Two recitations a week on the theory of mechanisms, instant centers, cams gears, linkages, velocity and acceleration diagrams, etc. Assistant Professor HAYES, Messrs. PEACH, STRAUSS, and KLINCK.

D. 7. **Kinematic Drawing.** Sophomores. Second term, credit three hours. Nine hours of drawing a week. Requires course D. 1 (or D. 2 and 3) and must be taken with course D. 6. Drawing board application of the work in course D. 6. Solution of mechanisms by means of instant centers, the designing of cams, gears, linkages, etc., drawing of velocity and acceleration diagrams, etc. Assistant Professor HAYES, Messrs. PEACH, STRAUSS, and KLINCK.

D. 10. **Drawing and Design.** Juniors. Throughout the year, credit two hours each term. Six hours of drawing a week. Requires courses D. 5, D. 6, D. 7 and C.E. 20 (or M. 5 and 6), and must be taken with course D. 16. Drawing room problems in elementary machine design illustrating the work as given in D. 16. The student for the first time undertakes the design of a complete machine, laying out the general outlines, proportioning the details theoretically, and modifying his results by practical consideration. All computations necessary for the complete design must be carefully and systematically made. Working drawings of the most important details and a finished assembly drawing are completed. Professor KIMBALL, Assistant Professor ALBERT, Messrs. FREEMAN, CORWIN, ———, and ———.

D. 16. **Machine Design.** Juniors. First term, two lectures and one recitation a week; second term, one lecture and one recitation a week. Three hours credit first term and two hours second term. Requires courses D. 6, D. 7, C.E. 20 (or M. 5 and 6) and must be taken with D. 10. Selection of mechanism for specified work and study of practical considerations involved. Analysis of energy and force problems in machines. Determination of driving devices as based on work to be done. Proportioning of detail parts as dictated by stress and practical considerations. Applications of the laws of mechanics and kinematics to the design of machines and a discussion of empirical design and modifications due to practical considerations. Professor KIMBALL, Assistant Professor ALBERT, Messrs. FREEMAN, CORWIN, and ———.

D. 22. **General Engineering Design.** Required of seniors in group B. Throughout the year, three hours credit each term. Lectures. Requires D. 10, D. 16 and P. 10, and must be taken with D. 23. For students who do not wish to specialize in any particular branch of engineering but wish to get a general knowledge of mechanical engineering design and construction. The work of the first term consists of a discussion of the problems met with in the design, construction and equipment of mills, factories, etc., including foundations, walls, floors, trusses, roofs and mill and construction work in general; powering of factories, motor driving of machine tools, etc. In the second term this work is applied to the outline design of a complete power house, including the location of plant, track and wharf facilities; selecting and locating of boilers and engines; coal storage, coal and ash handling equipment; selection and arrangement of condensers, pumps, steam piping arrangement, etc. Professor HESS and Mr. CARPENTER.

D. 23. **Drawing and Design.** Nine hours of work a week throughout the year, credit three hours a term. Requires courses D. 10 and 16 and P. 10 and can only be taken in connection with D. 22 Design and drawing of various classes of work illustrating the principles discussed in D. 22. Graphical analysis of stresses in trusses and other structures. In the second term, drawings are made for the complete outline design of a power house as outlined under course 22. Professor HESS and Mr. CARPENTER.

*D. 24. **Structural Engineering.** Seniors. First term, credit two hours. Requires course D. 10 and D. 16. Fundamental principles underlying the design and construction of framed structures, involving the use of wood, steel, brick, stone, concrete, reinforced concrete, etc., singly and in combination. Application to the design of buildings suitable for engineering shops and factories. Foundations for the walls and in way of machinery, taking into account the character, stable and otherwise, of soil-bottom and nature of the loads. Framing and construction of the side and division walls, floors and roofs, of the various materials which may be employed. Modern methods of lighting and ventilation. Paints and other protective coatings for metallic and wooden structures, and to the relative costs of construction, upkeep, and repairs. Professor MCDERMOTT.

*Not given in 1910–11.

*D. 25. **Aerial Engineering.** Seniors. First term, credit two hours. Prerequisite courses M. 5 and M. 6. Physics of the atmosphere; physical properties and technique of the gases used in aerostatics and derigibles. Areodynamics; theory of aerodynamic support and resistance of bodies in motion, with special reference to the results of modern experimental research. Construction of air-craft, suitable machinery and propellers. Professor McDermott.

D. 26. **Ship Design.** Seniors. Second term, three hours credit. Requires course C.E. 20 or M. 5 and 6. Lectures and computations. The conception and derivation of the elements of form; hydrostatic principles involved in the design of vessels; and the most modern methods of computing the geometrical quantities, displacements, centers of buoyancy, metacenters, moment to trim, initial stability. Register tonnage and freeboard will also be explained. Professor McDermott.

*D. 27. **The Structure and Strength of Ships.** Seniors. Second term, three hours credit. Requires courses D. 10, D. 16, and C.E. 20 or M. 5 and 6. Lectures on the structural elements, their functions and inter-relations, of the different types of vessels belonging to the mercantile and naval marine. The materials used in shipbuilding and their preservation. The rules and regulations of the chief registration bureaus. In application of the subject-matter of the lectures, a scantling section of a typical vessel will be drawn out, and strength calculation made. Professor McDermott.

*D. 28. **Resistance, Propulsion, and Powering of Ships.** Seniors. Second term, credit two hours. Requires courses D. 10, D. 16, and C.E. 20 or M. 5 and 6. Lectures discussing the fundamental hdyro-dynamic principles involved in the study of the resistance of vessels, and of the different propelling agents, chiefly the screw propeller. The mechanical space, and weight efficiencies of the different types of propelling machinery,—steam reciprocating and turbine, singly and in combination, electric, hydraulic, and of the internal combustion motors—are fully gone into and viewed from the propulsive and commercial efficiency standpoints. Methods of approximating required horse-power, and the determination of the most suitable dimensions of propeller are carefully reviewed, problems being worked out, illustrative of the methods discussed. Professor McDermott.

D. 39. **Advanced Designing.** For graduates or seniors who have had the equivalent of D. 22 and D. 23 or of D. 26, 27 and 28. Advanced work in original design as arranged for with Professors Kimball, McDermott, and Hess.

Department of Experimental Engineering

X. 6. **Manufacture of Engineering Materials.** Required of sophomores. Credit two hours, either term as assigned. Requires Chemistry 1. Two lectures a week. Metallurgy of iron and steel, copper, etc.; the manufacture of brasses, bronzes, and of other engineering materials. Professor Diederichs.

X. 10. **Mechanical Laboratory:—Properties of Engineering Materials.** Seniors in 1910–11. Second term, credit three hours. Requires X. 6, M. 5 and 6. One laboratory period a week. Mechanical strength of ma-

*Not given in 1910–11.

terials,—tension, torsion, transverse, and compression tests; the variation of the mechanical strength with differences in composition or heat treatment; demonstration of different methods of tempering, annealing, forging, etc. The student is required to keep a standard note-book, which will be called for at stated intervals for inspection. Professor DIEDERICHS, Assistant Professor UPTON, Messrs. WIGLEY, ——— and ———.

(NOTE.—After the year 1910–11 this course will be given to juniors in the first term),

X. 11. **Mechanical Laboratory:—Introductory Experimental Engineering.** Juniors. Second term, credit three hours. Requires M. 5 and 6, or C.E. 20, Chem. 6, Phys. 1 and 5. One laboratory period a week as assigned, one written report per week. Calibration of indicator springs, steam gauges, thermometers and dynamometers; practice and tests of various computing machines; viscosity and friction tests of lubricants on various testing machines; tests of heating values of coals; steam quality tests, with various forms of calorimeters; measurement of water; efficiency test of steam engines and pumps, steam heaters and condensers. Reports are required and these must include all the data and results of the various tests, together with the conclusions. The preparation of the report is considered an important part of the laboratory course. Text book: Carpenter's Experimental Engineering. Professor DIEDERICHS, Assistant Professor UPTON, Messrs. PUTNAM, HOOK, WIGLEY and WING.

X. 20. **Mechanical Laboratory:—General Experimental Engineering.** Seniors. First term, credit three hours. Requires X. 10, 11, P. 10. One laboratory period a week. Efficiency tests of Corliss compound engine, steam injector, centrifugal blowing fan, Ericsson hot air engine, Rider hot air engine, gas engine with city gas, gas engine with gasoline and oil engine; tests on hydraulic machinery; pyrometers of various types; and valve setting on automatic and Corliss engines.

Reports are required to be full and complete, to include data and results of each test under consideration, and all information necessary to completely understand the machine tested and the methods used. Carpenter's Experimental Engineering is used as a text-book. Professor DIEDERICHS, Messrs. GAGE, BIERMA, TORRANCE, WILSON, CURRENT.

[X. 21. **Mechanical Laboratory:—Advanced Experimental Engineering.** Required of seniors. Second term, credit three hours. One laboratory period per week alternating with one computing period. Written report required on each experiment. Detailed study of methods of testing and methods of computation in the following subjects: Boiler testing and flue gas analysis; triple expansion Corliss engine with heat analysis; De Laval and Curtiss turbines with heat analysis; two-stage air compressor; refrigerating machine; belt testing; flow of water over weirs and through nozzles.

Concerning the requirements governing reports see last paragraph under X. 20 above.]

(NOTE.—This course will not be given in the year 1910–11. Course X10 will be substituted for it in the second term for seniors.)

X. 22. **Engineering Research.** Elective. Either term, credit one hour for forty hours of actual work. Open to a limited number of seniors and

graduates who have shown proficiency in research engineering. Commercial tests and special problems. Professor CARPENTER, Assistant Professor SAWDON and Mr. HYDE.

X. 23. **Power Plant Testing.** Elective. Either term, credit one hour for forty hours of actual work. Open to a limited number of seniors who have shown proficiency in research engineering. Testing of complete power plants as occasion offers. Registration arranged for when opportunities occur. Notices of opportunities will be posted on the department bulletin board. Professor CARPENTER, Assistant Professor SAWDON and Mr. HYDE.

X. 24. **Motor Car Construction.** Elective. Seniors and graduates. Second term, credit one hour. Two lectures a week, illustrated by lantern slides showing the structure and development of the motor car. Professor CARPENTER.

X. 25. **Heating and Ventilating.** Elective. Seniors and graduates. Second term, credit two hours. Lectures and recitations covering the methods of design and of construction of various forms of ventilating and heating apparatus. Carpenter's Heating and Ventilating used as a text-book. Professor CARPENTER.

X. 26. **Mechanical Refrigeration.** Elective. Seniors and graduates. Second term, credit two hours. Lectures on design, operation, and testing of refrigerating systems. Professor DIEDERICHS.

Department of Power Engineering

P. 10. **Elementary Heat-Power Engineering.** Required of all juniors. Throughout the year, three hours credit each term. Prerequisites, Physics 8, 9, and 14, Chemistry 6, C.E. 20 or M. 5 and 6, and D. 5, 6, and 7. Two recitations and one lecture a week throughout the year. Thermodynamics of gases and vapors, theoretical cycles and general theory of heat engines; application to gas and steam engines; practical modifications in real engines; engine efficiencies and performance; the indicator card as a measure of work and basis for design; economic features,—reduction of losses by jacketing, superheating, compounding; valves and valve gears; types of engines; governors; fly wheels; balancing; fuels and combustion. Assistant Professor BURR, and Messrs. PARMLEY and ULLBRICHT.

P. 11. **Heat Engines and Auxiliaries, For Civil Engineers.** Required of all C.E. seniors. Second term only, three hours credit. Not open to Sibley students. Pre-requisites, Physics, 6 and 10, (or the equivalent), Chemistry 1, C.E. 20. Three lectures a week.

(a) Elementary consideration of behavior of gases; gas engines.

(b) Theory of vaporization; theory of combustion; study of boilers; types of boilers; advantages and disadvantages of various types.

(c) Action of vapors in cylinders; steam engines; parts and operation; types, advantages and disadvantages, application; steam consumption and efficiencies.

(d) Advantages of condensing; types of condensers; condenser pumps; condenser auxiliaries, as cooling towers, pond, etc.

(e) Pumps; feed pumps, city water works' pumps, etc.

(f) Contractors plants; portable and traction engines, hoisting engines, locomotives and similar machinery.

This course is recommended for all students that wish to obtain a general knowledge of steam machinery without great technical detail. Assistant Professor BURR.

P. 20a. **Power Plant Design.** Required of all seniors. First term, three hours credit. Requires course P. 10. Two lectures and one recitation a week. A continuation of course P. 10.

Multiple expansion engines.

Principles governing transfer of heat; heating surfaces of boilers; principles of combustion; boiler furnaces and grates; types of boilers; types of stokers; natural and forced draft; feed water heaters; economizers; superheaters.

Theory of condensation; types of condensers; condenser pumps; cooling towers and similar devices.

Water treating apparatus, filters, separators, and similar auxiliary apparatus.

Steam turbines, refrigerating machinery, and air compressors; elementary theory, types, and efficiencies. Professor SMITH and Mr. MATTHEWS.

P. 20b. **Power Plant Design.** Required of all seniors. Second term, three hours credit. Requires P. 20a. Two lectures and one computing period a week. Consideration of selection of elements and their combination in power plants, with the object of producing the maximum profit from operation. Professor A. W. SMITH and Mr. MATTHEWS.

P. 21. **Steam Engine Design.** Required of seniors in group A and not open to others. Throughout the year, three hours credit a term. Requires courses D. 10, D. 16, and P. 10 and must be accompanied by course P. 22. Three lectures a week. Discussion of the types, arrangements, and general proportions of steam engines; the theoretical and practical considerations entering into the design of valve gears, and engine details; governor design; balancing; the determination of fly-wheel weights; the selection of the machinery for a steam power plant and its arrangement. Professor BARNARD and Mr. THOMPSON.

P. 22. **Designing and Drawing.** Required of seniors in group A and not open to others. Throughout the year, three hours credit a term. Requires courses D. 10, D. 16, and P. 10 and must be accompanied by P. 21. Three drawing periods a week. A drafting course paralleling the lecture course P. 21, and also including a small amount of turbine design. Professor BARNARD and Mr. THOMPSON.

*P. 23. **Steam Boiler Design.** Seniors. First term, one hour credit. Requires courses D. 10, D.16, and P. 10. Lectures on fuels, combustion, types of boilers, general proportions, materials, design of boiler details, settings, stokers, accessories, and the equipment and arrangement of boiler plants. Professor BARNARD and Mr. THOMPSON.

P. 25. **Steam Turbines.** Senior elective. Required of groups A and B. Second term, two hours credit. Requires course P. 10. Two lectures a

*Not given in 1910-11.

week. Classification of turbines and description of leading features of the various types. Mechanical and thermal consideration underlying the action of steam in turbines. Calculations involved in turbine design. Discussion of building, erecting and testing. Adaptability to special conditions of service. Economic results of the use of turbines in engineering practice. Professor BARNARD and Mr. THOMPSON.

P. 26. **Gas Machinery Design.** Required of seniors in group C and not open to others. Throughout the year, three hours credit a term. Requires courses D. 10, D. 16, and P. 10. Must be accompanied by courses P. 27 and P. 28. Three lectures a week throughout the year. The rational and empirical design of Internal Combustion Engines and Gas Producers. Professor HIRSHFELD and Mr. KESSLER.

P. 27. **Design and Drawing.** Required of seniors in group C and not open to others. Throughout the year, three hours credit each term. Requires courses D. 10, D. 16, and P. 10. Must be accompanied by courses P. 26 and P. 28. Three drawing periods a week. The practical application of principles discussed in P. 26. Professors HIRSHFELD and Mr. KESSLER.

P. 28. **Gas Manufacture and Distribution (General).** Seniors. Required of seniors in group C. Second term, two hours credit. Requires courses D. 10, D. 16, and P. 10. Two lectures a week. The theoretical and practical principles governing the production and handling of all industrial gases. Professor HIRSHFELD and Mr. KESSLER.

P. 29. **Gas Power Machinery (General).** Seniors. First term, two hours credit. Requires courses D. 10, D. 16, and P. 10. Two lectures a week. General theory and salient points in the design and operation of internal combustion engines and gas producers. Description of existing commercial types, study of relative advantages, and consideration of questions of economy. Professor HIRSHFELD and Mr. KESSLER.

P. 39. **Advanced Designing.** Elective for seniors and graduates. Work and credit as arranged.

Department of Electrical Engineering

E. 10. **Elementary Electrical Engineering.** Required of all juniors. Throughout the year, four hours credit a term. Requires Physics 8, 9, and 14, C.E. 20 or M. 5 and 6. One lecture a week in each term; three recitations a week in first term, and one in the second term; and one laboratory period a week in the second term.

First term. Illustrated lectures and recitations, giving a brief review of the entire field of electrical engineering, including the fundamental laws of electric and magnetic circuits, the measurement of electrical quantities, the elementary theory, structural features, and operating characteristics of generators, controlling devices, transformers, transmission line, motors, etc.

Second term. Laboratory work and experimental lectures on the effects of resistance, inductance and capacity in series and parallel circuits, and the principal characteristics of electrical machinery operation. Part of the lectures during this term are devoted to such subjects as commutation,

regulation of electrical machinery, etc. Professor NORRIS, Assistant Professor MACOMBER, and Messrs. KROGER, TAPPAN, HOLCOMB, and ANDERSON.

E. 12. **Electrical Engineering for Civil Engineers.** Required of all seniors in civil engineering. First term only, three hours credit. One experimental lecture, one recitation and one laboratory experiment each week. The purpose of the course is four-fold: (1) to review and emphasize the fundamental physical principles applied in electrical engineering; (2) to familiarize the student with and give practice in the handling of electrical machinery; (3) to enable the student to choose the proper type of apparatus for any particular service demanded in ordinary elementary practice; (4) to enable the student to read intelligently electrical engineering literature. Assistant Professor MACOMBER and Mr. HOLCOMB.

E. 13. **Electrical Engineering for Chemists.** Required of senior chemists. Second term only, three hours credit. One recitation and one laboratory experiment with report each week. The purpose of this course is three-fold: (1) to review and emphasize the fundamental physical principles applied in electrical engineering; (2) to familiarize the student with the phraseology of current electrical engineering literature; (3) to enable the student to choose the proper type of apparatus for any particular service demanded in ordinary elementary practice. Assistant Professor MACOMBER, Messrs. KROGER, TAPPAN, HOLCOMB, and ANDERSON.

E. 20. **Theory of Electrical Machinery.** Required of seniors in electrical engineering. Throughout the year, two hours credit a term. Requires course E. 10. Two lectures a week. First term work covers chiefly the laws of the electric and the magnetic circuit; representation of alternating currents by vectors and by complex quantities; the nature and effects of inductance, capacity and iron loss. Second term is devoted to the theory of transmission lines, transformers, generators, motors, and rotary converters. The lectures are as far as possible correlated with the work in course E. 21. Professor KARAPETOFF.

E. 21. **Characteristics of Electrical Machinery.** Required of seniors in electrical engineering. Throughout the year, four hours credit a term. Requires course E. 10. Two recitations and two computing periods a week. Problems on the work covered by course E. 20; in particular, performance characteristics of transmission lines, transformers, induction motors, alternators, synchronous motors and converters, and direct-current generators and motors. Text-books used: Karapetoff's Elective Circuit; Norris & Dennison, Electrical Characteristics of Circuits and Machines. Professor KARAPETOFF and Messrs. DOUGLASS and PERTSCH.

E. 22a. **Design of Electrical Machinery.** Elective for seniors in electrical engineering. Second term only, two hours credit. Requires first term of E. 20 and E. 21. Two recitations a week. Principles of commercial design of electrical machinery.

(1) General data: deduction of principal formulae used in designing direct and alternating current machinery and transformers; empirical electrical and mechanical data.

(2) Commercial requirements; cost of manufacturing; requirements of service; guarantees.

(3) Deduction of design data from tests on existing machines.

(4) Elementary design with given principal dimensions.

(5) Selection of principal dimensions for a complete line of similar machines.

(6) Mechanical design and preparation of shop drawings.

Hobart's Continuous Current Dynamo Design is used for recitations. Professor KARAPETOFF and Mr. DOUGLASS.

E. 22b. **Design of Electrical Machinery.** Elective for seniors taking E. 22a. Second term only, two hours credit. Two computation periods a week. The work in the computing room comprises two problems: a complete mechanical design of an electric machine with given principal dimensions, and an electric design of a commercial line of similar machines such as transformers, generators, motors or rotary converters. The work in this course parallels that in E. 22a. Professor KARAPETOFF and Mr. DOUGLASS.

E. 23a. **Generation and Distribution of Electrical Energy.** Elective for seniors in electrical engineering. Second term only, two hours credit. Requires first term of E. 20 and E. 21. Two lectures a week. Selection of apparatus for generating stations and distributing systems. The design of generating units, transforming apparatus, and auxiliaries is not taken up in detail, since the intention is to show the proper combinations of the apparatus to correctly represent standard theory and practice. The design of the transmission line and of the distributing system is, however, studied in detail, the application of the theory being brought out in lectures and established by practical problems. Assistant Professor FORD and Mr. HOLCOMB.

E. 23b. **Generation and Distribution of Electrical Energy.** Elective for seniors taking E. 23a. Second term only, two hours credit. Two computing periods a week. The work in this course parallels that in E. 23a. Assistant Professor FORD and Mr. HOLCOMB.

E. 24. **Telephone Engineering.** Elective for seniors in electrical engineering. First term only, three hours credit. Requires E. 10. Two lectures and one recitation a week. General principles of electrical engineering as applied to modern telegraph, telephone and other systems of transmission of intelligence. Particular attention is paid to telephony and to problems encountered in telephone engineering. Assistant Professor MACOMBER.

E. 25. **Elements of Electric Railway Practice.** Elective for juniors or seniors. First term only, two hours credit. Requires C.E. 20 (or M. 5 and 6) and Physics 9 and 14. Two lectures a week. Apparatus and construction involved in a modern railway system, including car equipment, trucks, motors, controllers, bodies, and accessories, overhead construction, third rail, conduit, and other systems and other topics of similar character. The underlying idea is to show the application of the general laws of electricity to this particular branch. Some attention is devoted to the relation of electric railways to the public and to finance. Professor NORRIS.

E. 26a. **Advanced Electric Railway Practice.** Elective for seniors in electrical engineering. Second term, two hours credit. Pre-requisites,

first term of E. 20 and E. 21 and E. 25. Two lectures. Fundamental theory of train movement, comprising what may be termed the characteristic curves of railway operation. Professor NORRIS.

E. 26b. **Advanced Electric Railway Practice.** Elective for seniors taking course E. 26a. Second term, credit two hours. Two computing or inspection periods a week. Practice is given in plotting time-speed curves, motor heating curves, railway load curves, drop in transmission lines, etc. Inspections of local equipment are made, including the power house and sub-station of the local railway, track and overhead construction of cars, administration of car barn, etc. The work in this course parallels that in E. 26a. Professor NORRIS.

E. 27. **Wireless Telegraphy and Telephony.** Elective for seniors in electrical engineering. Second term only, two hours credit. Requires first term of E. 20, E. 21, and E. 28. Two lectures a week. Fundamental principles involved in wireless telegraphy and telephony, and study of the development of the application of these principles up to the present status of the art. The lectures are supplemented by numerous experiments to fully illustrate the practical application of the theory. Mr. KROGER.

E. 28. **Electrical Laboratory.** Required of seniors in electrical engineering. Throughout the year, four hours credit a term. Requires X. 11, E. 10. Two laboratory periods, one recitation and one report a week. The work during the first term includes the following simple experiments selected from the most important branches of electrical engineering: tests of ammeters, voltmeters, and integrating wattmeters; arc-lamps and series arc lighting; electrical relations in transmission lines; characteristics of direct-current generators and motors; commercial tests of transformers; load tests on alternators and induction motors; assembling switchboards, wiring controllers; telephone work, etc. During the second term more advanced experiments are conducted, such as performance tests of transmission lines, transformers, alternators and induction motors; commercial tests on magnetic qualities of steel and iron; tests of special alternating-current instruments; winding D.C. and A.C. armatures; separation of losses in generators and motors, electrical relations in polyphase systems; operation of rotary converters, electric railway experiments; determination of A.C. wave-form; regulation of storage batteries. Text-book, Karapetoff's Experimental Electrical Engineering. Assistant Professor FORD, Messrs. HOLCOMB, DUBOIS, HOGAN, ANDERSON, and STEVENS.

E. 29. **Electrical Laboratory.** Required of all seinors, excepting electrical engineers. Requires X. 11, E. 10, P. 10. One laboratory period, one recitation and one report a week. The course is arranged for the needs of mechanical engineers, particular attention being paid to the operating features of electrical machinery. The experiments are selected from those given during the first term in course E. 28. Text-book, Karapetoff's Experimental Electrical Engineering. Assistant Professor FORD, and Messrs. HOLCOMB, HOGAN, DUBOIS, and STEVENS.

E. 30. **Engineering Calculations.** Elective. Open to seniors and graduate students only. Throughout the year, two hours credit a term. General methods by which engineering problems are expressed in mathemati-

cal form, studied to establish a better understanding of the unity between the instruction in pure mathematics and in the various engineering courses. It is aimed to better prepare the student for engineering research and for the study of advanced engineering literature. The fundamental physical and mathematical assumptions are critically reviewed, and the limitations in the results pointed out. Methods are indicated for obtaining approximate solutions, establishing empirical formulae, and solving problems by the use of tables, charts and mechanical devices. The course consists of problems taken from mechanical, civil and electrical engineering, involving analytic geometry and the elements of differential and integral calculus. Perry's Calculus for Engineers is used as the text-book. Professor KARAPETOFF.

E. 31. **Electrical Engineering Problems.** Seniors in mechanical engineering only. First or second term, two hours credit. Requires E. 10. A series of problems with recitations on electric circuits, machines, and applications. Electrical problems which are met by mechanical engineers in practice. Mr. TOWER.

E. 32. **Electrical Illumination Engineering.** General elective for juniors and seniors. Second term only, two hours credit. Students intending to take this course are advised to take Physics 15 and 43 during the first term. A brief review of the theory of illumination, a study of the theory, structure and operation of the various types of electrical illuminating devices, and also the general engineering features of electric lighting systems as a whole, including a discussion of their design and management. Assistant Professor MACOMBER.

E. 33. **Research in Electrical Engineering.** (Corresponds to X. 22 in mechanical engineering). First or second term, or both. One to three hours. Requires E. 10, 11. Tests of electrical apparatus both alone and in power plants. The number of students who can be accommodated will depend upon the available opportunity for testing. Professor NORRIS, Assistant Professor FORD, and Messrs. HOLCOMB, HOGAN, DUBOIS, and STEVENS.

E. 34. **Current Electrical Topics.** Elective for seniors in electrical engineering only. Throughout the year, one hour credit. A one-hour conference each week. The electrical periodicals are systematically examined and the important articles are abstracted and discussed. Professor NORRIS.

E. 40. **Advanced Electrical Engineering.** Open to graduate students only. Two to six hours credit each term. The graduate seminar, which forms the basis of this course, meets weekly. Special reports are prepared for these meetings, and thesis work is discussed. Abstracts are made of important engineering publications. Professors NORRIS and KARAPETOFF.

OFFICIAL PUBLICATIONS OF CORNELL UNIVERSITY

Issued at Ithaca, N. Y., monthly from July to November inclusive, and semi-monthly from December to June inclusive.

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Announcement of the College of Law,
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CORNELL UNIVERSITY

DIRECTORY OF

Resident Officers of Instruction and Government, and of Students.

OCTOBER 12, 1910.

Abbreviations. The courses are designated in the list as follows: Arts, A.; Agriculture, Ag.; Architecture, Ar.; Civil Engineering, C.; Law, L.; Mechanical Engineering, M.; Medical, M.D.; Veterinary, V. Graduate students are indicated by G.; Special students by Sp. The Arabic numerals indicate the year in the course.

[*Changes of residence should be reported to the Registrar promptly.*]

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(Ithaca 759-X)
*Bush, J. A. Forest Home
(Ithaca 1065)
*Calkins, D. Varna
(Office, Ithaca 1093-Y, Residence, Ithaca 376-C)
*Calkins, F. Cayuga Hts
(Ithaca 1087-X)
Canfield, (Miss) E. B. 250 Casca. Pl
Carman, (Miss) A. B. 107 Farm
(Bell 490, Ithaca 1077)
Carpenter, C. A. 404 Univ. Ave
(Bell 313)
*Carpenter, R. C. 125 Eddy
(T., W., Th., F., 10-12, Mech. Lab.)
(Office, Ithaca 1064-X, Residence, Bell 178)
*Carver, W. B. 101 Fairmount Ave
(M., W., F., 9-10, White 23)
(Office, Bell 492-F, Ithaca 1050)
*Cass, C. D. 619 Utica
*Catterall, R. C. H. 508 Edgewood Pl
(M., W., F., 10-11, Goldwin Smith)
(Office, Ithaca 1016-X, Residence, Bell 583)
*Cavanaugh, G. W. Willard Ave
(Daily exc. S., 12, Morse 75)
(Office, Ithaca 1074-X, Residence, Bell 679, Ithaca 305-X)
*Chamberlain, G. R. 11 Central Ave
(Office, Ithaca 1052)
(Residence, Bell 663)
*Chamot, E. M. 927 E. State
(T., W., Th., 2:30-3:30, Morse 34)
(Office, Ithaca 1072-X, Residence, Bell 336, Ithaca 599-X)

Chandler, A. C. 302 Mitchell
(Office, Ithaca 1044, Residence, Ithaca 774)
Chapman, (Miss) M. 408 N. Aurora
(Office, Bell 64, Ithaca 1001)
(Residence, Ithaca 287)
Church, I. P. 209 South Ave
(W., 11–12, Lincoln)
(Office, Ithaca 1135-C, Residence, Bell 478-B)
Churchill, D. 25 East Ave
*Cicciarelli, R. 320 Linn
Clark, (Miss) H. A. 603 N. Aurora
(Bell 405, Ithaca 1020)
Clark, (Miss) R. M. 904 N Aurora
(Bell 472, Ithaca 1078)
Clayton, A. B. 38 Sheldon Ct
(Office, Bell 549, Ithaca 1045)
(Residence, Bell 39-B)
Coggeshall, C. S. 411 N. Cayuga
(Ithaca 570-Y)
Cole, D. S. 706 Stewart Ave
(Ithaca 1037-X)
Cole, (Miss) L. H. 918 N. Tioga
(Office Bell 563, Ithaca 1068-X)
(Residence, Ithaca 596)
*Collier, E. 205 E. Yates
(Ithaca 1112)
Colquhoun, (Miss) M. I. 506 N. Tioga
(Office, Ithaca 1064-X, Residence, Ithaca 298-C)
*Comfort, W. W. Cornell Hts
(M., W., F., 12:30, T., Th., 9-9:30 Goldwin Smith)
(Ithaca 1010)
Comstock, (Mrs.) A. B. 43 East Ave
(Office, Ithaca 1118-X, Residence, Ithaca 337-X)
*Comstock, J. H. 43 East Ave
(Daily 11 12, Main Agr. 352)
(Office, Bell 582-F, Residence, Ithaca 337-X)
Conklin, A. W. 116 Oak Ave
(Bell 902)
Conley, L. J. 107 Sears
Conn, H. J. 37 East Ave
(Bell 160-B)
*Cook, L. B. 218½ Univ. Ave
(Bell 582, Ithaca 1115)
Cooper, L. Fall Creek Drive
(T., Th., 11, Goldwin Smith 171)
(Ithaca 354-X)
Cooper, S. R. 206 Linn
(Ithaca 399)
Corbin, C. I. 308 Casca. Pl
Cornellius, A. B. 201 Linn
(Ithaca 1089)
Cornell, W. R. 314 N. Aurora
(Office, Ithaca 1060-X, Residence, Ithaca 689-Y)
Corson, H. Cascadilla Cottage
*Corwin, C. D. 401 Dryden Rd
Cosh, G. M. 3 Garden Ave
(Office, Ithaca 1089, Residence, Ithaca 332-X)
Cox, E. G. 519 E. State
(Ithaca 723-X)
Craig, C. F. 310 E. Mill
(Office, Bell 492-F, Ithaca 1050, Residence, Bell 346-W)
*Craig, J. 3 East Ave
(Office, Ithaca 1119, Residence, Bell 93)
*Crandall, C. L. 408 Hector
(M., W., F., 12–12:30, Lincoln)
(Office, Ithaca 1037-X, Residence, Bell 54, Ithaca 722-X)
*Crane, T. F. 9 Central Ave
Crawford, (Miss) A. B. 608 Utica
(Bell 548, Ithaca 1125)
*Crosby, C. R. Casca. Pl
(Ithaca 1099-X)
Cross, L. J. 123 Linn
(Office, Ithaca 1074-X, Residence, Ithaca 109)
*Culligan, G. A. 511 Casca. St
Ithaca 1065)
*Current, G. L. Forest Home
Dale, G I. Cornell Heights
(Ithaca 1010)
*Dann, H. E. 507 E. Seneca
(Bell 140-B)
*Darling, F. 412 Tompkins
*Darling, M. A. 412 Tompkins
*Daugherty, R. L. 404 Univ. Ave
(Office, Ithaca 1060-X, Residence, Bell 313)
*Davidsen, H. C. 31 Thurston Ave
(M., Th., 12-1, Goldwin Smith 188)
(Office, Ithaca 1002-X, Residence, Ithaca 811-X)
*Davies, D. J. 201 N. Aurora
*Davis, R. P. 203 Bryant Ave
Dean, (Mrs.) D. J. 621 W. Clinton
(Office, Bell 581, Ithaca 1121, Residence, Ithaca 459-Y)
*De Garmo. C. 809 E. State
(M., T., W., Th., 9, Goldwin Smith 246)
(Office, Ithaca 1013-X, Residence, Bell 497)
*DeLany, E. S. 508½ E. Buffalo
(Office, Bell 548, Ithaca 1125, Residence, Bell 404)

*Dennis, L. M. 722 Univ. Ave
(Daily exc. S., 12:15-1, Morse 18)
(Office, Bell 563, Ithaca 1068-X
Residence, Bell 12-B, Ithaca 314)
Derickson, D. 804 E. State
(M., 9-10, T., Th., 10-11, Lincoln)
(Ithaca 1042)
Deyo, A. F. 17 East Ave
(Bell 170-B, Ithaca 1034)
Dick, (Miss) A. 811 E. State
(Office, Ithaca 1118-X, Residence,
Bell 497)
Dickens, C. 302 Hancock
Diederichs, H. 710 Stewart Ave
(Daily exc. S., 3-4:30, Sibley)
(Office, Ithaca 1064-X, Residence,
(Bell 694)
Dillon, S. O. 408 Stewart Ave
(Bell 647)
Dorman, (Mrs.) F. C. 523 S. Albany
(Bell 581, Ithaca 1121)
Dougherty, N. W. 407 Dryden Rd.
Douglas, J. F. H. 103 Quarry
(Office, Bell 171, Ithaca 1054, Residence, Bell 631-B)
*Douglass, H. M. 311 S. Aurora
(Ithaca 231)
*Dresbach, M. 321 Mitchell
(Daily exc. S., 12-1, Stimson)
(Office, Ithaca 1023-X, Residence,
Ithaca 67-X)
*Drew, W. L. 13 East Ave
(Daily exc. S., 12, Boardman 8)
(Office, Ithaca 1027, Residence,
Bell 296)
Driscoll, (Miss) C. C. 311 Dryden Rd.
(Office, Bell 541, Ithaca 1107-X,
Residence, Ithaca 185-C)
Driscoll, (Miss) E. L. 311 Dryden Rd.
(Office, Bell 64, Ithaca 1001, Residence, Ithaca 185-C)
*Driscoll, J. 112 Linn
*DuBois, B. D. 401 S. Aurora
(Office, Ithaca 1057-X, Residence,
Ithaca 48-X)
*Duggar, B. M. 5 East Ave
(T., Th., S., 12, Agron. Bldg. 167)
(Office, Bell 582-B, Ithaca 1113-Y,
Residence, Ithaca 271-X)
*Durham, C. L. 7 South Ave
(Daily 10, Goldwin Smith, 133)
(Office, Ithaca 1009-X, Residence,
Bell 642-B)
Edlund, R. C. 414 Eddy
(Office, Bell 490, Ithaca 1143, Residence, Ithaca 744)
*Edwards, L. V. 405 N. Aurora
(Office, Ithaca 1037, Residence, Ithaca 209)
Edwards, (Miss) M. 438 N. Tioga
(Ithaca 1114)
*Ellis, W. W. 309 Farm
(Office, Ithaca 1097, Residence, Ithaca 426)
*Elmer, H. C. 610 E. Buffalo
(Office, Ithaca 1009, Residence,
Bell 900)
Evans, C. J. 306 College Ave
(Ithaca 402-X)
Evans, M. E. 210 Dryden Rd.
(Office, Ithaca 1119-X, Residence,
Ithaca 691-C)
*Everett, G. A. Cornell Hts.
(T., Th., S., 11:30.12:30, Goldwin Smith)
(Bell 534-F, Ithaca 1007-X)
*Everhart, Jesse 25 East Ave
*Everhart, Job Ellis Hollow Rd.
Faust, A. B. Cornell Hts.
(Daily 11-1, Goldwin Smith 181)
(Office, Ithaca 1002, Residence, Ithaca 303)
*Feehan, H. 807 E. State
(Ithaca 1131-X)
*Fetter, F. A. Cornell Hts
M., T., W., 12-12:30, Goldwin Smith 271)
(Ithaca 1012)
Fielden, (Miss) A. Sage
(Ithaca 1104-X)
Filmer, E. A. 202 Stewart Ave
(Office, Bell 549-F, Ithaca 1046-X,
Residence, Bell 681, Ithaca 710)
*Finch, F. T. Forest Home
(Ithaca 1123)
Finch, W. A. Casca. Pl
(Daily exc. S., 12, Boardman 7)
(Office, Ithaca 1027-C, Residence,
Ithaca 425)
*Fippin, E. O. 103 College Pl
(Daily exc. S., 11-12, Agron. 163)
(Office, Bell 582-B, Ithaca 1113-C,
Residence, Ithaca 568-X)
*Fish, P. A. 931 E. State
(Office, Ithaca 1033, Residence, Bell 41-B)
Fisher, W. J. 811 E. State
(Bell 497)
Fisk, W. W. 506 Dryden Rd
(Office, Ithaca 1115, Residence,
Ithaca 456-X)
Fitch, C. P. 101 Eddy
(Office, Bell 452, Ithaca 1031, Residence, Ithaca 658-C)
Fitzpatrick, H. M. Forest Home
(Ithaca 1107)
Flannery, W. B. 138 Linden Ave
(Ithaca 190-X)

Fleming, B. 515 Stewart Ave
(T., 12, Main Agr.)
(Bell 198)
*Fluegel, E. J. Grey Court, Eddy St
(T., Th., 10–11, Goldwin Smith 178)
(Office, Ithaca 1002-X, Residence, Ithaca 816)
Fogle, J. C. Jr. 426 Casca. Pl
*Ford, W. S. 319 Mitchell
(T., Th., S., 9–11, M., W., F., 2:30–4:30, Franklin)
(Ithaca 1138-X)
Forman, A. H. 112 Highland Pl
Foster, W. S. Casca. Pl
(Ithaca 1076)
*Fournier, H. E. 418 E. Railroad Ave
(Office, Bell 549, Ithaca 1045)
*Fowler, F. C. 504 N. Aurora
(Office, Ithaca 1083-X, Residence, Ithaca 23-C)
Fowler, (Miss) M. 48 Fall Creek Drv
(Office, Ithaca 1097, Residence, Bell 9-B)
Francis, D. R. 502 N. Aurora
(Ithaca 297)
Franke, A. 126 Linden Ave
Fraser, A. H. R. Casca. Pl
(Office, Ithaca 1028, Residence, Ithaca 793)
*Freeman, H. L. 204 Linden Ave
(Ithaca 242-Y)
Freese, (Miss) F. M. 908 N. Tioga
(Office, Bell 582-B, Ithaca 1113-C, Residence, Ithaca 713-X)
Fried, J. A. 91 Wait Ave
(Bell 616-B, Ithaca 204-C)
Fritz, W. E. 424 E. Seneca
Frost, J. N. 17 East Ave
(Bell 170-B, Ithaca 1034)
*Gage, S. H. 4 South Ave
*Gage, V. R. 402 Eddy
Galajikian, A. S. 465 Cascadilla Pl
(Ithaca 75-X)
Galpin, S. L. 804 E. Seneca
(Office, Bell 549, Ithaca 1045, Residence, Bell 321, Ithaca 579)
*Garrett, S. S. 324 College Ave
(Daily exc S., 10, Sibley 20)
(Ithaca 1060-X)
Gaub, J. 234 Linden Ave
(Ithaca 255-Y)
*Geissler, L. R. 307 Eddy
(Office, Ithaca 1076, Residence, Ithaca 770-Y)
*Gélas, J. M. 206 Linden Ave
*George, S. G. 127 Quarry
(M., W., 11 Lincoln)
(Office, Ithaca 1039-X, Residence, Ithaca, 575-C)
Georgia, (Miss) A. E. Dryden Rd
(Ithaca 1118-X)
Gibbons, W. A. 502 Dryden Rd
(Ithaca 456)
*Gibbs, R. C. 210 Mitchell
(Bell 336-B)
Gibbs, (Miss) L. C. 212 W. Buffalo
(Bell 574, Ithaca 1047)
*Gilbert, A. W. Cornell Hts
(T., Th., 11–1, Agron Bldg. 333)
(Ithaca 1114-X)
*Gill, A. C. 124 Wyckoff Ave
(Office, Ithaca 1128, Residence, Ithaca 543,
Gillespie, D. C. 120 Oak Ave
(Office, Bell 492–F, Ithaca 1050, Residence, Bell 621)
Gilmore, R. J. 113 Stewart Ave
(Office, Ithaca 1117-X, Residence, Bell 272)
Givens, M. H. 115 DeWitt Pl
(Office, Ithaca 1023-X, Residence, Ithaca 617)
*Glasson, W. H. 303 Eddy
(M., W., F., 11-11:30, Goldwin Smith 254)
(Office, Ithaca 1011, Residence, Ithaca 421)
*Gleason, E. F. R. F. D. 2, Ithaca
Goldberg, M. M. 115 Stewart Ave
(Ithaca 771-X)
*Gordon, A. 604 E. Buffalo
(W., 2-4, Goldwin Smith 282)
(Office, Ithaca 1010, Residence, Ithaca 72)
Green, A. E. 102½ Franklin
*Green, C. M. 145 Linn
(Ithaca 375-X)
Gregory, (Miss) A. 116 N. Geneva
Gregory, C. T. 101 Clinton
(Ithaca 1114)
*Gregory, E. W. 202 First
Gross, (Miss) L. G. 101 Giles
(Office, Ithaca 1105-X, Residence, Ithaca 592-C)
*Grover, I. 151 Maple Ave
(Ithaca 64-X)
*Guerlac, O. G. 3 Fountain Pl
(Th., 12–1, Goldwin Smith)
(Bell 185)
*Guthrie, E. S. Forest Home
(Office, Bell 582, Ithaca 1115)
(Residence, Ithaca 753-X)
*Gutsell, H. S. 301 College Ave
(Office, Ithaca 1052, Residence, Ithaca 692)

Hadley, H. D. 414 Cascadilla Pl
(Ithaca 75-X)

Haight, (Miss) H. H. 914 E. State
(Bell 170, Ithaca 1029-X)
*Ham, C. W. 109 W. Buffalo
Hammond, W. A. 29 East Ave
(Daily exc. S., 12–12:30, Goldwin Smith 222)
(Office, Ithaca 1017, Residence, Bell 523)
Handlen, (Miss) K. 212 Second
(Office, Bell 171, Ithaca 1053-X, Residence, Ithaca 364-X)
*Hankins, R. 219 Park Pl
*Harper, M. W. 406 Oak Ave
(M., W., F., 10, Anim. Husb. Bldg.)
(Office, Bell 581-B, Ithaca 1100, Residence, Ithaca 781)
*Harrington, C. A. 130 Blair
(Bell 688)
*Harris, F. S. 122 Linden Ave
(Office, Ithaca 1116-Y, Residence, Ithaca 141-Y)
*Harris, G. D. 307 Stewart Ave
(Office, Ithaca 1129-X, Residence, Ithaca 622-X)
*Harris, G. W. 3 Grove Pl
(Office, Ithaca 1096-X, Residence, Ithaca 648)
*Hart, J. M. 1 Reservoir Ave
Hartman, (Miss) G. 401 Hancock
(Office, Bell 548, Ithaca 1125, Residence, Ithaca 33)
Harty, M. 612 W. Buffalo
*Haskell, E. E.
The Knoll, Cornell Hts
(M., T., Th., F., 9–11:30, W., 2–4, Lincoln Hall)
(Office, Bell 216, Ithaca 1036-X, (Residence, Bell 273-B, Ithaca 349-X)
Hatmaker, (Miss B.) 121 Casca. Ave
(Bell 582, Ithaca 1115)
*Hayden, C. E. 211 Water
(Ithaca 1033)
*Hayes, A. jr. 115 Ridgewood Rd
(Daily exc. S., 12, Boardman 6)
(Office, Bell 467-J, Ithaca 1026-Y Residence, Bell 650)
*Hayes, L. D. 31 Thurston Ave
(M., T., W., Th., 10–11, E. Sibley 303)
(Ithaca 756-C)
*Hayes, R. B. 76 Thurston Ave
(Office, Ithaca 1080, Residence, Bell 789-B, Ithaca 701)
Haylett, (Miss) L. K. 702 S. Aurora
(Bell 562-B)
*Head, F. 306 E. Tompkins
*Head, W. L. 218 S. Cayuga
(Ithaca 210-C)
Hebrard, J. 5 East Ave
(Office, Bell 574, Ithaca 1070, Residence, Ithaca 271-X)
*Hedges, C. C. 404 Eddy
(Ithaca 1074-X)
Hermannsson, H. 120 Oak Ave
(Bell 621)
*Herrick, G. W. Kelvin Pl., Cornell Hts.
(T., W., 11–12, Main Agr 332)
(Office, Ithaca 1117-X, Residence, Ithaca 751)
*Hess, H. D. 7 South Ave
(Daily 8–11, Sibley)
(Bell 642-J)
Hewett, W. T. Cornell Hts.
Higgins, B. B. Forest Home
(Ithaca 1107)
Hill, G. R. 122 Linden Ave
(Office, Ithaca 1122-X, Residence, Ithaca 141-Y)
Hilton, W. A. 108 Brandon Pl
(Office, Ithaca 1022-X, Residence, Bell 516)
*Hirshfeld, C. F. 712 E. Seneca
(Ithaca 1059-X)
*Hiscock, E. T. 903 N. Tioga
Hitch, A. R. 126 E. Seneca
(Bell 3)
Hitch, E. F. 706 E. Seneca
(Bell 110, Ithaca 829)
Hogan, W. E. 302 College Ave
(Ithaca 1138-X)
Holcomb, A. B. 103 Quarry
(Office, Ithaca 1138, Residence, Bell 631-B)
Holcomb, A. M. 103 Quarry
(Office, Ithaca 1138-X, Residence, Bell 631-B)
Hollingshead, R. S. Filtration Plant
(Ithaca 1100–X)
*Hollister, C. E. 25 East Ave
*Hook, W. H. 316 S. Aurora
*Hooper, L. 804 N. Cayuga
(Ithaca 53)
*Hoose, H. 116 Maple Ave
*Hopkins, G. S. 919 E. State
(Ithaca 1030)
Hornbeak, J. W. 7 Bryant Ave
(Bell 215-B)
Hotchkiss, (Mrs.) H. H. 201 Lake
Houlehan, A. E. 804 E. Seneca
(Bell 321, Ithaca 579)
Howe, B. N. 415 W. Green
Howe, H. E. 804 E. Seneca
Howell, (Miss) M. 204 Lake Ave
(Bell 582, Ithaca 1115)
*Howes, H. L. 315 College Ave

*Hoy, D. F. Cornell Hts
(Dai. exc. S., 9–5, S., 9–1, Mor. 10)
Office, Bell 472, Ithaca 1078, Residence, Bell 157)
Hull, C. H. 413 E. Buffalo
(Dean's Office open 9–1)
(Office, Bell 216-B, Ithaca 1005-X, Dept. Office Ithaca 1014)
Humphrey, W. E. Jr. 216 Univ. Ave
(Office, Bell 574, Ithaca 1047, Residence, Ithaca 673)
*Hunn, C. E. 3 Garden Ave
(Ithaca 332-X)
*Hunter, A. 1 The Circle
(M., Th., 4–5, Stimson)
(Office, Ithaca 1023-X, Residence, Ithaca 646)
Hurd, L. M. Poultry Bldg
(Ithaca 1123)
*Hurlburt, G. R. F. D. 2, Ithaca
(Ithaca 1111-X)
Hurwitz, W. A. Forest Home
(Bell 492-F, Ithaca 1050)
*Hutchinson, J. I. 30 Thurston Ave
(Daily 9, White 26)
(Office, Bell 492-F, Ithaca 1050, Residence, Bell 775-B)
Hyde, T. B. 414 E. Seneca
Illston, (Miss) E. E. 112 Schuyler Pl
(Office, Bell 216, Ithaca 1036-X, Residence, Bell 522-B, Ithaca 481-X)
Ingersoll, (Miss) E. S. 420 Eddy
(Office, Ithaca 1097, Residence, Bell 376-B)
*Irvine, F. 802 E. Seneca
(Daily exc. S., 12, S., 11, Boardman 1)
(Office, Bell 467-B, Ithaca 1024-X, Residence, Bell 267, Ithaca 320-X)
Jacobs, (Miss) A. 603 N. Tioga
(Office, Bell 582, Ithaca 1115, Residence, Ithaca 334-X)
Jaquay, (Miss) M. E. 415 Utica
(Bell 549, Ithaca 1045)
Jenkins, (Miss) A. E. 111 Oak Ave
(Office, Ithaca 1114, Residence, Bell 61-X, Ithaca 573)
Jennings, H. M. 332 Cascadilla Pl
Johnston, E. F. 128 E. Buffalo
(Bell 441-B, Ithaca 278-X)
Jones, A. H. 121 Mill
(Bell 4)
Jones, F. S. 324 College Ave
(Ithaca 1030-X)
*Jones, G. W. 113 Stewart Ave
Jones, H. L. 426 E. Buffalo
(Daily 11-12, Goldwin Smith)
(Office, Ithaca 1008, Residence, Ithaca 683-X)
Jordan, (Miss) M. 516 Univ. Ave
(Office, Bell 64, Ithaca 1001, Residence, Ithaca 243)
*Karapetoff, V. 607 E. State
(T., W., 10–11, Franklin 16)
(Office, Bell 171, Ithaca 1054, Residence, Ithaca 830)
Kellogg, J. M. 321 Dryden Rd
(Office, Bell 574, Ithaca 1070, Residence, Ithaca 742-X)
Kelley, (Miss) J. Z. 127 Blair
(Ithaca 491–C)
*Kemmerer, E. W. Dearborn Pl
(M., W., F., 12, Goldwin Smith 233)
(Office, Bell 534–K, Ithaca 1014–Y, Residence, Ithaca 204)
*Kerr, A. T. 110 Kelvin Pl
(Daily 12–1, Med. Coll. Office)
(Office, Bell 405, Ithaca 1020, Residence, Bell 341-B)
*Kimball, D. S. 23 East Ave
(M., W., 10-12, Sibley)
(Office, Bell 580, Ithaca 1056-X, Residence, Bell 262)
Kimball, V. G. 128 Eddy
(Office, Ithaca 1030-X, Residence, Ithaca 601)
*Kindelberger, C. L. R.F.D.2, Ithaca
(Ithaca 1122)
King, (Miss) A. 428 W. Seneca
(Office, Bell 171-B, Ithaca 1088, Residence 410-Y)
*King, D. W. 1018 N. Cayuga
*Kingsbury, B. F. 802 Univ. Ave
(W., F., 12, Stimson)
(Office, Ithaca 1022-X, Residence, Bell 584-B)
Kirk, R. R. 37 East Ave
(Bell 160-B)
Klinck, F. E. 202 College Ave
(Ithaca 635-X)
*Knettles, E. A. 710 Mitchell
Knight, A. T. 102 West Ave
(Bell 598, Ithaca 730-X)
Knight, (Miss) F. A. 522 N. Aurora
(Office, Bell 581, Ithaca 1121, Residence, Bell 301-B, Ithaca 381-C)
Knipfing, J. R. 124 Linden Ave
Knudson, L. 108 Brandon Pl
(Office, Ithaca 1113-Y, Residence, Ithaca 516)
Koenig, F. F. 3 Garden Ave
(Office, Ithaca 1034-F, Residence, Ithaca 332-X)
Koerner, W. E. 807 E. State

Kramm, H. E. 129 College Ave
(Office, Bell 549, Ithaca 1045, Residence, Ithaca 405-X)
*Kroger, F. H. 8 Osborn Blk
(Office, Bell 171, Ithaca 1055-X, Residence, Bell 450-K)
*Krum, W. G. 204 Univ. Ave.
(Office, Ithaca 1123, Residence, Ithaca 397-Y)
Lagerquist, W. E. 601 N. Tioga
*Lamoureaux, A. J. Forest Home
Lathrop, (Miss) C. R. 210 Eddy
(Ithaca 1113-X)
Lauman, G. N. 246 Casca. Pl
(T., W., Th., 11–12, Main Agr. 195)
*Law, J. The Circle
*Lawrence, L. A. 501 N. Tioga
(Ithaca 1037)
Learn, C. D. Forest Home
(Ithaca 1107)
Lee, M. A. 317 E. Buffalo
*Leighty, C. F. 501 Dryden Rd
(Office, Ithaca 1114-X, Residence, Ithaca 831-C)
Leland, E. W. 309 College Ave
(Office, Ithaca 1116, Residence, Ithaca 692-Y)
Leland, (Miss) L. 309 College Ave
(Ithaca 692-Y)
*Leland, O. M. 212 Casca. Pl
(T., F., 11, Lincoln)
(Office, Ithaca 1135, Residence, Ithaca 772-X)
Lemon, B. J. 209 Eddy
(Office, Ithaca 1073, Residence, Bell 13-B)
Livermore, J. R. Barnes Hall
(Ithaca 1110)
Livermore, K. C. Barnes Hall
(Office, Ithaca 1116-X, Residence, Ithaca 1110)
*Livingston, A. A. 126 Catherine
(T., 2–4, Goldwin Smith)
Lloyd, J. T. 6 Thurston Ave
(Office, Ithaca 1117-X, Residence, Ithaca 699)
Lohr, J. M. 134 College Ave
(Ithaca 695-X)
*Love, H. H. 102 Oxford
(W., F., 11–12, Plant Breed. Lab.)
(Office, Ithaca 1114-X, Residence, Ithaca 809.)
Lubin, H. 456 Casca. Pl
*Lucas, C. 129 Kline Rd
(Ithaca 207-F)
Luce, W. A. Forest Home
(Ithaca 1125)
*Lundell, G. E. F. Rockledge
(Office, Ithaca 1130-X, Residence, Ithaca 813-X)
*Lynch, T. 41 East Ave
(Ithaca 646-X)
*Lynham, F. A. 105 W. Yates
(Ithaca 42-G)
*Lyon, C. R. F. D. 2, Ithaca
(Ithaca 376-G)
*Lyon, T. L. 5 Reservoir Ave
(Office, Bell 582-B, Ithaca 1116, Residence, Bell 560-B)
*Lyon, W. S. Forest Home
(Ithaca 1123)
Lyons, (Miss) N. 612 E. State
(Office, Bell 171-B, Ithaca 1088, Residence, Ithaca 6-X)

McAllister, (Miss) A. 129 Dryden Rd
(Ithaca 1114)
*McAllister, F. 307 Eddy
(Office, Ithaca 1107, Residence, Ithaca 770-Y)
McCloskey, (Miss) A. G. 326 Casca. Pl
(Bell 581, Ithaca 1121)
McClure, H. 704 Stewart Ave
(Ithaca 1060-X)
McCool, M. M. 804 E. Seneca
(Office, Bell 582-B, Ithaca 1113-Y, Residence, Bell 321, Ithaca 579)
*McCracken, J. 766 S. Aurora
*McCurdy, J. C. Forest Home
(Ithaca 1037)
*MacGillivray, A. D. Agr. Coll.
(M., 2–4, Main Agr.)
(Office, Ithaca 1117-X, Residence, Ithaca 313-X)
*McGraime, W. 1 Garden Ave
(Office, Bell 64, Ithaca 1001, Residence, Ithaca 1090)
*McInerney, T. J. 114 Ferris Pl
(Ithaca 1115)
*Mack, H. 111 Ferris Pl.
(Office, Bell 64, Ithaca 1001, Residence, Bell 734-B)
*McKeegan, J. 118 Auburn
McKelvey, J. V. Forest Home
(Office, Bell 492-F, Ithaca 1050, Residence, Ithaca 91)
*McMahon, J. 7 Central Ave
(Daily 11 A.M., 3 P.M., White 12)
(Office, Bell 492-F, Ithaca 1050, Residence, Bell 12)
MacMillan, B. R. 220 Mechanic
(Bell 515)
*Macomber, G. S. Kelvin Pl.
(T., Th., S., 11, Franklin)

*Mann, A. R. 420 Dryden Rd
(Daily exc. S., 11–12:15, Main Agr. 122)
(Office, Ithaca 1125-X, Residence, Ithaca 568-C)
*Manning, A. R. F. D. 2, Ithaca
Markell, (Miss) L. M. 445 N. Tioga
(Ithaca 714-Y)
Marriott, (Miss) B. 915 E. State
(Office, Ithaca 1024-X, Residence, Ithaca 780-C)
Marsh, W. J. 302 College Ave.
(Ithaca 14-X)
Marshall, (Miss) G. L. 501 N. Cayuga
(Ithaca 1116-X)
*Martin, C. A. Edgecliff Way
(T., Th., F., 11–12:15, White 34)
(Office, Bell 574, Ithaca 1047, Residence, Bell 273)
Martin, (Mrs.) G. S. Cornell Hts
(Daily 9–1, Sage)
(Residence, Bell 273)
*Mason, J. F. Grey Court
(Office, Ithaca 1010, Residence, Ithaca 824)
Matheson, R. 804 E. Seneca
(Office, Ithaca 1117-X, Residence, Bell 321, Ithaca 579)
Matthews, R. 617 N. Cayuga
(Ithaca 1058)
Mayer, E. C. 108 Brandon Pl.
(Ithaca 516)
Mayes, N. W. 125 Linden Ave
(Office, Ithaca 1023-X, Residence, Ithaca 141)
*Merritt, E. 39 East Ave
(Office, Bell 171-B, Ithaca 1082-X, Residence, Bell 308)
*Merry, H. S. 221 Linn
(Bell 582, Ithaca 1115)
*Middaugh, B. R. F. D. 3, Ithaca
*Middaugh, H. W. R. F. D. 2, Forest Home
(Ithaca 1122)
Midjo, C. 92 Wait Ave
(Ithaca 1052)
Miles, E. J. 804 E. Seneca
(Bell 492-F, Ithaca 1050)
*Milks, H. J. 113 College Ave
(Office, Ithaca 1127-X, Residence, Ithaca 733-X)
Miller, C. F. 502 Dryden Rd
(Ithaca 456)
Miller, (Mrs.) G. E. 119 S. Cayuga
(Office, Ithaca 1112-X, Residence, Ithaca 571-X)
Miller, (Miss) M. 119 S. Cayuga
(Office, Ithaca 1112-X, Residence, Ithaca 571-X)
*Mills, A. P. 318 E. Seneca
(M., F., 11-12, Lincoln)
(Ithaca 385-Y)
*Minns, E. R. Garden Cott., Campus
(Office, Ithaca 1113-X, Residence, Ithaca 271)
Mitchell, J. F. 516 N. Tioga
(Bell 463-C)
Mix, (Miss) F. E. 308 N. Albany
(Office, Bell 532-B, Ithaca 1061, Residence, Bell 131-B)
*Molby, F. A. 921 E. State
(Bell 24-B)
*Moler, G. S. 408 Univ. Ave
(Office, Bell 171-B, Ithaca 1086-X, Residence, Ithaca 761)
Molitor, D. A. 711 E. Seneca
(M., T., F., 9-10, Lincoln)
(Office, Ithaca 1135, Residence, Ithaca 577)
*Monroe, B. S. 531 E. State
(Ithaca 723)
*Monroe, F. R. F. D. 2, Ithaca
*Moore, V. A. 914 E. State
(Daily 4-5, Vet. Coll. Office)
(Office, Bell 170, Ithaca 1031, Residence, Bell 107-B)
Mordoff, R. A. Barnes Hal
(Ithaca 1110)
Morey, C. F. 440 E. Buffalo
Morris, W. H. 128 Linn
*Munford, S. A. 317 College Ave
(Daily 11–1:15, 3–6, Gymnasium)
(Office, Bell 554, Ithaca 1093, Residence, Bell 473-B)
Murdock, C. C. 108 Cook
(Ithaca 445-X)
Murray, (Miss) M. T. 210 College Ave
(Ithaca 765-C)
*Myers, I. R. F. D. 2, Ithaca
(Ithaca 1111)

*Nash, A. E. 709 N. Cayuga
(Ithaca 1133)
*Needham, J. G. 6 Thurston Ave
(T., Th., 11–12, Main Agr.
(Office, Ithaca 1117-X, Residence, Ithaca 699)
Newhart, L. R. 220 Mechanic
(Bell 515)
Nichols, E. H. 219 Eddy
(Office, Ithaca 1130, Residence, Ithaca 626-X)
*Nichols, E. L. 5 South Ave
(Office, Bell 171-B, Ithaca 1088, Residence, Bell 374-B, Ithaca 347-X)
Nixon, (Miss) C. Wyckoff Lodge
(Office, Bell 581-F, Ithaca 1122-X, Residence, Ithaca 277-X)

*Norris, H. H. 103 College Ave
(M., Th., F., S., 9–10, Franklin)
(Office, Bell 171, Ithaca 1053-X, Residence, Bell 688-B)
Northrup, (Miss) E. 807 N. Cayuga
(Office, Ithaca 1112-X, Residence, Ithaca 53-Y)
*Norton, E. C. 210 N. Meadow
(Office, Ithaca 1115, Residence, Ithaca 663)
Nunez, V. 315 Eddy
(Ithaca 173)

O'Brien, J. C. 809 E. State
(Office, Bell 216-B, Ithaca 1005-X, Residence, Bell 497)
O'Connell, W. C. 107 College Pl
(Ithaca 808-X)
*Ogden, H. N. 614 Univ. Ave
(T., Th., 11–12, M., W., F., 12–12:30, Lincoln)
(Office, Bell 534-J, Ithaca 1038, Residence, Bell 158)
*Olmsted, E. W. 730 Univ. Ave
(Daily 2:30–3:30, Goldwin Smith)
(Office, Ithaca 1010, Residence, Ithaca 314-X)
Olmstead, L. I. Campus Fire House
(Office, Bell 582, Ithaca 1115, Residence, Ithaca 1123)
Orndorff, W. R. 108 Casca. Pl
(Daily exc. S., 10–11, Morse 7)
(Ithaca 1069)
*Owens, F. W. 37 West Ave
(Office, Bell 492-F, Ithaca 1050, Residence, Bell 774-B)

Palmer, E. L. 317 College Ave
(Office, Bell 541, Ithaca 1107-X, Residence, Bell 61-B)
*Parmley, H. M. 507 N. Aurora
*Parson, J. T. Cornell Hts
(T., Th., 11, Lincoln)
(Office, Ithaca 1039-X, Residence, Bell 607-B)
Peach, P. L. 708 E. Seneca
(Bell 323, Ithaca 579-Y)
*Peck, E. 207 Cobb
(Ithaca 1101-X)
Peck, (Miss) J. 209 Esty
(Office, Ithaca 1114, Residence, Ithaca 499-C)
Peek, F. A. 214 Eddy
*Perrine, I. 105 Cottage Pl
(Office, Bell 549, Ithaca 1045, Residence, Ithaca 594-X)
Pertsch, J. G. jr. 210 College Ave
(Office, Bell 171, Ithaca 1054, Residence, Ithaca 765-C)

*Phelps, A. C. Edgecliff Way
(M., W., F., 10–11, White 35)
(Office, Bell 574, Ithaca 1047, Residence Ithaca 699-Y)
*Phillips, E. L. 203 Linden Ave
(Office, Ithaca 1094, Residence, Ithaca 335-X)
Phillips, J. H. 5 East Ave
(Office, Ithaca 1113-C, Residence, Ithaca 271-X)
*Pierce, C. A. 317 Eddy
(Office, Ithaca 1085, Residence, Ithaca 173-Y)
Pierce, G. 112 W. Tompkins
Plummer, J. K. 308 Eddy
(Ithaca 151-X)
*Pond, M. A. Forest Home
(M., T., 10–11, Th., F., 12–1, Lincoln)
(Office, Ithaca 1040, Residence, Ithaca 578-G)
Poole, L. B. 622 Casca St
(Ithaca 1022-X)
*Pope, P. R. Cayuga Hts
(M., W., 11–12, Goldwin Smith 182)
(Office, Ithaca 1002-X, Residence, Ithaca 752)
Post, J. L. Vet. Exp. Station
Power, C. E. 150 Casca. Pl
*Powers, L. 949 E. State
Prall, E. W. 214 Eddy
*Prescott, F. C. 2 Grove Pl
(S., 9–11, Goldwin Smith 167)
(Office, Ithaca 1003-X, Residence, (Ithaca 648-X)
*Price, F. E. 203 College Ave
(Office, Ithaca 1049, Residence, Ithaca 666)
Price, (Miss) M. 302 College Ave
(Office, Ithaca 1112-X, Residence, Ithaca 666)
Pumpelly, L. 604 E. Buffalo
(Office, Ithaca 1010, Residence, Ithaca 72)
*Putnam, J. F. 309 Eddy

*Quirk, T. Meadow

*Race, G. W. 213 S. Cayuga
(Office, Ithaca 1065, Residence, Ithaca 233)
*Ranum, A. 91 Wait Ave
(T., Th., 10:30–11, White 11)
(Office, Bell 492-F, Ithaca 1050, Residence, Bell 789)
Rathbun, S. S. 302 College Ave
(Ithaca 14-X)
Rathjen, E. F. 220 Cobb

*Reddick, D. 223 Cornell St
(Office, Ithaca 1114, Residence, Ithaca 60-C)

*Redfield, H. W. 7 Reservior Ave
(Office, Ithaca 1072, Residence, Ithaca 337)

Reed, H. D. 108 Brandon Pl
(Daily 12-1, McGraw)
(Office, Ithaca 1044, Residence, Ithaca 516)

Reid, (Mrs.) E. M. 112 Utica
(Office, Ithaca 1119-C, Residence, Bell 234)

Reid, H. P. Barnes Hall
(Bell 561, Ithaca 1110)

*Renney, G. A. 507 S. Aurora
(Office, Ithaca 1112-X, Residence, Bell 428)

Renney, (Mrs.) G. A. 507 S. Aurora
(Office, Ithaca 1112-X, Residence, Bell 428)

Rettger, E. W. 120 Oak Ave
(T., Th., 9, Lincoln)
(Office, Ithaca 1039-X, Residence, Bell 621)

de Revere, A. W. 110 Osmun Pl

Rhodes, F. H. 502 Dryden Rd
(Ithaca 456)

Rice, F. E. 804 E. Seneca
(Ithaca 579)

*Rice, J. E. 92 Wait Ave
(Daily 12-1, Dairy Bldg.)
(Office, Bell 581-F, Ithaca 1122-X, Residence, Bell 277-Y)

Rich, J. L. 92 Wait Ave
(Office, Bell 549-F, Ithaca 1046-X, Residence, Ithaca 277-Y)

*Richtmyer, F. K. 108 Linden Ave
(Bell 318-B)

Riegger, H. E. 308 Stewart Ave
(Ithaca 833-C)

*Reis, H. 49 Thurston Ave
(Office, Bell 549-J, Ithaca 1129, Residence, Bell 341)

*Riley, H. W. 70 Thurston Ave
(W., F., 9:30-11:30, Agron. Bldg.)
(Office, Ithaca 1119-X, Residence, Bell 254)

*Riley, W. A. 107 Brandon Pl
(Daily exc. S., 11-12, Entom. Dept.)
(Office, Ithaca 1117-X, Residence, Ithaca 733)

Robb, B. B. 201 Casca Pl
(Ithaca 1119-X)

Rodgers, R. C. 6 South Ave
(Bell 209, Ithaca 347)

Rogers, C. A. Barnes Hall
(Office, Bell 581-F, Ithaca 1122-X, Residence, Ithaca 1110)

Rose, C. C. 111 Osmun Pl
(Bell, 349, Ithaca 307)

Rose, (Miss) F. 811 E. State
(Office, Ithaca 1118-X, Residence, Bell 497)

*Ross, H. E. 619 Dryden Rd
(T., 10-11, Dairy Bldg)
(Office, Bell, 582, Ithaca 1115, Residence, Ithaca 64-F)

Ross, (Miss) H. M. 310 Pleasant
(Office, Bell 472, Ithaca 1078, Residence, Ithaca 22-X)

*Rowlee, W. W. 11 East Ave
(Daily exc. S., 11:15-12:15, Bot. Dept.)
(Office, Bell 541, Ithaca 1107-X, Residence, Bell 15-B, Ithaca 45)

Ryder, V. C. 2 South Ave

*Sabine, G. H. 315 Dryden Rd
T., 10-11, F., 9-10, Goldwin Smith 224)
(Ithaca 1017-X)

Saby, R. S. 601 N. Tioga

Sampson, M. W. 808 E. Seneca
M., W., F., 10, T., Th., 11, Goldwin Smith 159)
(Office, Ithaca 1004, Residence, Bell 625)

*Sanders, G. 206 W. Railroad Ave

Sanford, (Miss) G. M. 110 Sears

*Savage, E. S. 22 Harvard Pl
(Bell 581-B, Ithaca 1100)

*Sawdon, W. M. 1018 E. State
(Office, Ithaca 1064-X, Residence, Ithaca 280-X)

*Schaeffer, J. P. 307 Stewart Ave
(M., F., 12-12:30, Stimson)

Schaub, E. L Oak Ave

Schoder, E. W. 2 Willard Ave
(Daily exc. S., 9-10,, Lincoln)
(Office, Bell 534, Ithaca 1041-X, Residence, Ithaca 622-Y)

†*Schurman, J. G. 41 East Ave
(Office, Bell 490, Ithaca 1077, Residence, Bell 76, Ithaca 339)

*Seaman, R. E. 201 E. Yates
Ithaca 745)

*Seery, F. J. Willard Ave
(M., W., F, 10-11, Lincoln)
(Ithaca 1039-X)

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†The President's Office (Morrill Hall, 2d door, middle entrance) is open every day from 9 A. M. to 4 P. M., excepting Saturday, when it is closed at 1 P. M.

Shannon, (Miss) M. M. 102 Washington
(Office, Bell 581-F, Ithaca 1122-X, Residence, Ithaca 615-X)
*Sharpe, F. R. 213 Mitchell
(Daily exc. S., 9-10, White 29)
(Office, Bell 492-F, Ithaca 1050, Residence, Ithaca 733-Y)
*Shearer, J. S. 608 E. Seneca
(Office, Bell 171-B, Ithaca 1082, Residence, Bell 183)
Shehan, T. 116 E. Green
Shephard, (Miss) R. L. 626 W. Green
(Office, Ithaca 1063-X, Residence, Ithaca 486-C)
Sherman, J. H. 427 E. Seneca
(Ithaca 27)
Sherwood, C. M. 301 College Ave
Shetterly, F. F. 205 Eddy
(Ithaca 1075)
*Shore, J. 5 Garden Ave
(Office, Ithaca 1109, Residence, Ithaca 650)
*Shore, R. 5 Garden Ave
(Office, Ithaca 1109, Residence, Ithaca 650)
Silke, P. 105 Esty
(Office, Ithaca 1131-X, Residence, Bell 769)
*Sill, H. A. 61 Waite Ave
(Daily 12, Goldwin Smith 239)
Ithaca 1015)
Silverman, L. L. Forest Home
(Office, Bell 492-F, Ithaca 1050, Residence, Ithaca 753-X)
*Simpson, S. 118 Eddy
(M., 1-2, Stimson)
(Office, Ithaca 1023-X, Residence, Ithaca 601-X)
Sloat, (Miss) E. B. 114 W. Seneca
(Ithaca 494-X)
Smith, A. H. 211 Eddy
*Smith, A. W. 15 East Ave
(Daily 10:30-11:30, Sibley)
(Office, Bell 532-B, Ithaca 1061, Residence, Bell 15)
*Smith, F. A. 406 E. Tompkins
(Ithaca 1115)
Smith, F. M.
Smith, H. E. 9 Barnes Hall
Smith, P. E. 502 Dryden Rd.
(Office, Ithaca 1022-X, Residence, Ithaca 456)
Smith, W. B. 110 Queen
(Ithaca 740-Y)
*Snyder, V. 214 Univ. Ave
(Daily exc. S., 11-12, White 26)
(Office, Bell 492-F, Ithaca 1050, Residence, Bell 571)
*Snyder, W. H. R. F. D. 3, Ithaca
Somerville, A. A. 804 E. Seneca
*Sprigg, E. 114 Queen
(Office, Ithaca 1080-C, Residence, Ithaca 309)
*Stagg, C. T. Cayuga Hts. Rd.
(Daily exc. S., 12, Boardman 5)
(Office, Ithaca 1026-X, Residence Ithaca 777-X)
Starr, (Mrs.) E. H. 312 N. Aurora
(Office, Bell 581-F, Ithaca 1122-X, Residence, Ithaca 689-X)
*Sterrett, J. R. S. 125 Goldwin Smith
(Daily 8-1, 2:30-4, Goldwin Smith 125)
(Ithaca 1007)
*Stevens, J. F. 502 N. Aurora
(Office, Ithaca 1065-X, Residence, Ithaca 297)
Stevens, J. G. 614 E. State
(Ithaca 6-C)
*Stevens, W. D. 206 Mechanic
(Office, Ithaca 1087, Residence, Ithaca 370-C)
Stevenson, J. A. 128 Eddy
(Ithaca 601)
Stewart, C. A. 804 E. Seneca
(Office, Bell 549, Ithaca 1045, Residence, Bell 321, Ithaca 579)
*Stocking, W. A. jr. 37 East Ave
(Daily 10-11, Dairy Bldg.)
Office, Bell 582, Ithaca 1115, Residence, Bell 160-B)
Stone, G. C. 17 Delaware Ave
(Ithaca 141-X)
*Stone, J. L. 91 Wait Ave
(Daily 11-12, Agron. Bldg. 168)
(Office, Bell 582-B, Ithaca 1113-X, Residence, Bell 616-B)
Stone, R. E. 130 Dryden Rd
(Office, Ithaca 1107, Residence, Bell 573-B)
Storrer, J. 416 E. Seneca
(Office, Bell 459, Ithaca 1045, Residence, Bell 38-B)
*Stout, J. C. 519 N. Aurora
Straus, W. R. 123 Dryden Rd
(Ithaca 677-X)
Strauss, (Miss) L. A. 615 E. State
(Office, Ithaca 1119-X, Residence, Ithaca 602)
*Strunk, W. jr. 107 Lake
(Daily exc. S., 10-11, Goldwin Smith 159)
Stryke, (Miss) A. M. Wyckoff Apts., Cornell Hts
(Office, Ithaca 1117-X, Residence, (Ithaca 756-X)

Stubbs, (Miss) M. A. 104 Utica
(Ithaca 1097)
Sunderville, E. 206 Casca. Pl
(Ithaca 772-X)
Sutherland, (Miss) H. Sage Pl
(Ithaca 86)
Sutherland, L. T. 138 Linden Ave
(Ithaca 190-X)
*Sweet, C. H. 429 N. Tioga
Sweet, (Mrs.) L. Forest Home
(Ithaca 1118-X)

*Tailby, G. W. 9 Reservoir Ave
(Ithaca 1101)
Tailby, G. W. jr. 9 Reservoir Ave
(Office, Ithaca 1100, Residence Ithaca 1101)
Tallmadge, (Miss) C. M. 123 Linn
(Office, Bell 563, Ithaca 1068-X)
*Tanner, J. H. 31 Thurston Ave
(Daily exc. S., 8:30-9, 11-12:30, White 29)
(Office, Bell 492, Ithaca 1049-X, Residence, Bell 607)
Tappan, F. G. 122 Falls
(Office, Bell 171, Ithaca 1055-X, Residence, Ithaca 444-Y)
*Tarr, R. S. 1 East Ave
(M., W., 10, McGraw)
(Office, Bell 549-F, Ithaca 1046-X, Residence, Bell 421, Ithaca 819)
Taylor, E H. 110 Osmun Pl
(Bell 279)
*Taylor, G. Forest Home
(Ithaca 91-G)
*Taylor, H. O. 115 Stewart Ave
(Ithaca 771-X)
Teeter, H. W. Campus Fire Hse
(Ithaca 1123)
Terenzio, J. 304 Rockefeller
*Terpenning, H. A. R. F. D. 1, Ithaca
Terry, (Miss) C. M. 118 W. Buffalo
(Office, Bell 490, Ithaca 1077, Residence, Bell 664-B)
Thiele, C. M. 102 West Ave
(Bell 598, Ithaca 730-X)
*Thilly, F. 9 East Ave
(M., 10, W., F., 12, Goldwin Smith 228)
(Office, Ithaca, 1014-X, Residence, Bell 296-B)
Thomas, V. P. 519 State
(Ithaca 723-X)
Thompson, G. R. 214 Univ. Ave
(Office, Bell 574, Ithaca 1070, Residence, Bell 571)
Thompson, P. W. 708 E. Seneca
(Ithaca 579-Y)
Thornburg, (Miss) J. 113 Stewart Ave
(Office, Ithaca 1097, Residence, Bell 272)
*Titchener, E. B. Cornell Hts
*Tobey, G. N. 308 Linn
(Ithaca 1115)
Torrance, C. E. 105 Hudson
Tower, C. H. 103 Quarry
(Office, Bell 171, Ithaca 1053-X, Residence, Bell 631-B)
Townsend, C. E. 208 Farm
(Bell 565-B, Ithaca 407-X)
Trask, R. B. Poultry Bldg.
(Ithaca 1123)
*Tree, E. 1011 N. Aurora
(Ithaca 1035)
Tree, T. 1001 N. Aurora
(Office, Bell 64, Ithaca 1001, Residence, Ithaca 795-X)
*Troy, H. C. 305 Oak Ave
(Office, Ithaca 1115, Residence, Ithaca 781-X)
*Tryon, T. D. 803 N. Tioga
Tuck, C. H. Barnes Hall
(M., T., 3-5:30, Main Agr. 164)
(Office, Bell 581, Ithaca 1121, Residence, Bell 561, Ithaca 1110)
*Turner, J. R. 611 N. Tioga
*Turner, K. B. 125 Quarry
(M., W., F., 10-11, Lincoln)
(Office, Ithaca 1039-X, Residence, Ithaca 764)
Tuthill, (Miss) A. J. 110 S. Plain
*Tyler, C. M. The Oaks

*Udall, D. H. 106 Brandon Pl
(Daily exc. S., 9 Vet. Coll.)
Ulbricht, T. C. 426 E. Buffalo
(Ithaca 683-X)
Ulrich, L. J. 502 Dryden Rd
(Ithaca 456)
Underwood, P. H. 312 College Ave
(Office, Ithaca 1037, Residence, Bell 473)
Upton, G. B. 11 Central Ave
(Ithaca 1064-X)
Usher, A. P. 110 Highland Pl
(Bell 376)
Utter, (Miss) L. L. 317 S. Aurora
(Ithaca 231-X)

*Van Auken, C. H. 262 Casca. Pl
Van Auken, C. J. Casca. Pl
Van Auken, (Mrs.) L. M. 262 Cascadilla Pl
(Bell 582, Ithaca 1115)
*Vanderhoef, J. E. 705 N. Aurora

Vanderhoef, (Miss) L. 219 Linden Ave
(Ithaca 77)
Van Natten, (Miss) C. A. 108 W. Yates
Van Order, R. M. 108 Utica
(Bell 64, Ithaca 1001)
Van Rensselaer, (Miss) M. 811 E. State
(Office, Ithaca 1118, Residence, Bell 497)
*VanZoil, A. R. 56 Dryden Rd.
(Office, Ithaca 1117-X, Residence, Ithaca 456-X)
Verwiebe, W. A. 101 Casca. Pl
*Von Engeln, O. D. 416 Eddy
(Office, Bell 549-F, Ithaca 1046-X, Residence, Bell 133)

*Wait, L. A Rockledge
*Walker, C. L. 218 Univ. Ave
(T., Th., F., 12, Lincoln)
Walker, L. V. 2 South Ave
(Ithaca 346-X)
*Warren, G. F. Forest Home
(M., W., F., 11–12:30, Agron. 202)
(Office, Ithaca 1116-X, Residence, Bell 531-W, Ithaca 378-X)
Warren, (Miss) K. 122 Spencer Pl
(Ithaca 1118-X)
Watson, M. R. 110 Osmun Pl
Watt, C. M. 205 Linden Ave
Weaver, H. E. 717 E. Buffalo
(Office, Bell 472, Ithaca 1078, Residence, Bell 321-B)
*Webber, H. J. 817 E. State
(Daily, 10–12, Agronomy 301)
(Office, Ithaca 1114-X, Residence, Bell 392-B)
*Wells, A. E. 105 Valentine Pl
(Office, Ithaca 1056, Residence, Bell 407-B)
Welsh, T. W. B. 111 Osmun Pl
(Office, Ithaca 1073-X, Residence, Bell 349, Ithaca 307)
*Westcott, G. N. Lansing
Wheeler, (Miss) F. A. 326 Casca. Pl
(Ithaca 1121)
Wheeler, J. A. 709 E. State
(M., W., F., 10, Sibley 28)
(Ithaca 1060-X)
*Wheeler, R. H. Forest Home
(Bell 581, Ithaca 1121)
*Whetzel, H. H. Forest Home Drive
(Office, Ithaca 1114, Residence, Ithaca 91-C)
*Whipple, G. M. Overlook Rd., Cornell Hts.
(M , W., 4, Goldwin Smith 248)
(Office, Ithaca 1013-X, Residence, Ithaca 752-C)
*White, A C. 424 Dryden Rd
(Ithaca 1097)
White, G. R. 804 E. Seneca
(Office, Ithaca 1074)
White, (Miss) L. 105 E. Tompkins
(Ithaca 1113-Y)
*White, P. J. Forest Home
(Daily exc. S., 11–12, Agron. Bldg.)
(Office, Ithaca 1116-X, Residence, Ithaca 91-Y)
White, W. B, 129 Linden Ave
(Office, Ithaca 1115, Residence, Ithaca 185-Y)
*Wigley, W. R. 111 Catherine
Wilder, (Miss) B. 208 Quarry
(Ithaca 1097)
*Wilder, B. G. 60 Casca. Pl
*Willcox, W. F. 3 South Ave
(T., W., Th., 10–10:30 Goldwin Smith 257)
(Office, Bell 534-B, Ithaca 1012-X), Residence, Bell 111, Ithaca 648-X)
*Williams, E. L. 608 E. State
(Office, Bell 64, Ithaca 1001, Residence, Bell 524, Ithaca 484)
*Williams, H. S. Highland Ave
(Office, Bell 549, Ithaca 1045, Residence, Bell 736)
*Williams, J. T. 102 Casca. Pl
(Daily, 12-1, Sibley)
(Office, Bell 580, Residence, Bell 809)
*Williams, W. L. 115 Valentine Pl
(Daily exc. S., 2, Vet. Coll.)
(Office, Ithaca 1034-C, Residence, Bell 107)
Willsey, J. F. R. F. D., 3, Ithaca
*Willsey, Judson R. F. D., 3, Ithaca
*Wilson, C. S. Forest Home Drive
(Daily exc. S., 12–12:30, Main Agr. 271)
(Office, Ithaca 1119-C, Residence, Ithaca 313-C)
Wilson, E. C. 110 Osmun Pl
Wilson, L. A. 708 E. Seneca
(Ithaca 579-Y)
*Wilson, W. M. 212 Univ. Ave
(Daily 9–12, Main Agr. 442)
(Bell 295. Ithaca 302)
*Winans, J. A. Cornell Hts
(T., Th., 12, Goldwin Smith)
(Office, Bell 534-F, Ithaca 1007-X, Residence, Bell 697-B)

Wing, (Miss) L. W. 3 Reservoir Ave
(Office, Bell 582, Ithaca 1115, Residence, Bell 160)
*Wing, H. H. 3 Reservoir Ave
(M., W., F., 10, Anim. Hus. Bld.)
(Office, Bell 581-B, Ithaca 1100, Residence, Bell 160)
Wing, S. R. 208 Dryden Rd
Wolcott, T. East Ithaca
(Ithaca 1111-C)
Wolf, F. A. Forest Home
(Ithaca 1107)
*Wood, E. H. 406 W. Mill
(Daily exc. S., 10, Sibley 23)
(Office, Ithaca 1060-X, Residence, Ithaca 424-Y)
Woodruff, E. H. 401 N. Aurora
(Daily exc. S., 12, Boardman 9)
(Office, Ithaca 1025, Residence, Ithaca 209-X)
Work, P. 310 College Ave
(Office, Ithaca 1119, Residence, Ithaca 62-C)
*Wright, A. H. 115 Stewart Ave
(Office, Ithaca 1044, Residence Ithaca 348-X)
*Young, C. V. P. 112 Lake St
(11–12:30, Gymnasium)
(Office, Bell 554, Ithaca 1093, Residence, Bell 663-B)
*Young, G., jr. 224 Casca. Pl
(Office, Bell 574, Ithaca 1047, Residence, Bell 552-B)
Young, (Mrs.) H. B. Casca. Pl
(Ithaca 1118-X)
Yount, A. S. 502 Dryden Rd
(Ithaca 456)
van Zandt, (Miss) F. B. 140 Casca. Pl
Zinnecker, W. D. 130 Casca. Pl
(Ithaca 1002-X)

STUDENTS.

Telephone numbers are given in parenthesis below the name.

Aaron, H., Jr. Jr. L 210 Dryden Rd
(Ithaca 591-C)
Abbott, C. S. 2 M 704 E. State
Abbott, F. F. 1 M 201 Prospect
Abell, L. H. 1 A 110 Osmun Pl
Abell, M. F. 1 Ag 36 Thurston Ave
Ace, L. S. 2 Ag 319 College Ave
(Ithaca 491-Y)
Acer, V. A. 1 Ag 121 Quarry
Acheson, A. M. 1 A
Ackerly, R. S. 2 M 125 Highland Pl
(Bell 762-W)
Ackhart, A. L. 4 C 122 Catherine
(Ithaca 402-Y)
Adams, (Miss) E. H. 2 A 422 Eddy
Adams, F. A. 1 M 709 E. State
Adams, F. E. 1 A Sheldon Ct
Adams, N. F. Sp Ag
Adams, L. V. 4 A 319 Dryden Rd
(Ithaca 742-C)
Adams, R. M. 1 L 15 South Ave
(Bell 533, Ithaca 195-X)
Adams, W. F. 2 A 315 Eddy
Addicks, F. F. 2 M 212 Stewart Ave
(Ithaca 580)
Addicks, W. E. 1 M 212 Stewart Ave
(Ithaca 580)
Addington, B. 2 A 105 Highland
Addington, J. C. 2 A 105 Highland Pl
Adee, C. A. 2 C 107 College Pl
(Ithaca 808-X)
Adler, I. 4 A 215 Dryden Rd
(Ithaca 832-X)
Adler, S. 4 A 124 Catherine
Agard, (Miss) E. 1 A 319 Dryden Rd
(Ithaca 142-C)
Aherne, (Miss) M. W. 1 Ag
(Ithaca 578-C) 109 Ellston Pl
Aime, F. L. 4 M 123 Highland Ave
(Bell 572-R)
Ainsworth, O. M. 1 Ag Forest Home
Aitchison, W. M. 4 C 119 Stewart Ave
(Bell 386, Ithaca 617-X)
Alberger, (Miss) A. L. 1 A 523 E. State
(Bell 137-B, Ithaca 49)
Albert, V. A. 1 L 110 Cook
Albin, E. H., Jr. 3 A 319 E. Mill
Albright, C. D. Jr L 102 West Ave
(Bell 598, Ithaca 730-X)
Alden, V. D. 2 Ar. 238 Linden Ave
(Bell 243)
Aldredge, H. R. 2 M 306 Stewart Ave
Alderman, (Miss) E. E. 1 Ag Sage
Aldredge, S. R. 2 A 306 Stewart Ave
Aldridge, F. W. 1 A 201 Prospect
Alexander, C. P. 2 Ag 215 Dryden Rd
(Ithaca 832-X)
Alexander, D. 1 M Willard Ave
(Ithaca 806)
Alexander, J. S. Sp Agr 214 Columbia
(Ithaca 595-Y)
Alger, H. B. 1 Ag 209 College Ave

Alig, C. O. 1 A 519 Stewart Ave
Alleman, D. 1 Ag 125 Quarry
Allen, A. A. G 115 Stewart Ave
Allen, D. B. 2 V 327 Eddy
Allen, E. R. G 112 Stewart Ave
Allen, G. J. 2 C Casca
Allen, H. R. Sp Ar 311 College Ave (Ithaca 481-X, Bell 658)
Allen, H. B. 1 Ag 115 Stewart Ave
Allen, L. A. 2 C 110 Edgemoor Lane (Bell 42-B, Ithaca 330-X)
Allen, L. B. 2 M 125 Edgemoor Lane
Allen, (Mrs.) M. W. Sp Agr 418 S. Geneva
Allen, M. A. 1 C 203 College Pl South (Bell 355)
Allen, R. 2 M 444 Casca Bldg
Allen, R. W. 2 M 526 Stewart Ave (Ithaca 183-C)
Alley, (Miss) C. M. 2 A Sage (Bell 92)
Alley, H. J. 1 C 118 Ferris Pl
Allington, J. B. 1 M 408 Stewart Ave
Allison, P. W. 4 M 502 Dryden Rd (Ithaca 456)
Allport, H. H. 3 M 1½ Central Ave (Bell 268, Ithaca 230)
Allwork, R. R. 1 M 206 College Pl (Ithaca 255-C)
Alonso, J. 3 M 128 Dryden Rd (Bell 615, Ithaca 641)
Ames, (Miss) A. S. G Sage (Bell 92, Ithaca 1139-X)
Ames, (Miss) R. P. 2 A Sage
Amidon, E. B. 2 C 104 Utica
Ancarrow, R. C. 1 M 109 Williams (Ithaca 435-C)
Anderson, A. A. G 217 West Ave (Bell 753, Ithaca 815)
Anderson, J. K. 3 C 710 Thurston (Bell 175, Ithaca 817)
Anderson, P. J. G Agr Coll
Anderson, R. P. G 123 Linn (Ithaca 109)
Anderson, W. G 709 E. State
Anderson, W. C. 1 A 706 Buffalo
Anderson, W. F. 1 M 702 Univ Ave
Anderson, W. H. 4 M 105 Highland Pl (Bell 320, Ithaca 435-C)
Andrews, G. C. Jr. 1 L 15 South Ave (Bell 533, Ithaca 195-X)
Andrews, G. G. 2 A 625 Univ. Ave (Bell 109, Ithaca 338-X)
Andrews, H. S. 1 A 408 Hector (Bell 922-X)
Andrews, J. C. G 114 Stewart Ave (Ithaca 576-X)
Andrews, R. H. 4 M 807 E. State
Andrews, S. W. 1 M 119 Stewart (Ithaca 617-X, Bell 386)
Andrus, C. 3 C 102 West Ave (Bell 598, Ithaca 730-X)
Andrus, (Miss) E. F. 1A 506 E. Seneca
Andux, M. J. 1 A 301 Dryden Rd (Ithaca 769- Y)
Antell, T. 2 C 105 Highland Pl (Bell 302)
Anthony, R. D. G 107 Williams (Ithaca 622-C)
Argetsinger, L. W. jr. 2 A 309 Eddy (Ithaca 70-X)
Armas, J. L. 1 M 215 Dryden Rd
Armendariz, A. G. 4 M 74 Thurston Ave (Bell 213, Ithaca 201)
Arms, N. T. 3 M 508 Edgewood Pl
Armstrong, B. F. 1 M 217 West Ave
Armstrong, C. R. 2 Ar 625 Univ. Ave (Bell 109, Ithaca 338-X)
Armstrong, D. 1 A 110 Osmun Pl (Ithaca 579)
Armstrong, G. H. 4M 106 Highland Pl
Armstrong, L. C. 2 Ag 202 Williams (Ithaca 744-X)
Arnold, H. W. 2 M 132 Blair
Aschaffenburg, E. L. 2 M 109 Summit Ave (Ithaca 203)
Asen, I. 1 Ag 209 College Ave
Ash, G. 1 M 1 Garden Ave (Ithaca 1090)
Ashlin, (Miss) M. J. 1 A Varna
Ashman, R. I. 2 A 132 Blair
Ashmead, E. W. 4 M 515 Stewart Ave (Bell 198, Ithaca 330)
Ashton, G. T. 2 A Cayuga Hts
Ashton, H. 4 A Cayuga Hts (Bell 181, Ithaca 752-Y)
Atkinson, F. K. 3 M Casca. Bldg
Atkinson, J. 2 M 107 Cook (Ithaca 445)
Atkisson, E. J. 4 M 107 Cook (Ithaca 445)
Attride, G. R. 1 Ag 209 College Ave
Atwater, H. A. 2 M 201 Dryden Rd (Ithaca 379)
Atwood, E. H. 4 M 702 E. Buffalo (Ithaca 581-X)
Auchter, E. C. 3 Ag 32 Thurston Ave (Bell 213-B, Ithaca 277)
Auerbach, F. S. 3 A 63 Sheldon Ct
Auld, R. J. 1 C 123 Quarry
Aull, R. H. 1 Ag 608 E. Buffalo
Austin, B. H. 2 Ag Casca. School
Austin, H. A. R. 2 C 113 Dryden Rd
Austin, (Miss) M. L. 2 A 213 College Ave (Ithaca 765)

Austin, R. W. 2 C 712 Thurston Ave (Bell 669-W, Ithaca 823)
d'Autremont, H. H. Sr L 103 McGraw Pl (Bell 559, Ithaca 226)
Averill, W. C. jr. 2M 777 Stewart Ave (Bell 176, Ithaca 250-X)
Avery, A. T. 1 M 304 College Ave (Ithaca 625)
Avery, (Miss) M. S. 2 Ag Sage (Bell 92, Ithaca 1106-X)
Axtell, H. A. 4 C 208 Williams (Bell 572-B)
Ayer, S. H. jr. 1 A 109 Cook
Ayres, H. D. G 107 Brandon
Ayres, (Mrs.) M. F. G 107 Brandon

Babcock, H. O. 1 L 110 Cook
Babcock, M. L. 1 C 523 E. Buffalo (Ithaca 613-X)
Bache, F. S. 2 A 16 Casc. Park (Ithaca 183-Y)
Backus, F. C. Sp Ar
Bacon, C. A. 1 Ag Forest Home
Bacon, E. 3 C 702 E. Buffalo (Ithaca 581-X)
Bacon, J. H. 1 A
Bade, H. A. Jr L 110 Edgemoor
Bade, H. F. 1 M 2 South Ave
Badertscher, J. A. G 120 Mill
Badger, (Miss) C. 1 Ag 230 Pleasant (Bell 428-B)
Baehr, N. 3 M 202 College Ave (Ithaca 635-X)
Bahringer, (Miss) J. R. 2 A Sage
Bailey, (Miss) B. 2 A Sage
Bailey, F. B. 2 A 2 South Ave (Ithaca 346-X)
Bailey, J. S. 1 C 210 Linden Ave
Baker, C. S. 4 A 13 South Ave (Bell 419, Ithaca 196)
Baker, (Miss) D. 3 Ag Forest Home
Baker, E. D. Sp Ag 224 Linden Ave (Ithaca 242-C)
Baker, E. H., jr. 2 M 13 South Ave (Bell 419, Ithaca 196)
Baker, L. D. F. 1 Ag Sheldon Ct
Baker, R. K. 2 A 13 South Ave (Bell 419, Ithaca 196)
Baker, T. A. Sp Ag 110 S. Geneva
Baker, W. L. 1 L 505 Univ. Ave
Baldinger, H. E. 1 Ag 116 Ferris Pl
Baldwin, A. W. 3 M 220 Eddy (Bell 115)
Ball E. F. 1 C 109 Cook
Ball, W. B. 2 M 103 McGraw Pl
Ballantyne, W. C. 3 M 203 Williams
Ballard, W. C., jr. G 110 Washington (Ithaca 523-Y)
Ballentine, (Miss) E. F. 4 A Sage (Bell 92, Ithaca 1132)
Ballou, C. H. 1 Ag 109 Cooper (Ithaca 491)
Balsley, J. R. 1 M 318 Stewart Ave
Bame. C. 2 Ag 121 College Ave (Bell 556-W, Ithaca 456-W)
Bangs, H. R. 1 M 527 E. Buffalo (Ithaca 126-B)
Banks, (Miss) E. 1 Ag 420 E. State (Ithaca 316)
Banks, (Miss) L. 2 A 420 E. State (Ithaca 316)
Banks, R. S. 3 V 123 Catherine (Ithaca 402)
Banks, R. E. 2 Ag 603 E. Seneca
Banning, G. W. 2 Ag The Knoll (Ithaca 776)
Bannister, A. E. 2 M 2 Central Ave
Barber, L. G. Sp Ag 319 College Ave
Barbour, A. W. 2 C 516 Stewart Ave (Bell 320-B)
Barbour, M. R. 1 M 516 Univer. Ave
Bard, C. M. 1 M 304 College Ave
Bardenheuer, (Miss) C. E. Sp A Cornell Heights
Bardo, B. F. 2 M 110 Cook
Barker, C. W. 2 Ag 58 Thurston Ave
Barker, E. B. Sp Ag 132 Blair
Barker, E. E. G 109 Orchard Pl (Bell 466)
Barker, H. E. 1 V 209 College Ave
Barker, J. C. 2 M 15 South Ave (Bell 533, Ithaca 195-X)
Barlow, F. G. 2 M 133 Linden Ave
Barlow, (Miss) M. E. 2 A Sage
Barnard, W. H., Jr. 2 C 121 College
Barnes, G. H. 1 C 105 Dewitt Pl (Ithaca 612)
Barnes, (Miss) H. M. 2 Ag 105 Catherine (Ithaca 770)
Barnes, M. V. 1 Ag 112 Ferris Pl (Ithaca 3-Y)
Barnhart, P. J. 1 A 315 Eddy (Ithaca 173)
Barnholt, (Miss) S. E. 4 A Sage (Ithaca 1132-X)
Barnum, G. S. 4 A 304 College Ave (Ithaca 625)
Baron, E. V. G 119 Eddy (Bell 496-B)
Barr, D. P. 2 A 101 Pleasant (Bell 740)
Barr, J. H., Jr. 2 M 1 Central Ave
Barrett, C. G. 1 M 16 Casca. Park (Ithaca 183-Y)
Barrett, J. A. 2 Ar 207 Williams
Barrios, M. J. 1 C 127 Dryden Rd

Barron, (Miss) O. V. Sp Ag
Barrus, M. F. G 213 Cornell
Barss, A. F. 3 Ag 427 E. Seneca (Ithaca 27)
Barstow, (Miss) M. L. 2 A 138 Giles (Ithaca 594-C)
Barton, A. L. G 120 Oak Ave
Barton, P. B. 1 Ag 201 Dryden Rd (Ithaca 379)
Baseley, A. W. 2 C 124 Catherine (Ithaca 834)
Bassett, C. K. 1 M 638 Stewart Ave
Bassett, W. F. 1 A 638 Stewart Ave
Bassman, (Miss) M. 1 Ag 212 Univ. Ave
Bassman, U. S. 2 Ag 430 Casca. Bldg
Bate, H. C. Jr. 3 A 526 Stewart Ave (Ithaca 183-C)
Bateman, J. B. Jr. Jr L Hill Crest (Bell 623, Ithaca 686)
Bates, A. K. 4 A 232 S. Geneva (Ithaca 341-Y)
Bates, C. A. 2 C 408 Stewart Ave
Bates, E. S. 2 Ag 232 S. Geneva (Ithaca 341-Y)
Bates, (Miss) N. H. 2 A Absent (Ithaca 341-Y)
Bates, S. F. 4 A 614 E. Buffalo (Ithaca 581-Y)
Bates, W. O. 2 M 415 Stewart Ave (Bell 270, Ithaca 307-X)
Batista y Mendoza, J. 1 M 210 Col. Ave (Ithaca 765-C)
Bauder, H. D. 1 Ag 204 Univer. Ave (Ithaca 397-Y)
Bauer, C. F. 2 C 124 Catherine (Ithaca 834)
Bauer, F. R. 1 Ag Barnes Hall
Baugher, W. H. 1 C 408 Stewart Ave
Baxter, H. N. 2 M 411 Dryden Rd (Ithaca 255-X)
Bayer, (Miss) R. H. 1 A Sage
Beach, J. R. 1 V 125 Farm (Ithaca 406)
Beach, R. C. 1 Ag 104 Utica
Beagle, N. R. 3 A 452 Casca. Pl
Beahm, R. B. 2d 2 M 710 Thurston Ave (Bell 175, Ithaca 817)
Beakes, H. L. 3 A 636 Stewart Ave (Ithaca 782)
Beal, A. C. G 112 Valentine Pl
Beale, A. W. 2 C 241 Linden Ave (Ithaca 769-Y)
Beamensderfer, J. S. 4 M 418 Cas. Bldg
Beard, (Miss) M. A. 2 A Sage (Bell 92, Ithaca 1139-X)
Beardsley, D. P. 2 A 1 Central Ave (Bell 373)
Beardsley, M. F. 1 M 122 Eddy
Beattie, S. M. 3 M 625 Univ. Ave (Bell 109, Ithaca (338-X)
Beatty, A. S. 4 Ag 713 E. State
Bechel, C. H. 1 A 132 College Ave (Ithaca 405-C)
Beck, (Miss) E. L. G Sage Cottage
Becker, (Miss) E. G. 1 Ag 111 Oak Ave
Becker, (Miss) M. M. 2 A Sage
Becker, (Miss) S. M. 2 A Sage (Bell 92)
Becker, W. D. 1 M 15 South Ave
Beckmann, C. T. 1 C 109 Williams (Ithaca 435-C)
Beckwith, E. A. Sp Ag 307 Willow Ave (Ithaca 373-X)
Beebe, E. V. 2 A 211 Williams (Bell 361-B)
Behrens, C. N. 3 M 302 College Ave (Ithaca 14-X)
Behrens, H. R. 3 M 302 College Ave (Ithaca 14-X)
Beilby, S. G. 1 Ag 303 College Ave
Beitz, W. E. 3 C 121 Quarry
Belcher, E. S. 2 M 103 McGraw Pl (Bell 559, Ithaca 226)
Belden, G. A. 3 C 807 E. State
Bell, A. K. 1 Ar 415 Stewart Ave (Bell 572-B, Ithaca 307-X)
Bell, C. A. 2 Ag 211 Williams (Bell 361-B)
Bell, F. W. 2 Ag 32 Thurston Ave (Bell 213-B, Ithaca 277)
Bell, G. B Jr. 2 A 1 Central Ave (Bell 373)
Bellinger, E. W. 4 M 201 Oak Ave (Ithaca 61)
Bellis, H. F. 4 M 234 Linden Ave (Ithaca 255-Y)
Bender, J. C. 1 Ag 209 College Ave
Benitez, L. Jr. 2 M 325 Dryden Rd (Ithaca 808)
Benjamin, (Miss) B. 2 A Sage
Benjamin, E. W. 3 Ag 403 College Ave (Ithaca 691)
Bennett, C. D. 1 Ag. Fall Ck. Dri.
Bennett, C. C. Sp Ag 101 Casca Pl
Bennett, C. E. G 411 College Ave (Ithaca 452-Y)
Bennett, C. W. G Filter Plant (Ithaca 1100-X)
Bennett, (Miss) G. L. 2 Ag Cornell Hts (Bell 763, Ithaca 354-C)
Bennett, H. S. 2 A Grove Pl (Bell 724)
Bennett, J. E. 4 A 110 Edgemoor (Bell 42-F)
Bennett, W. A. 2 M 125 Highland Pl (Bell 762-W, Ithaca 75)
Bennett, W. H. 2 A 110 Edgemoor

Benson, L. J. 1 Ag 405 Dryden Rd
Bent, R. W 1 C 105 Quarry (Ithaca 764-X)
Bentley, G. E. 3 Ag 427 E. Seneca (Ithaca 27)
Benton, H. F. 2 Ag 75-A Sheldon Ct
Berger, J. A. 3 A 129 College Ave (Ithaca 405-X)
Berger, (Miss) M. G Sage
Berger, S. L. 1 A 226 Eddy
Berger, W. R. 3 A 129 College Ave (Ithaca 405-X)
Berkman, P. M. 1 Ag 119 College Ave
Berna, T. S. 3 M 140 Giles (Bell 348)
Bernays, E. L. 3 Ag 113 Oak Av (Bell 329, Ithaca 737)
Bernero, F. A. 1 A
Berry, (Miss) A. E. 4 A 717 E. Buffalo (Bell 321-B)
Berry, C. H. 3 M 128 Linn (Ithaca 397-C)
Berry, H. V. 1 C 102 West Ave (Bell 598, Ithaca 730-X)
Berry, J. T. 4 A 519 Stewart Ave (Bell 396, Ithaca 264-X)
Bertel, H. 2 A 710 Thurston Ave (Bell 175, Ithaca 187)
Besemer, A. M. 2 Ag 328 Pleasant
Best, F. H. 4 M The Knoll (Ithaca 776)
Best, G. H. 2 M 123 Quarry
Best, J. H. Jr. 2 C 210 Williams
Betts, B. F. 2 Ar 211 Eddy (Ithaca 770-X)
Beyerl, W. K. 2 M 503 College Ave (Ithaca 691)
Bidwell, C. C. G Cascadilla Pl
Bierma, A. G. G 116 Ferris Pl
Bierma, C. A. 2 M 116 Ferris Pl
Biersach, G. A. 1 M 217 West Ave
Bigler, H. F. Jr. 2 A 777 Stewart Ave (Bell 176, Ithaca 250-X)
Bilder, W. J. 1 A 210 Dryden Rd
Billings, E. B. 1 M 915 State
Bills, F. P. 1 A 528 Stewart Ave
Bintz, C. C. 3 L 503 E. Buffalo (Bell 350, Ithaca 671)
Birch, R. R. 2 V 101 Eddy (Ithaca 658)
Bircholdt, (Miss) H. N. 4 A Sage
Birckhead, L. B. 2 M 5 Central Ave (Bell 209, Ithaca 347)
Bird, E. S. 1 Ag Cayuga Heights (Bell 269-B)
Bird, F. H. 4 M 5 Central Ave (Bell 209, Ithaca 347)
Birkhahn, G. B. 4 Ag 460 Casca. Bldg (Ithaca 75-X)
Birnbaum, M. 2 C 715 E. State (Ithaca 599)
Birs, W. M. 1 L Y. M. C. A.
Bishop, E. G. 1 Ag 614 E. Buffalo (Ithaca 581-Y)
Bishop, J. C. 2 M 102 West Ave (Bell 598, Ithaca 730-X)
Bishop, M. G. 1 A 614 E. Buffalo
Bishop, S. C. Sp Ag
Bishop, T. N. 1 M 15 South Ave Bell 533, Ithaca 195-X)
Bisnett, C. W. 1 Ar 116 Cook
Bissinger, G. H. 2 Ag 202 Stewart Ave (Bell 386-W, Ithaca 710)
Bixby, R. E. 1 L 518 Stewart Ave (Bell 754)
Black, F. F. Sp Ag 302 Mitchell
Black, H. M. 4 A 112 Edgemoor Ave (Bell 345, Ithaca 97)
Blackmore, D. P. 4 A 125 Dryden Rd (Ithaca 90)
Blackwell, H. 3 M 127 Eddy (Bell 384-B)
Blair, J. S. 2 C 103 McGraw Pl
Blake, C. G. 1 M 401 Dryden Rd
Blakslee, C. F. 1 M 618 Stewart Ave
Blakslee, W. D. 1 A 127 College Ave
Blanco, M. H. 1 C Cornell Heights
Blank, B. 1 M 109 Williams
Blank, H. M. 2 A 215 Dryden Rd (Ithaca 832-X)
Blanton, S. G 7 Reservoir Ave (Ithaca 337)
Blickman, S. 4 C 119 College Ave (Ithaca 636-X)
Blinn, E. R. 3 M 103 Highland Pl (Ithaca 435)
Blinn, T. W. 3 C 103 Highland Pl (Ithaca 435)
Bliss, C. R. 4 C 116 Osmun Pl (Ithaca 623)
Bliss, F. W. 2 A 214 Eddy (Ithaca 626)
Bloch, B. C. 3 Ar 204 College Ave (Bell 487-J)
Block, A. I. 1 A
Blodgett, F. M. G 303 College Ave (Bell 322-B, Ithaca 694-X)
Blood, A. R. 2 M 214 Eddy
Blood, H. L. 2 M 214 Eddy
Blumenauer, H. P. 4 A 17 South Ave (Bell 36-B, Ithaca 97-X)
Blythe, R. P. 3 A 217 Linden Ave (Bell 215)
Boak, T. I. S. 1 M 427 E. Seneca (Ithaca 27)
Bodine, (Miss) M. D. 4 A 202 Casca. Pl

Bogardus, A. G. 2 M 5 Central Ave (Bell 209, Ithaca 347)
Bogart, R. I. 4 Ar 412 Hector (Ithaca 838)
Bogert, J. G. 3 M 107 Edgemoor (Ithaca 196-X)
Bohall, H. A. 2 A 717 E. Buffalo (Bell 321)
Boice, (Miss) M. B. 2 Ag 401 Dryden Rd
Bolger, E. G. 2 C 114 Ferris Pl (Ithaca 3-C)
Boies, O. W. G 438 Casca. Bldg.
Bole, H. B. 2 A 777 Stewart Ave (Ithaca 250-X)
Bolles, A. C. Sp Ag 105 Dewitt Pl
Bolton, H. E. 1 Ar 101 Eddy (Ithaca 658-C)
Bolton, R. R. 2 V 101 Eddy (Ithaca 658-C)
Bond, C. D. 2 A 316 Pleasant
Bond, F. A. 3 A Sheldon Ct
Bonebrake, F. A. 1 M 600 Univ. Ave (Bell 588)
Bonn, L. A. 2 Ag 410 N. Aurora (Ithaca 791)
Bonner, J. P. 2 C 112 Edgemoor (Ithaca 91)
Bonnett, E. M., Jr. 1 A 50 Thurston
Bonney, A. Jr. 3 M 306 College Ave (Ithaca 402-X)
Bontecou, (Miss) L. C. 1 Ag Sage
Bontecou, (Miss) S. M. 1 Ag Sage
Boochever, L. C. 3 A 205 Williams
Boone, (Miss) F.D. 1 Ag 717 E. Buffalo (Bell 321-B)
Booth, M. W. 1 C 109 Cook
Booth, R. C. 4 C 408 Univ Ave
Borden, W. A. 3 M 13 South Ave (Bell 419, Ithaca 196)
Bordon, A. S. Sp L 130 Dryden Rd
Borges, D. G. 2 C 308 Eddy (Ithaca 151-X)
Boring, E. G. G 127 Highland Ave (Bell 738-B)
Bosch, A. F. 2 A 203 So College Pl (Bell 355)
Boshard, J. A. 2 C 217 West Ave
Bosley, M. E. 2 A 103 McGraw Pl (Bell 559, Ithaca 226)
Bosshart, J. 2 V 118 Eddy
Bosworth, F. S. 2 M 415 Stewart Ave (Bell 270)
Boudin, S. 2 C 215 Dryden Rd (Ithaca 832-X)
Boulter, L. H. 2 A 130 Dryden Rd (Bell 573-B)
Bowden, E. R. 1 C 31-A Sheldon Court
Bowen, C. H. 2 M 308 Stewart
Bowen, E. F. 2 M 110 Edgemoor Lane (Bell 42-B, Ithaca 330-X)
Bowles, A. M. 1 C Sheldon Court
Bowes, L. C. 1 M 201 Dryden Rd (Ithaca 379)
Bowers, F. E. 1 Ar 402 College Ave (Ithaca 90-X)
Bowman, C. L. 2 Ar 103 McGraw Pl (Bell 284-J, Ithaca 579-Y)
Bowman, R. M. G 708 E. Seneca (Bell 323-B)
Bown, R. A. 2 M 233 Linden Ave (Ithaca 568-Y)
Boyce, (Miss) M. H. 2 A 717 E. Buffalo (Bell 321-B)
Boyce, W. 3 V R. F. D. No. 5
Boyd, P. P. G 108 Cook
Boynton, K. R. 2 Ag 119 Dryden Rd
Boynton, (Miss) P. I. 2 Ag 705 E. State (Ithaca 602-X)
Bradlee, T. 4 Ag 708 E. Seneca (Bell 323-W, Ithaca 579-Y)
Bradley, J. F. 2 A 220 Eddy (Bell 115)
Bradt, M. 2 M 120 Catherine (Ithaca 625-X)
Brady, A. P. 2 M 414 Stewart (Bell 123-B)
Bradbury, A. L. 3 M 123 Highland Pl (Bell 572-R)
Brady, P. 1 M 512 Stewart (Bell 754)
Bragg, L. D. 3 Ag 111 Osmun Pl
Brailove, E. 1 Ag Box 116 RFD2 Ithaca (Ithaca 313-X)
Brakel, H. L. G 519 E. State
Branagan, J. F. 1 M 526 Stewart
Branch, F. H. 1 Ag 224 Linden Ave
Branin, F. H. 4 C 202 Stewart Ave (Bell 386-W)
Brant, C. A. 4 C 105 Highland Pl (Bell 320, Ithaca 435-C)
Brasefield, S. E. G 404½ N. Cayuga
Braun, P. N. 1 M 202 College Pl (Bell 355)
Braun, T. C. 2 M 214 Eddy
Brauner, J. F. G 405 Dryden Rd
Braveman, M. C. 2 A 209 Williams
Braymer, (Miss) C. V. 4 A Sage
Brayton, G. L. C 108 Cook (Ithaca 445-X)
Breed, F. 3 V 411 N. Tioga (Bell 615-B)
Brennan, L. J. 1 M 518 Stewart Ave (Bell 754)

Brew, J. D. 1 Ag 203 College Ave (Ithaca 666)
Brewer, F. J. 2 M 430 N. Geneva
Brewster, F. E. 2 Ar 302 Utica (Ithaca 726-Y)
Brice, N. E. 1 M 401 Dryden Rd
Brickman, (Miss) H. M. 4 A Sage
Bridgman, J. A. 1 A 121 College Ave (Bell 556-W)
Bridgeman, W. A. 1 A 603 E. Seneca (Bell 105, Ithaca 396)
Briggs, T. R. G The Knoll (Ithaca 776)
Brink, S. E. 2 Ag 207 Williams
Bristol, (Miss) G.C. 1 Ag 937 E.State (Ithaca 780-X)
Britton, (Miss) S. M. 2 A Sage
Briwa, F. M. Sp Ag Y. M. C. A.
Broadfoot, H. B. 1 A Cayuga Hts (Bell 181, Ithaca 752-Y)
Broadfoot, W. G. 3 M Cayuga Hts (Bell 181 Ithaca 752-Y)
Brocksopp, H. C. 1 Ag 215 Dryden Rd
Brockway, G. P. 2 M 217 Linden Ave
Brodt, B. W. 1 C 614 Stewart Ave
Brodt, J. H. 1 M 636 Stewart Ave (Ithaca 782)
Bronner, J. C. 1 L 201 Williams
Bronson, F. P. 2 C 125 Highland Pl (Bell 762-W, Ithaca 75)
Bronson, W. 2 M 125 Edgemoor (Ithaca 195)
Brooks, E. W. 3 C 88 Sheldon Ct
Brooks, H. W. 2 M 313 Farm
Brooks, (Miss) I. J. 2 A Sage
Brooks, L. R. 3 A 224 Linden Ave (Ithaca 242-C)
Brooks, (Miss) P. B. 2 A Sage
Brooks, W. D. Sp Ag 638 Stewart Ave
Brooks, W. E. 1 C 96 Wait Ave
Brosseau, J. E. 4 M 45 Sheldon Ct
Brougham, E.G. 1 Ag 409 College Ave
Broughton, L. N. G 110 E. Marshall
Brown, A. J. 4 A 204 Univ. Ave (Ithaca 397-Y)
Brown, B. C. 2 M 206 College Ave (Ithaca 727-Y)
Brown, C. L., Jr. 1 A 401 Dryden Rd
Brown, C. S. 4 M 1 Central Ave (Bell 373)
Brown, C. A. 2 M 523 E. Buffalo (Bell 126, Ithaca 613-X)
Brown, Chas. W. 3 M 125 Edgemoor
Brown, Clinton W. 2 M 415 Stewart Ave
Brown, D. C. Sp Ag 202 Univ. Ave
Brown, E. A. 2 Ag 610 E. Seneca (Ithaca 396-Y)
Brown, G. H. 4 L 426 Casca. Pl (Ithaca 335)
Brown, (Miss) H. W. 2 Ag 706 N. Tioga (Ithaca 745-X)
Brown, I. S. 4 Ag Fairmount Ave
Brown, J. Lawrence 3 L 103 McGraw Pl (Bell 559)
Brown, J. Leslie 2 M 35 Sheldon Ct
Brown, James W. 1 C 203 College Pl
Brown, J. S. 2 Ag 203 College Pl (Bell 355)
Brown, John W. 2 C 402 Eddy St (Bell 485)
Brown, L. A. 3 C 452 Casca. Pl
Brown, L. R. 4 C 438 Casca. Pl
Brown, M. J. G 921 E. State (Bell 24-B)
Brown, M. E. 2 C 202 Eddy
Brown, P. D. 2 C 523 E Buffalo (Bell 126-J)
Brown, P. R. 4 A Forest Home (Ithaca 313-Y)
Brown, R. D. 1 C 118 Ferris Pl
Brown, R. S. 1 M 105 Highland Pl (Bell 320)
Brown, Ruth (Miss) 3 A Sage (Ithaca 1108)
Brown, T. B. 2 A 109 College Ave
Brown, W. J. 1 M 412 West Green
Browning, (Miss) C. W. 3 Ag 811 E. State (Bell 497)
Browning, L. M 2 A 710 E. State St (Ithaca 366)
Brownley, J. W. 1 M 115 Cook St
Bruback, T. M. 3 M 204 College Ave (Bell 487)
Bruckheiser, (Miss) M. M. 3A Sage Cott
Brundage, D. E. Sp Ag 104 Utica St
Brush, (Miss) E. B. 1 Ag Sage
Bryan, W. F. 2 C 1 Central Ave (Bell 373, Ithaca 194-X)
Bryce, J. R. 2 A 119 Dryden Rd
Brye, W. F. 3 M 308 Eddy
Buchanan, G. P. 2 C 508 E. Seneca
Buchholz, A. B. G 407 E. Buffalo (Ithaca 787)
Buck, F. W. G 712 N. Aurora (Ithaca 441-X)
Buck, G. L. 1 L 712 N. Aurora (Ithaca 441-X)
Buck, J. A. 2 C 116 Cook St (Ithaca 687)
Buck, J. L. 1 Ag 214 Eddy St
Buck, W. C. 2 V 134 College Ave
Buckley, C. W. 2 Ag 408 Stewart
Buckley, O. E. G 205 College Ave
Buckman, H. O. G 422 Dryden Rd

Bucknam, R. P. 1 Ag 207 Linden Ave
Buehler, A. G. F. 4 C 133 Linden
Buehner, H. P. 1 M 116 Lake St (Bell 584)
Buencamino, V. 3 V 232 Linden (Bell 260)
Buford, H. 2 A 603 E. Seneca (Ithaca 396)
Bullard, A. H. G 111 Osmun Pl
Bullivant, A. M. (Miss) 3 A Sage
Bullock, E. L. jr. 2 Ar 110 Edgemoor
Bundy, E. P. Sp Ag 125 Catherine (Ithaca 402-C)
Bundy, E. S. Jr. 1 M 206 Dryden Rd
Bundy, J. A. 2 M 112 Edgemoor (Bell 345)
Bundy, M. W. 3 A 206 E. Lewis
Bunce, E. H. 2 A 411 N. Tioga
Burbank, (Miss) L.S. 1 Ag 811 E.State
Burdick, R. T. 3 Ag Campus Fire House (Ithaca 1123-X)
Burdick, R. D. 1 C 209 College Ave
Bures, A. S. 2 C 319 College Ave
Burger, C. V. 1 Ar 103 McGraw Pl (Bell 559, Ithaca 226)
Burgdorff, F. J., Jr. 1 Ag 214 Dryden Rd (Ithaca 77-X)
Burgher, C. 2 M 110 Highland Pl
Burkart, E. D. 2 C 129 College Ave (Ithaca 405-X)
Burleigh, W. F. 3 V 446 Casca. Pl
Burnet, E. C. 1 Ag 518 Stewart Ave
Burnet, F. D. 1 L 107 Edgemoor (Bell 674, Ithaca 196-X)
Burnham, E. F. 1 M 214 Eddy (Ithaca 626)
Burnham, G. W. 2 C 202 Eddy
Burnham, L. F. 1 M 103 Quarry
Burnham, T. G. 2 Ar
Burnham, W. S. 1 A 204 Stewart Ave
Burns, H. H. 1 L 108 Parker Pl
Burns, R. L. 2 Ar 317 S. Aurora (Ithaca 231-X)
Burrage, J. D. 2 C 123 Highland Pl (Bell 572-R)
Burroughs, W. F. 2 C 111 Osmun Pl
Burrows, E. G. 2 A 208 Dryden Rd (Ithaca 769-X)
Burrows, M. 3 A 208 Dryden Rd (Ithaca 769-X)
Burt, G. J. 2 Ag Cornell Heights (Ithaca 277-X)
Burton, F. E. 2 C 109 Cook (Ithaca 491)
Burton, F. H. 2 C 109 Cook (Ithaca 491)
Burton, J. T. 1 C 409 Dryden Rd
Busch, C. F. 3 L 2 Central Ave (Bell 130, Ithaca 194)
Buschman, A. W. 2 M 706 E. Buffalo (Ithaca 583-X)
Bustard, (Miss) D. 2 A Absent
Butler, E. W. 2 M 5 Central Ave (Bell 209)
Butler, G. M. 3 Ag 205 Linden Ave (Ithaca 743-X)
Butler, N. R., Jr. 2 M 710 Thurston (Bell 175, Ithaca 817)
Butler, W. C. M. 4 M 710 Thurston (Bell 175, Ithaca 817)
Butteworth, H. W., Jr. 1 M 103 McGraw Pl (Bell 559)
Buttery, C. J. 3 A 209 Williams
Butts, E. K. 1 V 105 N. Aurora (Ithaca 372)
Butts, H. W. 3 C Y. M. C. A.
Butts, N. C. 4 Ag 612 E. State (Ithaca 6-X)

Cabassa, J. 2 M 16 Casca. Park (Ithaca 153-Y)
Cabrera, P. R. 3 Ag 128 Dryden Rd
Caflisch, (Miss) E. E. 2 Ar Sage (Ithaca 1108)
Cahen, H. A. 2 A 321 Dryden Rd (Ithaca 742-X)
Cahn, A. R. 2 Ag 6 Thurston Ave (Ithaca 699)
Caldwell, F. B. 3 M 515 Stewart Ave (Bell 198, Ithaca 330)
Caldwell, W. B. 2 M 110 Edgemoor (Bell 42-B, Ithaca 330-X)
Calkins, R. 2 Ag 502 Dryden Rd (Ithaca 695-Y)
Callaghan, J. F. 2 M 133 Blair
Callahan, (Miss) E. B. 3 A Sage
Callahan, S. M. 1 A Ithaca Hotel
Callan, (Miss) I. E. 2 A Sage Cott
Cameron, D. 2nd. 1 L 503 E. Buffalo (Bell 350, Ithaca 671)
Campaneria, J. M. 1 C 128 Dryden Rd (Bell 615, Ithaca 641)
Campbell, H. G. 1 C 408 Stewart Ave
Cameron, J. A. 2 M 777 Stewart Ave
Campbell, J. B. 1 M 702 E. Buffalo
Campbell, J. S., Jr. 1 M 706 E. Seneca (Bell 110, Ithaca 829)
Campbell, J. W. 2 A 507 N. Tioga
Campbell, T. J. 2 M Hill Crest
Canaga, I. D. 4 C 103 Highland Pl (Ithaca 435)
Candee, H. F. 1 Ag 86 Sheldon Ct
Canfield, H. T. 2 C 234 Linden Ave (Ithaca 255-Y)

Cape, H. Jr. 2 M 116 Oak Ave (Bell 345)
Capelle, A. J. 1 Ar 112 Edgemoor (Bell 234, Ithaca 97)
Card, L. E. 1 Ag 519 E. Buffalo
Carey, H. A. Jr L 440 E. Buffalo (Ithaca 822)
Carey, H. J. 2 A Hill Crest (Bell 623, Ithaca 686)
Carlton, W. D. 4 M Cayuga Hts (Bell 187, Ithaca 572-Y)
Carman, E. M. 1 Ag 614 E. Buffalo (Ithaca 581-Y)
Carman, G. E. 2 M 107 Farm
Carman, (Miss) L. M. 3 A 614 E. Buffalo (Ithaca 581-Y)
Carmel, M. W. 3 L 124 Linden Ave
Caroline, H. Sp Ag Forest Home (Ithaca 915)
Carpenter, C. A. G 404 Univ. Ave (Bell 313)
Carpenter, C. E. 2 M 302 College Ave (Ithaca 14-X)
Carpenter, (Miss) F. M. 2 A 211 Dryden Rd.
Carpenter, I. C. 3 Ag 108 Parker
Carpenter, J. H. 3 A 202 S. College Pl
Carr, J. A. 2 A 401 Eddy (Ithaca 428-Y)
Carr, M. F. 1 Ag Forest Home
Carr, W D. 3 M 215 West Ave
Carson, D. B. 2 M 302 Stewart (Bell 699)
Carson, P. T. 1 A 512 Stewart
Carson, R. B. 1 C 510 Univ Ave
Carswell, D. W. 3 C 207 Linden Ave
Carter, O. 1 M 107 Edgemoor
Carter, P. W. Sp Ag 703 E. State
Carter, S. M. 1 A 307½ College Ave
Carter, W. A. 2 M 118 Cook (Ithaca 491-X)
Carvajal, O. 1 M 522 Stewart Ave
Cary, L. H. 3 A Sheldon Ct
Casablanca, F. J. 2 M 303 Eddy (Ithaca 421)
Casey, J. W. 1 V
Casparis, W. R. 2 A 13 South Ave (Ithaca 196)
Cassell, (Miss) A. M. 2 A Sage
Casson, M. Jr. Jr. L 523 E. Buffalo (Ithaca 613-X, Bell 126-J)
Caswell, (Miss) R. V. 1 A Sage
Catalano, P. L. Sr L 611 E. State (Ithaca 768-X)
Caten, W. E. 1 C 512 Stewart (Bell 175, Ithaca 817)
Cather, W. A. Jr. 1 M 710 Thurston Ave
Caveney, F. J. 2 V 416 S. Plain
Cavert, W. L. 3 Ag Forest Home (Ithaca 313-Y)
Chadderdon, H. A. 1 Ag 118 Ferris Pl (Ithaca 3)
Chadwick, D. J. 2 A
Chadwick, (Miss) D. 1 A 802 Univ Ave.
Chaimowitz, H. 2 A 134 Linden Ave (Ithaca 743)
Chamberlain, J. J. Jr., 4 C 320 N. Aurora (Ithaca 199-C)
Chamberlain, T. J. 1 L 704 E. Buffalo (Ithaca 581)
Chambers, H. E. Jr. 4 M 408 Stewart
Chambers, (Miss) K. L. Absen
Chambers, P. R. 1 M 515 Stewart (Bell 198, Ithaca 330)
Champaign, D. K. 1 M 215 Prospect (Bell 330)
Champion, J. S. 2 Ag 214 Dryden Rd (Ithaca 77-X)
Chandler, A. C. 4 A 302 Mitchell (Ithaca 774)
Chang, L. Y. 3 M Bryant and Harvard (Ithaca 799)
Chao, Y. R. 1 A 127 Linden Ave
Chapin, H. A. 1 M 120 Catherine (Ithaca 625-X)
Chapin, (Miss) L. 1 A 717 E. Buffalo
Chapman, (Miss) G. E. 1 A 717 E. Buffalo
Chapman, L. 1 Ag 206 Eddy
Chapman, R. E. 4 M 5 Central Ave (Bell 209, Ithaca 347)
Chapman, S. A. 2 C 325 Dryden Rd (Ithaca 808)
Chapman, W. H. 2 M 116 Lake
Char, K. Y. 2 C 406 Stewart Ave (Ithaca 622)
Chase, G E. 2 A 214 Dryden Rd (Ithaca 77-X)
Chen, M. K. 2 C 319 College Ave (Ithaca 491-Y)
Chen, Y. T. 1 M 210 Linden Ave
Chesbro, T. V. 1 Ag 214 Dryden Rd Ithaca 77-X)
Cheu, B. H. 1 Ag 302 College Ave (Ithaca 14-X)
Cheyney, C. C. 4 M 703 E. Seneca
Child, J. T. 2 C 202 Stewart Ave (Bell 386-W, Ithaca 710)
Chow, J. 1 A 411 College Ave
Chown, W. H. 2 M 516 N. Tioga (Bell 463-C)
Christesen, C. J. 1 M 128 Eddy (Ithaca 601)
Christians, (Miss) A. E. 2 A Sage

Christie, J. G. C. 1 C 202 College
Christy, W. G. 2 M 712 Thurston Ave (Bell 669-W, Ithaca 823)
Chuckrow, C. M. 4 C 205 Williams (Ithaca 583)
Chun, F. S. 1 M 319 College Ave
Church, L. M. 2 M 304 College Ave (Ithaca 625)
Cisin, H. G. 1 M 226 Eddy
Clancy, W. C. 2 M 510 Univ. Ave
Clapp, R. D. Jr L 702 Univ. Ave (Bell 264, Ithaca 250)
Clark, C. P. 1 M 103 McGraw (Bell 559. Ithaca 226)
Clark, C. A. 1 L 625 Univ. Ave (Bell 109, Ithaca 338-X)
Clark, D. W. 1 V
Clark, Edward B. 3 A 325 E. State
Clark, E. 3 M 125 Catherine (Ithaca 402-C)
Clark, Earl B. 1 Ag 302 College Ave
Clark, (Miss) E. A. 1 A 111 Oak Ave (Bell 573, Ithaca 61-X)
Clark, E. H. 1 M 16 Casca. Park
Clark, J. B. 2 A 503 E. Buffalo
Clark, J. P. 1 A 204 Stewart Ave (Bell 440)
Clark, J. S. Sp Ag 411 Dryden Rd (Ithaca 255-X)
Clark, L. H. 1 M 614 E. Buffalo
Clark, M. E. 4 M 111 Osmun Pl (Bell 349, Ithaca 307)
Clark, O. M. 1 C 132 Blair
Clark, R. E. 4 A, 1 M.D. 309 College Ave (Ithaca 692-Y)
Clarke, G. D. 2 Ag 528 Stewart Ave
Clarke, H. 1 V 232 Linden Ave (Bell 260)
Clarke, Harold A. Sp Ag 305 Dryden Rd
Clarke, Harold P. 1 C 413 Dryden Rd
Clarke, J. B. 2 A Casca. Pl
Clarke, J. I. Jr L 503 E. Buffalo (Bell 350, Ithaca 671)
Clause, R. L. 1 M 109 Cook (Ithaca 491)
Clausz, I. C. 2 C 125 College Ave (Ithaca 778)
Clayton, A. B. 3 A Sheldon Ct (Ithaca Sheldon Ct, Bell 368)
Clayton, W. F. Jr. 1 M 2 South Ave
Clements. (Miss) J. 1 A Sage
Clift, W. B. 1 C 102 West Ave (Bell, 598, Ithaca 730-X)
Cloran, G. L. 1 M 107 Edgemore Lane (Bell 674, Ithaca 196-X)
Clothier, F. H. 2 Ag 303 E. Mill (Bell 656-B, Ithaca 199)
Clunan, A. Jr. 2 C Cayuga Heights (Bell 181, Ithaca 752-Y)
Clurman, A. W. 1 A 309 Eddy (Ithaca 70-X)
Clute, J. H. Sp Ag 103 Quarry
Clute, L. D. 2 A 1 Central Ave (Bell 373)
Clynes, B. L. 2 M 526 W. Seneca (Ithaca 652)
Coate, R. E. 1 Ar 127 Dryden Rd
Cochran, (Miss) A. E. 2 M D Sage Cott.
Cochran, J. C. 1 A 2 Central Ave (Bell 30, Ithaca 194)
Cochran, (Miss) K. M. G Sage Cott
Cochrane, A. J. 2 Ag 402 College Ave (Ithaca 90-X)
Cochrane, J. G. Sp Ag 315 Eddy (Ithaca 173)
Codas, A. B. 3 C 127 Linden Ave (Ithaca 141)
Coddington, W. W. Sp Ag 316 Col. Ave (Ithaca 14)
Coffey, P. J. Jr. 1 C 219 Linden Ave (Ithaca 77)
Coffin, C. W. F. 2 M 116 Oak Ave (Bell 902)
Coffin, F. M. 2 A 1 Central Ave (Bell 373, Ithaca 194-X)
Coffin, G. S. 1 M 810 Univ. Ave (Bell 129)
Coffin, H. E. 2 Ag 32 Thurston Ave (Bell 213-B, Ithaca 277)
Coggeshall, C. S. 4 M 411 N. Cayuga (Ithaca 570-Y)
Coggswell, J. H. 2 Ag Forest Home (Ithaca 378-C)
Cohen, A. 4 C 240 Linden Ave
Cohen, D. 1 L 436 N. Geneva
Cohen, E. L. 2 A 109 Summit Ave (Ithaca 203)
Cohen, G. 1 L 436 Geneva
Cohen, J. 4 A 127 Linden Ave (Ithaca 141)
Cohen, J. H. 2 V 301 Dryden Rd (Ithaca 742)
Cohen, M. 1 A Absent
Cohn, B. 1 M Dryden Rd
Cohn, L. M. Jr. L 214 Eddy
Cohn, M. A. 4 M 109 Catherine (Bell 385-B)
Cohn, M. 1 Ag 209 College Ave
Coit, W. H. 1 M 812 Univ. Ave (Bell 129)
Coker, S. P. Sp Ag 401 Dryden Rd (Ithaca 568)
Colcord, A. H. 2 A 503 E. Buffalo (Bell 350)

Cole, C. A. 4 Ag 96 Wait Ave
(Bell 640)
Cole, D. S. G 706 Stewart Ave
Cole, E. P. 1 Ar 526 Stewart Ave
(Ithaca 183-C)
Cole, H. I. 1 A 490 Dryden Rd
Cole, R. O. 4 Ag 105 Eddy
(Ithaca 658-X)
Cole, S. T. 1 A Sheldon Ct
Coleman, H. R. 1 A 334 Casca. Pl
Coleman, R. R. 2 M 74 Thurston Ave
Coler, C. S. 4 M 123 Linn
Colina, B. F. 1 M 311 Dryden Rd
Collado, C. 4 Ag 303 Eddy
(Ithaca 421)
Collins, G. L. 2 M 102 West Ave
(Bell 598, Ithaca 73-X)
Collins, J. L. 2 A 108 Cook
(Ithaca 445-X)
Collins, L. F. 2 Ar 810 Univ. Ave
(Bell 129)
Collins, S. W. 1 M 116 Lake
Colwell, P. A. 1 C Cayuga Hts
(Bell 181, Ithaca 752-Y)
Combs, A. W. 3 V 120 Falls
Comfort, C. A. 2 Ag 805 E. Seneca
(Ithaca 320)
Comfort, N. 2 M 805 E. Seneca
(Ithaca 320)
Comstock, D. C. 4 Ar 113 Cook
(Ithaca 445-C)
Comstock, D. R. 1 A 414 Casca. Pl
Conde, G. E. 1 Ag 402 N. Cayuga
(Bell 375)
Condict, A. H. Sp Ag 36 Fall Creek
Drive
Cone, R. F. 1 A 115 Cook
Conger, W. C. 2 C 119 Stewart Ave
(Bell 386, Ithaca 617-X)
Conklin, A. W. G 116 Oak Ave
(Bell 902)
Conkling, G. E. 1 C 205 Linden Ave
Conkling, R. P. 4 A 113 Oak Ave
(Bell 329)
Conlin, H. J. 1 A 127 College Ave
Conn, H. J. G 37 East Ave
(Bell 150-B)
Connell, H. P 2 M 526 Stewart Ave
(Ithaca 183-C)
Connolly, (Miss) K. L. 1 A 111 Oak Ave
Connor, C. M., Jr. 3 M 523 E. Buffalo
(Bell 126-J, Ithaca 613-X)
Connor, (Miss) M. 2 A 308 Stewart Ave
(Bell 661)
Connor, W. B. 1 Ag 113 Cook
Connor, W. J. 1 C 111 Quarry
(Ithaca 764-Y)
Conover, W. I. 1 Ag 112 Cook
Constam, A F. 2 M 205 Williams
(Ithaca 583)
Converse, T. A. 2 C 205 Linden Ave
Conway, H. H. 4 C 91 Wait Ave
Conway, T. 1 Ag 208 Cleveland Ave
Conwell, W. L. 4 C 103 Highland Pl
(Ithaca 435)
Cook, C. L. 2 M 208 Stewart Ave
(Ithaca 580-X)
Cook, (Miss) J. B. 1 A Sage
Cook, J. D. 1 V 119 S. Cayuga
Cook, (Miss) L. A. 2A 304 Stewart Ave
(Bell 699-B)
Cook L. B. G 218½ Univ. Ave
Cookingham, T. A. 1 L 115 Linn
(Ithaca 399-X)
Cooley, C. S. 1 A 108 Cook
(Ithaca 445-X)
Coons, C. A. 2 L 519 Stewart Ave
(Bell 396)
Cooper, A. E. Jr L 440 E. Buffalo
(Ithaca 822)
Cooper, E. B. 2 A 115 Hudson
(Bell 637)
Cooper, F. T. 4 M Casca. Bldg
Coors, H. 2 A 17 South Ave
(Bell 36-B, Ithaca 97-X)
Copeland, D. E. Sp Ag 322 N. Aurora
Copley, B. C. 2 Ag 36 Forest Home
Corbett, L. A. Sp M Withdrew
Corbin, C. I. 3 V 308 Casca, Pl
Corbin, M. H. 1 Ag 503 E. Buffalo
(Bell 350, Ithaca 671)
Corley, R. F. 2 A 806 E. Seneca
(Ithaca 575)
Cormack, D. C. SpAg 402 College Ave
(Ithaca 90-X)
Cornell, A. W. 2 M 507 E. Buffalo
Cornell, (Miss) E. L. 1 A Sage
(Bell 92, Ithaca 1139)
Cornell, (Miss) K. E. 2 A Cayuga Hts
(Bell 269, Ithaca 301-W)
Cornell, (Miss) M. B. 1 A Cayuga Hts
(Bell 269, Ithaca 301-W)
Cornell, Walter R. 1 C 314 N. Aurora
(Ithaca 689-Y)
Cornet, C. F. 1 Ar 702 Univ. Ave
(Bell 250)
Cornet, H. L. 1 L 702 Univ. Ave
Cornue, C. C. 2 Ag 202 Williams
(Ithaca 744-X)
Cornwell, H. V. 1 M 201 Dryden Rd
(Ithaca 379)
Cornwell, L. R. 1 V 409 Dryden Rd
Corpus, J. A. V. 2 M 239 Linden Ave
(Ithaca 743-C)
Corrington, J. D. 2 A 304 Stewart Ave
(Bell 699-B)

Corti, J. J. 2 M 128 Dryden Rd (Bell 615, Ithaca 641)
Corti, V. R. 1 A 128 Dryden Rd (Ithaca 641)
Corwin, (Miss) B. A. Sp Ag 420 Dryden Rd (Ithaca 568-C)
Corwin, W. J. 4 Ag 315 Eddy (Ithaca 173)
Cory, F. C. 2 M 111 Osmun Pl (Bell 349, Ithaca 307)
Coryell, J. 3 Ag 125 Eddy (Bell 178)
Cotton, R. T. 1 Ag 202 Casca. Park
Couch, A. D. 2 M 204 Stewart Ave (Bell 440)
Coughran, E. K. 3 A 119 Dryden Rd (Ithaca 677)
Coursen, W. M. 2 C 107 Edgemoor (Bell 674, Ithaca 196-X)
Coutant, A. 2 Ag 303 College Ave (Ithaca 692-X)
Covert P. Jr. 2 C 107 Edgemoor (Bell 674, Ithaca 196-X)
Cowdrey, A. E. 1 C 103 Highland Pl (Ithaca 435)
Cox, L. C. G 804 E. Seneca
Cox, T. R. 4 M 1½ Central Ave (Bell 268, Ithaca 230)
Cozzens, A. B. 1 C 125 Catherine (Ithaca 402-C)
Craig, J. F. 2 M 600 Univ. Ave (Bell 588, Ithaca 338-C)
Craig, (Miss) M. H. 4 A Sage (Bell 92, Ithaca 1140-X)
Craig, (Miss) M. E. 3 A Sage
Crandal, (Miss) E. E. 4 A Sage (Bell 92, Ithaca 1108-X)
Crandall, B. L. 2 Ag 712 E. Buffalo (Bell 498-J)
Crandall, C. 3 C 316 Hector (Bell 409-B)
Crandall, C. A. 1 L 712 E. Buffalo (Bell 498-J)
Crandall, D. P. Sp Ag 108 Catherine
Crandall, N. I. 1 Ar 220 Univ. Ave (Ithaca 231-Y)
Crane, D. F. 4 Ar 17 South Ave (Bell 36-B, Ithaca 97-X)
Crane, F. E. 1 L 301 Dryden Rd
Crassweller, F. H. 1 A 103 McGraw Pl (Bell 559, Ithaca 226)
Crawford, (Miss) L. S. 2 A Sage (Bell 92, Ithaca 1106-X)
Crews, B. T., Jr. 1 A Sheldon Ct
Crippen, E. C. 2 Ag 106 Cook (Ithaca 248-X)
Crittenden, C. G. 2 Ag 110 Eddy
Crittenden, L. W. Sp Ag 110 Eddy
Crofoot, H. K. Sp Ag 310 College Ave (Ithaca 62-Y)
Crosby, (Miss) B. 1 Ag Sage
Crosby, C. R. 3 L 201 Dryden Rd
Cross, D. A. 4 M 217 Linden Ave (Bell 215)
Cross, G. T. 1 L 402 College Ave
Cross, H. L. 2 L 600 Univ. Ave (Bell 588)
Cross, L. J. G 123 Linn (Ithaca 109)
Cross, R. H. 1 Ag 427 E. Seneca (Ithaca 27)
Cross, R. J. 1 M 217 Linden Ave (Bell 215)
Crossman, (Miss) M. G. 3 Ag Sage
Crossman, R. S. 4 C 205 Linden Ave (Ithaca 743-X)
Croston, G. H. 4 A Sheldon Ct
Crounse, S. H. Jr. 2 Ag 777 Stew. Ave (Bell 176, Ithaca 250-X)
Crowell, F. R. Jr. 2 M 706 E. Buffalo (Ithaca 583-X)
Crowell, M. G. 2 A 109 Orchard Pl
Crown, H. A. 4 A 110 Stewart Ave (thaca 620-X)
Cuccia, F. P. Jr., Jr L 115 College Ave (Ithaca 636)
Cuddeback, J. E. 1 Ag 125 Highl'd Pl (Bell 762-W)
Cuervo, R. S. 2 M 305 Oak Ave
Cuff, J. E. 2 C 127 Catherine (Ithaca 692-C)
Culbertson, W. R. 2 A 117 DeWitt Pl
Cull, C. H. 1 Ar 702 Univ. Ave (Bell 264, Ithaca 250)
Cummings, (Miss) E. E. 1 A Willard Way (Ithaca 662-X)
Cummings, G. B. 3 Ar 113 Cook (Ithaca 445-C)
Cummings, V. A. 1 Ag 704 E. State
Cummins, T. M. 1 A 17 South Ave
Cunningham, S. 2 A 101 Quarry (Ithaca 604)
Curd, K. L. 1 V
Current, (Mrs.) M. H. 1 Ag Forest Home
Curry, L. B. 2 C Casca. Pl
Curtin, G. M. 2 M 304 College Ave (Ithaca 625)
Curtis, (Miss) A. B. 2 A Sage
Curtis, (Miss) D. 2 Ag
Curtis, H. G. 2 Ar 107 Edgemoor
Curtis, R. E. 1 M 411 N. Cayuga (Ithaca 570-Y)
Curtiss, G. W. 2 M Sheldon Ct

Dahl, M. C. 2 A 111 Orchard Pl

Dalbow, (Miss) A.D. 1 A 92 Wait Ave
Dale, G. I. G The Knoll, Cornell Hts (Ithaca 776)
Daley, E. J. 1 V College Ave
Daley, R. B. 1 M 116 Oak Ave (Bell 902)
Dalrymple, C. O. 2 Ag 428 Casca. Bldg
Dalrymple, W. D. 3 M 523 E. Buffalo (Ithaca 613-X)
Dalton, B. Sp Ar 118 Linn
Dalton, D. A. 1 C 715 E. Buffalo (Ithaca 509)
Daly, E. J. 1 L 119 Dryden Rd (Ithaca 677)
Daly, J. W. 3 C 103 Highland Pl (Ithaca 435)
Danforth, A. L. 2 V 507 N. Tioga
Danforth, T. F. 1 C 114 Stewart Ave
Daniels, P. N. 1 A 319 College Ave
Daniels, W. J. 2 C 58 Thurston Ave
Danziger, M. 3 V 301 Dryden Rd (Ithaca 742)
Darling, A. G. 3 M 13 South Ave (Bell 419, Ithaca 196)
Darrin, D. 2 M 715 E. Buffalo (Bell 485-B, Ithaca 509-X)
Darrow, G. M. G 3 East Ave
Darville, (Miss) M. 3 A Sage (Bell 921, Ithaca 1108-X)
Darville, M. A. 3 C 238 Linden Ave (Bell 243)
Dauenhauer, W. L. SrL 440 E. Buffalo (Ithaca 822)
Daugherty, R. L. G 404 Univ. Ave (Bell 313)
Davidson, C. H. 3 C 2 South Ave (Ithaca 346-X)
Davidson, C. P. Jr. 3M 119 Stewart Ave (Bell 386, Ithaca 617-X)
Davidson, J. 4 Ag 410 Casca. Bldg
Davidson, M. W. 1 M 706 Stewart Ave
Davidson, (Miss) V. L. 2A Cornell Hts (Bell 157)
Davidson, W. H. 1 M 16 Casca. Park
Davie, P. M. 4 A 203 College Ave (Ithaca 666)
Davies, E. L. 2 A 409 College Ave (Ithaca 760-C)
Davis, A. C. Jr. 2 M 120 Catherine (Ithaca 625-X)
Davis, A. P. 1 M 212 Linden Ave
Davis, C. E. 3 M 325 E. State
Davis, C. W. 2 M 521 E. State (Bell 518)
Davis, E. R. 2 C 115 College Ave (Ithaca 636)
Davis, F. 4 M 706 E. Buffalo (Ithaca 583-X)
Davis, H. K. 3 A 96 Waite Ave (Bell 640)
Davis, H. R. 2 Ag Fairmount Ave
Davis, (Miss) L. 2 A Sage (Bell 92)
Davis, M. J. 1 A 119 Dryden Rd (Ithaca 677)
Davis, R. 4 M 109 Catherine (Bell 385)
Davis, R. W. 2 M 403 College Ave
Davis, R. F. 4 A 221 Eddy (Ithaca 770-C)
Davis, S. P. 3 M 527 E. Buffalo (Bell 126-B)
Davis, W. H. 3 A 226 Eddy
Davison, T. E. 2 M 109 College Ave
Dawson, E. S. 1 M 522 Stewart Ave (Bell 575)
Day, A. C. 2 A 116 Lake (Bell 584)
Day, (Miss) L. M. G Sage Cott
Day, P. L. 4 M 114 Stewart Ave (Ithaca 576-X)
Deal, J. E. 3 V 201 Dryden Rd (Ithaca 379)
Dean, Abram L. Sp Ag 125 Dryden Rd
Dean, Archie L. Jr. 1 Ag 600 Univ Ave (Bell 588)
Dean, (Miss) B. L. 1 A The Circle (Bell 523-B)
Dean, G. 3 V City Hospital
DeAngelis, M. 2 M 1½ Central Ave
Deans, W. Jr. 2 M 221 Eddy (Ithaca 770-C)
DeBolt, G. W. Jr. 1 M 202 Casca Park
DeCarre, O. 4 C 128 Linn
Decker, C. W. 2 A 5 Central (Bell 209, Ithaca 347)
Dedicke, C. E. 3 M 708 E. Buffalo (Ithaca 582)
Dee, L. T. 1 A 708 E. Buffalo
DeGarmo, L. H. 2 M 809 E. State
Delano, C. 2 M 5 Central Ave (Bell 209, Ithaca 347)
Delany, (Miss) H. G. 2 A Sage (Ithaca 1108-X)
Delany, L. H. 3 C 208 Dryden Rd (Ithaca 769-X)
Deller, C. H. 1 Ag 413 Dryden Rd
Demares, J. M. 2 C 625 Univ Ave (Ithaca 338-X, Bell 109)
DeMilt, L. A. Jr. Sp Ar 417 E. Buffalo
Deming, (Miss) J. L. 2 A 37 East Ave
Denham, D. P. 1 C 618 Stewart
Denman, R. H. Sp Ag 311 College Ave (Bell 658, Ithaca 418-X)

Denmark, H. E. 1 Ag 409 College Ave
Denney, J. D. 2 A 216 Univ. Ave (Ithaca 673)
Dennis, C. M. 2 A 1 Central Ave (Bell 373, Ithaca 194-X)
Denniston, (Miss) M. E. 3 A Sage (Bell 92, Ithaca 1108)
Denny, A. C. 1 M Sheldon Ct
Depew, R. H., Jr. 2 M 116 Oak Ave
Derrick, (Miss) M. A. 2 A Sage
Deutsch, A. S. 1 A Sheldon Ct (Bell 840-B)
DeVany, (Miss) I. 3 A Sage (Bell 92, Ithaca 1140)
Devlin, E. E. 2 M 777 Stewart Ave (Bell 176, Ithaca 250-X)
Dewey, C. A. 1 Ar 103 Highland Pl (Ithaca 435)
Deweym, D. M. 1 M 1½ Central Ave
Deyo, A. W. 2 M 710 Thurston Ave (Bell 175, Ithaca 817)
DeYoe, L. E. 2 A The Knoll (Ithaca 776)
Diamond, M. 2 A 119 College Ave (Ithaca 636-X)
Diaz, A. Jr. 1 C 210 College Ave
Dibble, (Miss) A. L. 2 A Sage (Ithaca 1106)
Dibble, H. E. 3 Ag 204 College Ave (Bell 478-J)
Dick, (Miss) M. E. G Sage
Dicker, L. 1 Ag 318 N Tioga
Dicker, S. B. 4 A 318 N. Tioga
Dickerson, (Miss) E. T. 2 A Sage
Dickert, D. S. 1 M 614 Stewart Ave (Ithaca 782-X)
Dickson, M. L. 2 M 527 E. Buffalo
Dieckmann, W. H. 1 A 305 Dryden Rd
Diederichs, W. J. 2 M 710 Univ. Ave (Bell 694)
Diehl, L. W. 1 L 96 Wait Ave (Bell 649)
Dietrick, B. J. 3 Ar 96 Waite Ave
Dillenbeck, A. J. 4 C 407 Eddy
Dillon, S. O. G 408 Stewart Ave (Bell 647)
Dillon, W. T. 1 Ar Hill Crest (Bell 623, Ithaca 686)
Dilly, S. G. 2 A 45 East Ave (Ithaca 202-X)
Dimon, C. E. 2 Ag 2 South Ave (Ithaca 346-X)
Dimon, H. H. 1 A 31 Thurston Ave
Dince, R. R. 1 Ag 209 College Ave
Dinse, F. J. Jr L 327 Eddy (Ithaca 614-X)
Dippold, A. P. 1 Ar 202 Casca. Park (Ithaca 807-X)
Disenger, A. E. 1 L 127 College Ave
Distler, W. G. 2 C 777 Stewart Ave (Bell 176, Ithaca 250-X)
Dittmar, R. A. 2 M 109 Catherine (Bell 385, Ithaca 308-B)
Dittrich, J. A. 2 C 107 College Pl (Ithaca 808-X)
Dix, H. W. 4 M 201 Oak Ave (Ithaca 61)
Dixon, E. E. 2 A 526 Stewart
Dixon, (Miss) H. 2 A 515 W. Seneca (Bell 85-B)
Dixon, R. M. 2 M 37 West Ave
Doan, J. L. 4 Ag Forcing House
Doane, E. G. 1 C 327 Eddy
Dobbins, (Miss) A. M. 2 A Sage (Bell 92, Ithaca 1140-X)
Dodge, F. M. 2 M 636 Stewart Ave (Ithaca 782)
Dodge, S. 2 M 302 Mitchell (Ithaca 774)
Dole, E. 2 Ag 129 College Ave (Ithaca 405-X)
Dolfin, F. L. Jr L
Doll, E. A. 2 A 221 Eddy (Ithaca 270-C)
Doll, W. E. 4 M 603 E. Seneca (Bell 105, Ithaca 396)
Donlon, (Miss) K. A. 3 A Sage
Donnan, W. J. 1 A 119 College Ave (Ithaca 636-X)
Donovan, W. J. 3 L 320 N. Aurora (Ithaca 399-C
Doolittle, H. A. 4 A 111 Osmun Pl (Bell 349, Ithaca 307)
Dorion, D. J. 3 Ag 134 Linden Ave
Dorman, F. C. Jr L 523 S. Albany
Dorman, J. S. Sp Ag 108 Casca. Park (Ithaca 286-X)
Dorsey, M. J. G 804 E. Seneca
Doty, H. A. 1 A 114 Eddy
Doty, (Miss) M. A. 1 Ag 811 State (Bell 497)
Dougherty, (Miss) B. E. 1 A 329 N. Geneva (Ithaca 661)
Dougherty, D. C. 2 A 13 South Ave (Bell 419)
Dougherty, J. E. 4 Ag 105 College Ave (Ithaca 778-X)
Dougherty, N. W. 1 C 407 Dryden Rd
Douglas, G. R. 1 M 519 E. Buffalo (Ithaca 612-Y)
Douglas, J. F. H. G 103 Quarry (Bell 631-B)
Douglass, E. L. 2 A 304 College Ave (Ithaca 625)
Douglass, (Miss) M. 1 A Sage

Douglass, H. M. G 311 S. Aurora
(Ithaca 231)
Douglas, T. 1 L 519 Stewart Ave
(Bell 396, Ithaca 634-X)
Dow, N. S. 1 A 241 Linden Ave
Downs, F. 1 M 219 Linden Ave
Downs, L. G. 1 A 209 College Ave
Doyle, A. J. 2 M 135 Blair
(Bell 24)
Doyle, H. L. 3 A Casca. School
Doyle, H. E. 3 C 110 Osmun Pl
(Ithaca 613, Bell 279)
Doyle, H. M. 1 Ag 209 College Ave
Doyne, M. H. 1 C 120 Linden Ave
Drake, H. E. 4 M Hill Crest
(Bell 623, Ithaca 686)
Drath, (Miss) C. L. F. 4 A 402 Oak
(Bell 437)
Drescher, H. L. 1 L 127 College Ave
Dresser, (Miss) E. 1 Ag 306 College Ave
(Ithaca 402-X)
Dresser, S. R. 2 M 5 Central Ave
Dreyer, L. 4 M 215 Dryden Rd
(Ithaca 832-X)
Drinkard, A. W. Jr. G Fall Creek Drive
(Ithaca 756)
Drumm, J. C. 4 M 523 E. Buffalo
(Bell 126-J, Ithaca 613-X)
Duba, J. 2 C 210 Stewart Ave
(Ithaca 580-Y)
Dubin, M. 2 A 203 Williams
DuBois, A. D. G 401 S. Aurora
(Ithaca 84-X)
Duckman, J. H. 1 A 119 College Ave
(Ithaca 636-X)
Duckworth, J. S. 2 Ar 515 Stewart Ave
(Bell 198, Ithaca 330)
Dudley, C. S. 2 M 508 Univ. Ave
(Ithaca 208-X)
Dudley, (Miss) M. F. 2 Ag 503 N. Tioga
(Ithaca 334-Y)
Dugan, E. 2 A 17 South Ave
(Bell 36-B)
Dugliss, R. P. 2 A 208 Williams
Dukes, G. B. G Cayuga Heights
(Bell 181, Ithaca 752-Y)
Dunbar, A. 2 L 404 Elm
Dunbar, D. L. 1 M 710 Thurston Ave
Dunbar, L. A. 1 M 113 Oak Ave
(Bell 329)
Dunbar, R. H. 1 M 217 Linden Ave
(Bell 215)
Dunham, C. L. 3 A 712 Thurston Ave
(Bell 669-W, Ithaca 823)
Dunham, L. H. 1 M 204 Williams
Dunlop, W. R. G 32 Thurston Ave
(Bell 213-B, Ithaca 277)
Dunn, (Miss) A. M. 2 Ag 114 Forest Home
(Bell 531-W, Ithaca 378-X)
Dunn, A. C. 1 C 108 Casca. Park
Dunn, A. B. 1 M The Knoll
(Ithaca 776)
Dunn, (Miss) E. C. 2 A Sage
(Bell 92)
Duntley, C. A. 1 M 119 Eddy
DuPre, W. D. 2 C 810 Univ. Ave
Durkin, J. E. 1 L 519 E. Buffalo
(Ithaca 612-Y)
Dutcher, A. C. 1 L 704 E. State
DuVall, B. R. 2 M 15 South Ave
(Bell 533, Ithaca 195-X)
Dye, C. F. 1 M 419 E. Seneca
(Bell 303)
Dynes, O. W. Sp Ag Cornell Heights
(Ithaca 756)

Eagan, W. D. 1 M 508 Univ. Ave
Eager, E. H. 1 M 512 Stewart Ave
(Bell 754-B)
Earl, (Miss) D. L. 2 Ag 106 Cook
(Ithaca 248-X)
Eastman, R. L. 1 M 410 Stewart Ave
(Ithaca 669-X)
Eastwood, H. 2 A 807 E. State
Eastwood, S. K. 2 M 120 Catherine
(Ithaca 625-X)
Eaton, H. F. 3 M Hill Crest
(Bell 613, Ithaca 686)
Eaton, L. S. 2 M Cascadilla Pl
Eaton, P. B. 2 M Cascadilla Pl
Ebersole, W. G. 1 M Hill Crest
(Ithaca 686)
Eddy, L. 1 M 410 Stewart Ave
(Ithaca 669-X)
Edel A. F. Sp M 202 Stewart Ave
Edelman, L. 4 A 201 College Ave
Edgar, (Miss) M. 2 A 111 Oak Ave
(Bell 573, Ithaca 61-X)
Edgar, S. E. 1 L 810 Univ. Ave
(Bell 129, Ithaca 226-X)
Edlund, S. W. 2 A 414 Eddy
(Ithaca 744)
Edminster, F. C. G 512 Stewart Ave
(Bell 754-B)
Edminster, (Miss) L. M. 4 A 111 Oak Ave
(Bell 573, Ithaca 61-X)
Edson, H. E. 1 Ag Sheldon Ct
Edwards, A. S. G 215 Mitchell
Edwards, (Miss) B. L. 2 A 102 First
Edwards, C. E. 1 M 110 Osmun Pl
(Bell 279)
Edwards, (Miss) E. M. 2 A Sage

Edwards, E. W. 2nd 1 M 810 Univ. Ave (Bell 129)
Edwards, H. 1 M 810 Univ. Ave
Edwards, J. H. 1 M 123 Farm (Bell 494 B)
Edwards, L. V. 3 C 405 N. Aurora (Ithaca 209)
Edwards, W. 1 M 123 Dryden Rd
Eells, (Miss) A. A. 2 Ag Sage
Eggleston, A. J. 2 A 515 Stewart Ave
Eggleston, D. W. 2 A 124 Catherine
Egloff, G. Sp A Barnes Hall
Ehrhart, V. H. Jr. 4 A 125 Edgemoor (Ithaca 195)
Ehrich, S. W. 1 A 614 Stewart Ave
Ehrlich, A. 1 C 209 College Ave
Eickelberg, E. W. 2 C 121 College Ave
Elder, D. 2 Ag Forest Home (Ithaca 313-Y)
Elder, T. E. 4 Ag 105 Brandon Pl (Ithaca 666-X)
Eldridge, E. G. 1 M Absent
Elkind, I. J. 2 C 119 College Ave (Ithaca 636-X)
Elliott, C. H. 2 Ag 612 E. State (Ithaca 6-X)
Elliott, C. V. 4 M 206 Quarry (Bell 1-Y)
Elliott, F. L. G 523 E. Buffalo (Bell 126-F, Ithaca 613-X)
Ellis, (Miss) J. L. 4 A 418 N. Tioga (Ithaca 675-X)
Elmendorf, H. H. 1 M 317 Elm
Elmer, B. B. 2 A 610 E. Buffalo (Bell 36-B, Ithaca 97-X)
Elsenbast, A. S. 3 A 506 Dryden Rd (Ithaca 456-X)
Elston, E. D. 2 A 119 Dryden Rd (Ithaca 677)
Elston, J. S. 4 A 126 Linden Ave (Ithaca 190-C)
Elting, O. R. 1 C 35 Bryant Ave
Elton, R. L. 3 C 107 College Pl (Ithaca 808-X)
Elting, S. V. 1 A 116 Cook
Elwell, S. B. 1 Ar 811 E. State
Ely, E. D. Sp Ag 519 E. Buffalo
Ely, T. V. 2 L 111 Osmun Pl (Bell 349, Ithaca 307)
Embleton, H. 3 Ag 214 Dryden Rd (Ithaca 77-X)
Embil, A. C. 1 L 201 Williams
Emeis, (Miss) F. L. 4 A Sage
Emerson, H. H. 2 C 201 S. Aurora
Emerson, (Miss) N. M. 2 A Sage (Bell 92)
Emley, (Miss) A. M. 2 Ag 105 Dewitt Pl (Ithaca 612)
Emmel, J. H. 2 C Y. M. C. A.
Emmert, L. D. 4 C 116 Oak Ave (Bell 902)
Emmons, C. E. 3 Ag 409 College Ave (Ithaca 760-C)
Engelder, C. J. 2 A 203 College Ave (Ithaca 666)
English, (Miss) M. G. G 3 Central Ave (Ithaca 1136-X)
Epstein, H. 2 M Sheldon Ct
Erskine, A. M. 1 A 214 Eddy
Eschenbrenner, (Miss) R. C. 2 A Sage
Estabrook, C. B. 2 M 608 E. Buffalo
Etler, B. A. 1 C 348 Cascadilla Pl
Eustis, R. D. 1 C 614 E. Buffalo
Evans, A. P. 4 A, G Barnes Hall (Bell 561, Ithaca 1110)
Evans, C. H. 1 M 1½ Central Ave (Bell 268, Ithaca 230)
Evans, (Miss) J. 1 Ag 967 E. State
Evans, Charles J. 1 M 410 Stewart Ave
Evans, Clarence J. 3 M 306 College (Ithaca 402-X)
Evans, D. R. 4 A 130 Linden Ave (Ithaca 190)
Evans, G. E. 1 M 201 Dryden Rd
Evans, L. H. 4 Ag 96 Waite Ave (Bell 640)
Evans, M. E. G 7 Bryant Ave
Evans, M., Jr. 1 M 515 Stewart Ave
Evans, (Miss) M. 4 A Sage
Evans, P. D. 2 A 967 E. State
Evans, R. J. G 120 Linden Ave
Everett, K. (Miss) G 301 College Ave
Everingham, C. 2 M 116 Lake
Everitt, E. A. Jr. 1 Ag 210 Linden Ave
Ewer, (Miss) M. A. 3 A Sage
Ewing, H. E. G 126 Catherine
Eyrich, H. R. 1 C 515 Stewart (Ithaca 330)

Facer, L. H. 2 Ag 125 College Ave
Fairbank, M. A. 1 A
Fairbanks, W. D. Jr. 1 L 308 Eddy (Ithaca 151-X)
Fairweather, F. H. 2 Ar 204 College (Bell 487-J)
Falconi, J. M. 2 C 618 Stewart (Ithaca 294)
Falk, F. W. 1 Ar 17 South Ave (Bell 36-B, Ithaca 97-X)
Falu, N. 1 C 113 Cleveland Ave
Fancher, A. J. 4 C 302 Casca. Bldg.
Fancher, A. M. 2 M 348 Casca. Pl
Fane, J. E. 1 L 130 Dryden Rd
Fanning, R. S. 3 Ar 127 College Ave

Farlin, C. D. 2 C 115 Linn
(Ithaca 399-X)
Farnsworth, J. A. 2 A 708 E. Seneca
Farnsworth, J. F. 2 A The Knoll
(Ithaca 776)
Farnau, E. F. G 301 Dryden Rd
(Ithaca 742)
Fassett, J. S. Jr. 2 A 2 Central Ave
Faure, J. C. 2 Ag Bryant Ave and Harvard
Faxon, W. E. 2 A 107 Edgemoor
(Bell 674, Ithaca 196-X)
Fay, A. T. 3 C 127 Dryden Rd
Fay, D. W. 2 Ag 113 Oak Ave
Fay, G. W. 1 M 206 Dryden Rd
Fear, H. W. 2 C 304 College Ave
(Ithaca 625)
Fechnay, J. Sp M 309 College Ave
(Ithaca 692-Y)
Feehan, H. 1 C 807 E. State
Feinberg, E. J. 2 L 445 N. Tioga
Feiner, M. A. 2 C 214 Stewart
(Ithaca 576-Y)
Felter, (Miss) H. M. 1 A Sage
Ferguson, C. B. 3 M 125 Highland
(Bell 762-W)
Ferris, O. C. 3 E 223 Eddy
Ferris, W. R. 1 M 502 Dryden Rd
(Ithaca 456)
Ferry, C. B. 1 V 403 College Ave
Field, A. M. 2 A 110 Eddy
Fickenscher, E. R. 2 M 603 E. Seneca
(Bell 105)
Fielden, (Miss) A. Sp Agr Sage
(Bell 92-L, Ithaca 1104-X)
Filbert, G. B. 3 M 706 E. Buffalo
(Ithaca 583-X)
Filmer, E. A. 2 A 202 Stewart Ave
(Bell 386-W, Ithaca 710)
Finch, F. E. 3 M 1 Central Ave
(Bell 373, Ithaca 194-X)
Finch, L. 2 A 138 Linden Ave
(Ithaca 190-X)
Finch, R. W. 3 E 116 Osmun Pl
(Ithaca 623)
Finch, S. C. 1 M 125 Edgemoor
Finkelstein, D. 4 Ag 420 Casca. Bldg.
Finkelstein, I. E. 2 A 215 Dryden Rd
(Ithaca 832-X)
Finkelstein, L. 2 A 615 E. State
(Ithaca 602)
Finkelstein, N. R. 4 C 115 Eddy
(Bell 253)
Finley, A. C. 1 M 241 Linden Ave
Finley, D. H. 1 A 112 Ferris Pl
(Ithaca 3-Y)
Finney, C. E., jr. 2 M 415 Stewart Ave
(Bell 270, Ithaca 307-X)
Fischer, G. L. 1 Ag 105 Eddy
Fischer, N. M. 2 C 15 South Ave
(Bell 533, Ithaca 195-X)
Fish, J. A. 2 M 134 College Ave
(Ithaca 695-X)
Fish, (Miss) L. C. 1 Ag Sage
Fish, L. W. 2 Ag 21 Wyckoff Ave
Fisher, E. H. Sp Ag 702 E. Buffalo
(Ithaca 581-X)
Fisher, G. B. 1 M 48 Fall Creek Drive
Fisher, H. C. 3 A 410 Stewart Ave
Fisher, P. B. 2 C 2 Central Ave
(Bell 30, Ithaca 194)
Fisk, W. W. G 506 Dryden Rd
(Ithaca 456-X)
Fiske, F. E. 1 A 48 Fall Creek Drive
Fitch, A. D. 1 M
Fitch, C. P. 3 V 101 Eddy
(Ithaca 658-C)
Fitzpatrick, H. M. G Forest Home
Fitzsimmons, H. A. 2 C 15 South Ave
Flack, H. 3 A 17 South Ave
(Bell 36-B, Ithaca 97-X)
Flanagan, R. J. 2 V 309 E. Buffalo
Flanigan, H. C. 2 C 415 Stewart Ave
(Bell 270, Ithaca 307-X)
Flannery, W. B. 3 L 138 Linden Ave
(Ithaca 190-X)
Fleckenstein, G. A. 1 M 402 College Ave
Fleming, T. J. 2 C 119 Dryden Rd
(Ithaca 677)
Fletcher, H. W. 1 M Absent
Fletcher, J. A. 3 Ar 113 Cook
(Ithaca 445-C)
Fletcher, S. M. 1 V 122 Columbia
Flint, H. L. 1 L Cayuga Hts
(Ithaca 752-Y, Bell 181)
Flood, E. P. 1 A 215 Mitchell
Flood, L. 1 M 5 Central Ave
(Bell 109, Ithaca 347)
Flumerfelt, O. F. 3 A 113 Dewitt Pl
(Bell 790-B)
Fluno, V. J. 1 A Sheldon Ct
Flynn, W. F. J. 2 C 208 Stewart Ave
(Ithaca 580-X)
Flynn, W. F. 2 A 117 Stewart Ave
Fogg, (Miss) E. 2 A Sage
Fogg, W. S. 3 M 106 Highland Ave
(Bell 756)
Fogle, J. C. Jr. 4 L 426 Casca. Pl
Foote, B. F. 2 A 109 College Ave
Foote, M. N. 2 A 2 South Ave
Forbush, E. H. 1 A Absent
Ford, H. H., Jr. 4 M 608 E. Buffalo
Ford, H. W. 4 M 600 Univ. Ave
(Bell 688, Ithaca 338-C)
Ford, J. C. 4 M 118 Cook
(Ithaca 491-X)

Ford, S. M. 1 M 125 Dryden Rd
deForest, (Miss) M. G. 3 A Sage
Forman, A. H. G 112 Highland Pl
Forrestal, J. Jr. 1 C 202 Williams
Fors y Reyes, A. 1 Ag 209 College Ave
Forsyth, A. J. 2 V 411 College Ave
Foster, (Miss) E. M. 2A 405 N. Geneva (Ithaca 295-Y)
Foster, (Miss) E. D. 1 A Sage
Foster, (Miss) E. G. 1 Ag Sage
Foster, L. W. 2 M 810 Univ. Ave (Bell 129)
Foster, W. S. G Cascadilla Pl (Ithaca 1076)
Fowler, C. H. 1 C 115 Cook
Fowler, G. 2 C 48 Fall Creek Drive (Bell 9-B)
Fowler, R. P. 1 A 301 Dryden Rd
Fowler, T. F. 1 M Sheldon Ct
Fox, A. M. 2 C 422 Casca. Pl
Fox, C. J. 4 C 636 Stewart Ave (Ithaca 782)
Fox, D. S. 2 Ag 202 Williams (Ithaca 744-X)
Foye, G. K. 2 L 503 E. Buffalo (Bell 550, Ithaca 671)
Frame, P. P. 1 C 608 E. Buffalo (Ithaca 621-X)
Francis, D. R. G 502 N. Aurora
Francis, I. T. 2 A 114 Ferris Pl
Frank, C. F. 3 M 239 Linden Ave (Ithaca 743-C)
Frank, F. A. 1 Ag 305 Dryden Rd (Ithaca 203-X)
Frank, G. S. 4 C Fall Creek Drive (Bell 9-B)
Frank, H. H. 2 C 118 Cook (Ithaca 941-X)
Frank, L. C. 2 C 107 College Ave
Frank, W. K. 4 M 202 Stewart Ave (Bell 386-W, Ithaca 710)
Franke, A. O. 1 V 126 Linden Ave
Franke, C. A. 2 M Cayuga Hts (Bell 181, Ithaca 752-Y)
Frankel, M. 4 M Summit Ave (Ithaca 203)
Franklin, P. A. 2 M Cayuga Hts (Bell 181, Ithaca 752-Y)
Frary, B. H. 1 Ag 315 Eddy
Fraser, A. C. 2 Ag 108 Ferris Pl
Frayne, W. D. 1 M 202 Stewart Ave
Fredericks, P. G. 3 M 223 Eddy (Ithaca 614)
Frederiksen, F. M. 1 A 201 Williams
Freeman, A. D. 2 Ag 224 Linden Ave (Ithaca 242-C)
Freeman, H. S. 3 A Y. M. C. A.
Freeman, H. L. G 204 Linden Ave (Ithaca 242-Y)
Freer, A. 1 V 402 College Ave
Freidenrich, M. 4 A 109 Summit Ave (Ithaca 203)
Freud, R. R. 1 M 508 Edgewood Pl.
Freyre, J. P. 1 C 210 College Ave (Ithaca 765-X)
Fried, J. A. G 91 Waite Ave (Bell 616-B, Ithaca 204-C)
Friedberg, M. 1 A 402 College Ave (Ithaca 90-X)
Friedberg, R. J. 2 Ar 202 Stewart Ave (Bell 386-W, Ithaca 710)
Friedel, J. H. 1 A 309 Eddy (Ithaca 70-X)
Friedlander, A. A. 2 A 130 Linden Ave (Ithaca 190)
Friend, H. M., Jr. 3 M 811 E. State (Bell 497)
Fries, W. H. 4 Ag 712 Thurston Ave (Bell 669-W)
Frisch, (Miss) J. R. 3 A Sage
Fritz, W. E. 3 V 424 E. Seneca
Fritz, W. H., Jr. 1 C 102 Highland Ave
Frost, (Miss) E. D. 2 A Sage
Frost, H. B. G C. U. Forcing House (Ithaca 1089)
Frost, H. M. 2 M 712 Thurston Ave (Bell 669-W, Ithaca 823)
Fruauff, H. A. 2 Ar The Knoll (Ithaca 776)
Frucht, N. 3 M 37 West Ave (Bell 774-B)
Fry, J. M. 1 A 201 Dryden Rd (Ithaca 379)
Fuchs, A. 2 C 119 College Ave (Ithaca 636-X)
Fuchs, D. A. 3 C 205 Linden Ave
Fuchs, J. O. 4 M 515 Stewart Ave (Bell 198, Ithaca 330)
Fugett, J. R. 2 Ag 126 Linden Ave
Fuller, L. F. 3 M 107 College Pl (Ithaca 808-X)
Fuller, R. H. 4 A 125 Dryden Rd (Ithaca 90)
Fulton, W. J. 3 C 209 Williams
Fung, H. K. G 125 Quarry (Ithaca 764)
Funk, W. C. 4 Ag 523 E. Buffalo (Ithaca 613-X, Bell 126-J)

Gabriel, H. S. Sp Ag 212 Linden Ave
Gaete, J. 1 Ag 409 College Ave
Gage, H. P. G 4 South Ave (Bell 568-B)
Gage, J. S. 2 M 107 College Pl
Gailey, A. 4 M 805 N. Tioga
Galajikian, A. S. G Casca. Pl (Ithaca 75-X)

Galajikian, H. 4 A 465 Casca. Pl (Ithaca 75-X)
Galbraith, H. S. 1 L 105 DeWitt Pl
Galdo, M. F. 4 M 303 Eddy (Ithaca 421)
Gallagher, P. J. 2 M 120 Maple Ave
Galland, W. I. 4 A 516 Stewart Ave (Bell 320-B)
Gallehawk, C. A. 1 L 404 Eddy
Gallup, A. W. 2 M 1½ Central Ave
Gally, T. K. 2 A 810 Univ. Ave (Bell 129)
Galpin, S. L. G 804 E. Seneca
Gano, R. C. 2 L 302 Stewart Ave (Bell 699)
Garcia, R. 3 C 210 College Ave
Gardner, C. A. 1 V 314 Farm (Bell 314)
Garmezy, S. 2 C 120 Linden Ave
Garner, H. H. 2 M 325 Dryden Rd (Ithaca 808)
Garnett, Wm. E. 3 Ag 134 Linden Ave
Garnsey, (Miss) E. L. 1 A 210 Univ (Bell 620-B)
Garrigues, W. M. 4 M 205 Linden (Ithaca 743-X)
Gass, K. W. 2 M 600 Univ. Ave (Bell 588)
Gastmeyer, R. W. 4 C 128 Eddy (Ithaca 601)
Gatslick, S. L. 2 C 209 College Ave
Gaub, J. G 234 Linden
Gavett, J. W., jr. 4 M 102 West Ave (Bell 598, Ithaca 730-X)
Gavett, W. 3 C 119 Stewart (Bell 386, Ithaca 617-X)
Gavin, W. E. 1 A 117 South Ave
Gayton, F. N. 1 Ar 96 Waite Ave
Gazda, A. A. 1 M 209 Williams
Geer, W. J. 2 A 110 W. Mill (Bell 618)
Geiser, A. 2 A 431 E. Seneca
Gellert, H. N. 1 Ag 119 College Ave (Ithaca 636-X)
Genung, A. B. 2 Ag 523 E. Buffalo (Ithaca 61-X)
Genung, (Miss) E. 4 Ag 308 Farm (Ithaca 411)
George, (Miss) C. Sp Ag 518 Utica
George, H. H. 3 C Cayuga Heights (Ithaca 752-Y, Bell 181)
Georger, E. L. 2 A 207 Linden Ave
Georgeson, V. 3 Ag 214 Stewart (Bell 429)
Georgia, B. C. 2 Ag 514 S. Aurora (Ithaca 370-Y)
Gerow, C. D. 3 A 114 Ferris Pl (Ithaca 3-C)
Gerow, L. H. 1 Ar 306 College Ave (Ithaca 402-X)
Getchell, C. K. 4 M 611 E. State (Ithaca 768-X)
Getchell, L. W. 2 M 415 Stewart Ave
Getman, C. W. 2 C 224 Linden Ave (Ithaca 242-C)
Gibbons, W. A. G 502 Dryden Rd
Gibbs, L. N. 2 Ag 102 West Ave (Bell 598, Ithaca 730-X)
Gibson, K. S. 3 A 115 College Ave (Ithaca 636)
Gibson, R. J. 1 Ag 121 E. Seneca
Gibson, R. jr. 2 A 102 West Ave (Bell 598)
Gieger, M. G 301 Dryden Rd
Giesecke, A. C. Sp C 401 Eddy
Giessing, C. P. 1 A 209 College Ave
Gifford, S. R. 2 A 210 Williams (Ithaca 272)
Gilbert, A. H. G 301 College (Ithaca 692)
Gilbert, G. H. Sp Ag 325 E. State
Gilbert, R. M. 2 M 710 Thurston Ave (Bell 175, Ithaca 817)
Gilbertson, H. W. G 124 Linden Ave
Gilchrist, C. M. 2 A 13 South Ave
Gildea, R. Y. 2 C 74 Thurston Ave (Bell 213, Ithaca 201)
Giles, G. S. 3 M 306 Tompkins
Giles, R. C. 4 A 307½ College Ave (Bell 587-B)
Gilkeson, F. 1 M Sheldon Ct
Gill, (Miss) M. Sp Ag 614 E. State
Gill, Wm. J. Sp Ag 614 E. State
Gillespie, A. J. 1 M Y. M. C. A. Bldg.
Gillespie, E. C. 1 M 125 Edgemoor (Bell 173)
Gillette, D. G. 2 A 13 South Ave (Bell 419, Ithaca 196)
Gillette, E. S. 1 A 304 N. Geneva (Bell 294)
Gilmore, R. J. G 325 Dryden Rd
Gingrich, R. J. 1 M 109 Cook (Ithaca 491)
Ginburg, I. 1 Ag
Ginsburg, S. 1 A 217 Linden Ave
Ginsburg, S. N. 2 A 202 College Ave (Ithaca 635-X)
Girvan, S. F. 4 Ag 234 Linden Ave (Ithaca 255–Y)
Girvin, C. W. Sp M 113 Dryden Rd
Givens, M. H. 1 M D 115 DeWitt Pl (Ithaca 617)
Gladding, (Miss) I. B. 3 A Sage (Ithaca 1106)
Gladstone, J. E. 3 A 122 Catherine (Ithaca 402-Y)

Gleason, C. R. 1 Ag 303 College Ave
Gleason, D. H. 1 M 613 N. Aurora
Gleason, W. S. 2 V 110 Cook (Ithaca 248)
Glezen, J. C. 2 L 327 Eddy (Ithaca 614-X)
Gloger, A. C. 1 L 127 College Ave
Glück, H. J. G 110 Stewart Ave (Ithaca 620-X)
Glück, J. B. 2 A 214 Stewart Ave (Bell 429)
Goan, P. 2 M 415 Stewart Ave (Bell 270, Ithaca 307-X)
Goertz, W. A. 1 M 614 E Buffalo
Goetz, G. G. 3 A 810 Univ. Ave. (Bell 129)
Goetz, W. W. 4 M 810 Univ. Ave (Bell 129)
Goff, A. C. 1 V 310 College Ave
Goff, A. L. 4 C 708 E. Seneca (Bell 284-J, Ithaca 579-Y)
Goff, M. B. Sp Ag 214 Dryden Rd (Ithaca 77-X)
Goldbaum, M. 1 A 213 College Ave (Ithaca 765)
Goldberg, H. 3 A 424 E. Seneca
Goldberg, M. M. G 115 Stewart Ave (Ithaca 771-X)
Goldberg, S. 1 Ag 215 Dryden Rd
Goldenberg, (Miss) M. A. 1 A 311 N Tioga (Ithaca 681-X)
Goldman, B. P. 1 M 213 College Ave (Ithaca 765)
Goldsmith, H. 2 A 715 E. State (Ithaca 599)
Goldsmith, N. J. 1 A 123 Dryden Rd (Ithaca 677-X)
Goldstein, E. W. 1 Ar 130 Dryden Rd
Goldstein, H. 4 L 109 Summit Ave (Ithaca 203)
Goldstein, H. W. 2 C 240 Linden Ave
Goldstein, Louis 1 C 119 College Ave (Ithaca 636-X)
Goldstein, Louis E. 4L 240 Linden Ave
Goldstein, M. 2 A 811 E State (Bell 497)
Goldstine, P R. 119 College Ave (Ithaca 636-X)
Goldstone, E. G. 1 A 107 Linn
Gons, L. R. 1 C 219 Linden Ave
Gonzalez, M. A. 1 C 239 Linden Ave (Ithaca 743-C)
Gonzalez, R. 4 C 325 Dryden Rd
Gooch, E. P. 1 Ar 114 Eddy
Goodenough, L. G 101 Quarry (Ithaca 604)
Goodman, A. M. 2 Ag 205 Linden Ave (Ithaca 743-X)
Goodwin, (Miss) A. M. G 113 Stewart Ave (Bell 272)
Gordon, A. 3 L 604 E. Buffalo (Ithaca 72)
Gordon, M. A. 3 A 715 E. Buffalo (Ithaca 509-X)
Gordon, R. D. 2 L 107 Edgemoor (Bell 674)
Goudge, M. E. G Sage Cottage (Bell 576, Ithaca 1136-X)
Gough, A. W. 2 Ag 204 College Ave (Bell 487-J)
Gouinlock, H. 4 C 306 College Ave (Ithaca 402-X)
Gowling, L. E. 4 M 402 Eddy (Bell 485)
Grace, A. C. 2 V 521 E. State (Bell 518)
Graham, E. F. 1 A 302 Mitchell (Ithaca 774)
Graham, R. R. 2 C 325 College Ave
Graham, (Miss R. 2Ag 114 Schuyler Pl (Bell 522-B)
Graham, S. A. 4 C 625 Univ. Ave (Bell 109, Ithaca 338-X)
Graham, S. C. Sp Ag 116 Cook
Grambow, M. A. 3 M 401 Dryden Rd (Ithaca 568)
Grant, G. E. 2 A 506 Dryden Rd (Ithaca 456-X)
Grant, H. W. 3 M 519 Stewart Ave (Bell 596, Ithaca 196-X)
Grant, J. M. 4 M 114 Stewart Ave (Ithaca 576-X)
Grant, L. H. 4 A 715 E. Buffalo
Grant, R. E. 1 Ag 118 Ferris Pl
Graves, C. H. 1 Ag 222 Eddy
Grayson, A. C. 1 M 504 E. Buffalo
Greaney, J. F. 1 L 132 Blair
Green, J. L. 3 C Cayuga Hts (Bell 181, Ithaca 752)
Green, K. 4 Ag 206 Dryden Rd
Green, L. F. 2 M 135 Blair (Bell 24)
Green, P. E. 1 A 301 Dryden Rd
Green, R. W. Sp Ag 15 East Ave (Bell 15)
Greene, F. L. Sp Ag 302 Mitchell
Greening, E. G. 2 A 715 E. Buffalo (Bell 480-B)
Greenwood, R. 1 A 55 Sheldon Ct
Greer, E. S. 1 M 410 Stewart Ave
Gregg, C. G. Sp Ag 215 Dryden Rd
Gregory, C. T. G 101 Clinton (Bell 544-B)
Gregory, E. I. 3 V 204 College Ave (Bell 487-F)
Gregory, R. J. 1 Ar 310 College Ave

Greig, R. S. 2 C 120 Catherine (Ithaca 625-X)
Greiner, H. E. 1 Ag 306 Eddy
Greiner, W. R. 2 Ag 119 Stewart Ave
Grenier, T. J. H. 3 Ag 213 College Ave (Ithaca 765)
Gridley, F. B. 1 A 2 Central Ave (Bell 30, Ithaca 194)
Griffin, C. A. 1 V 224 Spencer (Ithaca 403)
Griffith, H. E. 4 A 140 College Ave (Ithaca 727)
Grimm, B. F. 2 M 508 Edgewood Pl
Griswold, T. H. 1 A 304 College Ave (Ithaca 625)
Groos, R. A. 1 M 512 Stewart Ave
Groover, W. A. 3 Ag 409 Dryden Rd
Groser, L. H. 1 L 208 Williams (Bell 572-B)
Gross, P. W. 2 A 102 Highland Pl
Grossman, J. G. 3 C 315 Eddy (Ithaca 173)
Grossman, Max 2 C 205 Dryden Rd (Ithaca 769)
Grossman, M. H. 1 Ag 209 College Ave
Guen, E. C. 3 M 202 Eddy (Ithaca 507)
Grumme, J. W., Jr. 1 C 222 Univ. Ave (Ithaca 23-X)
Guanes, M. L. 3 M 127 Linden Ave
Guerdrum, (Miss) Elsa 3 A Sage (Bell 92, Ithaca 1108)
Guevara, M. A. 3 Ag 319 College Ave (Ithaca 491-Y)
Guile, C. R., Jr. 2 V 232 Linden Ave
Guldin, P. R. 2 Ag 214 Dryden Rd
Gulliver, H. G. Sp Ag 130 Dryden Rd
Gundlach, H. R. 4 A 96 Waite Ave (Bell 640)
Gunn, D. Sp Ag 422 Dryden Rd
Gurnee, (Miss) Bessie 3 A Sage
Gurney, Frank M. 3 C 127 Dryden Rd (Ithaca 677-C)
Gutsell, J. S. 4 A 301 College Ave
Guthrie, E. S. G Forest Home (Ithaca 753-X)
Guyer, E. R. 1 M 46 Sheldon Ct

Hagg, Wm. 4 M 118 Ferris Pl (Ithaca 3)
Hadley, H. D. 4 M 414 Casca. Bldg. (Ithaca 75-X)
Hadsell, D. W. 2 Ag 7 Bryant
Haff, W. C. 3 M 123 Highland Pl (Bell 572-R)
Hagemann, H. W. 2 Ag 119 Dryden Rd (Ithaca 744)
Hageman, J. C. 3 L 133 Quarry (Bell 6)
Hague, J. B. 4 L 1224 Casca. Pl
Hahnel, F. H. 4 Ag 125 Highland Pl (Bell 762-W, Ithaca 75)
Haigh, (Miss) Eva M. 1 A Sage (Bell 92)
Hainlin, (Miss) G. L. 1 L Sage
Haist, F. A. 4 M 112 Edgemoor (Bell 345, Ithaca 97)
Hale, M. D. Sp Ag 309 Eddy (Ithaca 70-X)
Hale, S. C. 2 M 308 Casca. Pl
Hall, E. W. 1 C 519 E. Buffalo (Ithaca 612-Y)
Hall, F. P., Jr. 1 M 206 College Pl
Hall, George H. 1 A 204 Univ Ave (Ithaca 397-Y)
Hall, R. F. 2 M Hill Crest (Bell 326, Ithaca 186)
Halley, S. R. 1 M 76 Sheldon Ct
Hallock, A. G. 4 Ar 332 Casca. Pl (Bell 374)
Hallock, A. L. 2 A 424 E. Seneca
Halsted, G. C. Jr. 1 M 516 Univ. Ave
Halsted, H. C. 1 M 516 Univ. Ave
Ham, D. H. 2 C 1 Central Ave
Ham, E. D. 3 L 113 Oak Ave
Hamant, M. J. 3 M 206 College Ave
Hamilton, Edgar A. 2 L 515 Stewart (Bell 198, Ithaca 330)
Hamilton, G. H. 2 Ag Sheldon Ct
Hamilton, H. R. Jr. 1 A Sheldon Ct
Hamilton, Hugh A. 1 C 519 E. Buffalo
Hamilton, S. M. 1 A 43 Sheldon Ct
Hamilton, Wm. H. 2 Ag 108 Casca. Park
Hamlet, R. W. 4 A 115 Linn (Ithaca 399-X)
Hammar, A. G. G 804 E. Seneca
Hamnett, F. S. 1 Ag 411 College Ave (Ithaca 452-Y)
Hampton, R. H. 3 Ag 5 East Ave
Hanagan, J. E. 1 L 307 College Ave
Hanchett, W. H. 1 C 130 Dryden Rd
Hancy, (Miss) A. J. 3 A Sage (Ithaca 1108)
Hand, J. M. 2 C 301 Dryden Rd (Ithaca 742)
Hand, J. L. 2 M 123 Quarry (Bell 495-B)
Hanford, H. L. 1 Ag 239 Linden Ave (Ithaca 743-C)
Hanks, C. T. 2 M 103 McGraw Pl (Bell 559)
Hanna, R. W. 2 M 415 Stewart Ave
Hannaford, H. E. 2 Ar 519 Stewart (Bell 396)
Hannam, G. C. 2 M Y M C A

Hannon, W. W. Sp Ag 204 Univ. Ave
Hanson, E. A. Jr. 1 A 522 Stewart
Harbison, R. J. 1 A 224 Linden Ave
Hardenburg, E. V. 3 Ag 309 College Ave
Hardin, G. D. 2 C 1 Central
Hardy, C. W. 4 L 217 Linden Ave (Bell 215)
Harkness, (Miss) G. E. 3 A Sage (Ithaca 1108-X)
Harn, J. E. 1 C 206 College Pl
Harper, C. W. 3 M 712 E. Seneca (Ithaca 1059-X)
Harrington, (Miss) A. M. 3 A Sage
Harrington, C. A. 4 M 130 Blair
Harrington, (Mrs) E. S. G 130 Blair (Bell 688)
Harrington, H. M. 2 Ag R F D 2 (Ithaca 1111-X)
Harrington, W. C. 2 M Forest Home (Ithaca 313-Y)
Harris, Frank A. 2 C 118 Linn (Ithaca 219)
Harris, Frank S. G 122 Linden Ave (Ithaca 141-Y)
Harris, H. Z. 1 L 106 Cook
Harris, J. C. 2 A 206 College Pl (Ithaca 255-C)
Harris, J. S. 2 C 116 Cook (Ithaca 687)
Harris, M. K. 1 A 206 College Pl (Ithaca 255-C)
Harris, (Miss) Rebecca S. 2 A 307 Stewart Ave (Ithaca 622-X)
Harris, S. J. 2 C 129 Eddy (Ithaca 507-X)
Harris, S. T. 4 M Hill Crest (Bell 623, Ithaca 686)
Harrison, C. T. Jr. Sp M 304 College (Ithaca 625)
Harrison, I. M. 4 Ar 216 Univ. Ave (Ithaca 673)
Harrison, R. C. Sp A 21 Wyckoff Ave
Harrison, (Miss) Violet E. 2 A Sage (Ithaca 1108)
Hart, A. M. 3 A 234 Linden Ave (Ithaca 255-Y)
Hart, A. S. 1 C 116 Cook (Ithaca 687)
Hart, Linton 1 C 127 Dryden Rd (Ithaca 677-C)
Harter, G. G. 2 A Absent
Hartley, F. S. 2 L 608 E. Buffalo (Ithaca 621-X)
Hartman, E. L. 4 C 74 Thurston Ave (Bell 213, Ithaca 201)
Hartman, R. C. 1 V 107 Linn
Hartz, R. S. B. 2 C 240 Linden Ave
Hartzell, C. R. 1 L 110 Edgemoor
Harvey, (Miss) Bessie M. 3 A 118 Casca. Ave (Ithaca 689)
Harvey, D. R. 2 L 201 Dryden Rd (Ithaca 379)
Harvey, Lew E. 1 Ag 207 Williams
Harvey, R. N. 1 Ag 209 College Ave
Harvitt, A. 1 Ag 113 Dryden Rd
Haselton, W. J. 1 C 608 E. Buffalo
Haselton, W. D. 1 Ag 515 Stewart (Bell 198, Ithaca 330)
Haswell, (Miss) Sarah G. 2 Ag 106 Highland Pl (Bell 756)
Hatch, Ira A. Sp Ag 703 E. State
Haury, A. F. 1 M 522 Stewart Ave
Hausle, J. P. 2 Ag 125 Quarry
Hausman, L. A. 1 A 134 College Ave
Hauth, (Miss) Emma 1 A 717 E. Buffalo
Haviland, C. B. 3 Ag 201 Casca. Bldg (Ithaca 772-X)
Haviland, P. G. 1 C 113 Cook Ithaca 445-C)
Hawke, W. E. 1 L 107 Edgemoor (Bell 674, Ithaca 196-X)
Hawkes, A. W., Jr. 4 A 219 Eddy (Bell 561-J, Ithaca 626-X)
Hawkins, (Miss) A. H. L. 2 A Sage (Bell 92, Ithaca 1139-X)
Hawkins, M. 1 Ar 409 Dryden Rd
Hawkins, J. M. 1 Ag 129 College Ave (Ithaca 405-X)
Hawley, W. W., Jr. Sp Ag 306 College
Hay, E. N. 3 M 528 Stewart Ave (Bell 221-B)
Hayden, C. E. 1 V 211 Water
Hayden, H. 1 M 127 Dryden Rd (Ithaca 677-C)
Hayden, J. E. 4 C 515 Stewart Ave (Bell 198, Ithaca 330)
Hayes, A. 1 C 124 Catherine (Ithaca 834)
Hayes, L. M. 3 Ag Poultry Bldg
Hayes, (Miss) V. 1 A 717 E. Buffalo
Hayman, G. L. 4 Ag 636 Stewart Ave (Ithaca 782)
Haynes, E. 1 M 600 Univ. Ave (Bell 588)
Hayward, E. 1 Ag 324 N. Tioga
Healy, E. S. 3 C 309 Eddy (Ithaca 70-X)
Heath, R. H. 3 L 303 College Ave (Ithaca 692-X)
Heath, R. P. 4 M 119 Stewart Ave (Bell 386, Ithaca 617-X)
Hecht, E. I. 4 M 107 College Pl (Ithaca 808-X)

Heckert, S. F., Jr. 2 Ar 527 E. Buffalo (Bell 126-B)
Hedges, C. C. G 404 Eddy
Heebner, J. W. 2 Ag 319 Dryden Rd (Ithaca 742-C)
Heflyn, R. P. Sp Ag 105 Catherine
Heidt, A. 1 M Y. M. C. A
Heikes, C. I. 2 M 113 Cook (Ithaca 445-X)
Heilbrunn, L. V. 2 A
Heilbrunn, (Miss) S. 2 A Sage Cott.
Heim, C. S. 2 M 15 South Ave (Bell 533, Ithaca 195-X)
Heimburg, P. J. 1 V 7 Bryant Ave
Heise, W. F. 4 C 208 Williams (Bell 572-B)
Heisley, F. W. 1 M 518 Stewart Ave
Helfrich, W. G. 3 A 16 Casca. Park
von Helmolt, C. 1 M 36 Fall Creek Dr
Hendershot, L. B. 1 Ag Y. M. C. A.
Henderson, (Miss) A. E. 1 A Sage
Henderson, A. H. 1 L 315 Dryden Rd
Henderson, E. M. 1 A 519 Stewart (Bell 396, Ithaca 674-D)
Henderson, H. M. 1 Ag 704 Stewart
Henderson, L. A. 1 M 116 Lake
Hendrickson, B. W. 1 L 135 Blair (Bell 24)
Hendrickson, C. H. 2 A 712 Thurston (Bell 669-W, Ithaca 823)
Hendrickson, G. L. 4 C 217 Linden (Bell 215)
Hendrickson, G. S. 4 M 206 Dryden Rd
Hendry, R. W. 1 C 127 Quarry
Henry, F. 2 A 403 College Ave (Ithaca 691)
Henry, L. L. 2 Ar 121 Casca. Ave
Hentz, R. A. 2 M 515 Stewart Ave (Bell 198, Ithaca 330)
Hepburn, W. M. 4 M 109 Catherine (Bell 385-B)
Herendeen, W. B. 1 L
Herman, M. M. 1 C 214 Stewart Ave (Bell 4-X)
Herrera, C. M. 2 A 16 Casca. Park
Herrmann, F. 2 C 107 Linn
Hespelt, E. H. G 462 Casca Pl
Hess, A. M. 3 M 201 College Ave
Hessler, J. G. Sp A 441 N. Tioga
Heubeck, E. 2 C 74 Thurston Ave
Heughes. (Miss) R. P. 2 A Sage
Hewitt, R. H. 2 Ag 301 Dryden Rd (Ithaca 742)
Hewitt, R. B. Sp Ag 316 College Ave (Ithaca 12)
Heywood, F.C. 4 M 110 Osmun Pl (Ithaca 613, Bell 279)
Hibbard, F. H. 1 M 118 Ferris Pl
Hibberd, C. L. 4 A 16 Casca. Park (Ithaca 183-Y)
Hick, H. J. 1 C 212 Stewart Ave
Hickey, L. C. 1 L 110 Cook
Hickman, W. G. 2 A 600 Univ. Ave
Hickok, J. P. 4 M 317 College Ave (Bell 61-B)
Hiett, S. J. 1 A 117 Oak Ave (Bell 410)
Higgins, B. B. G Forest Home
Higgins, (Miss) C. D. 2 Ag 717 E. Buffalo (Bell 321-B)
Higgins, E. S. Sr L 702 Univ. Ave (Bell 264, Ithaca 250)
High, J. A. 1 M 810 Univ. Ave (Bell 129)
Hildreth, K. E. 2 M 618 Stewart Ave (Ithaca 294)
Hiler, L. 1 A 327 Eddy (Ithaca 614-X)
Hill, C. S., Jr. 1 C 519 E. Buffalo
Hill, E. A. 1 M 13 South Ave
Hill, G. R. jr. G 122 Linden Ave (Ithaca 141-Y)
Hill, H. W. 2 C 306 E. Tompkins
Hill, R. C. 2 C 116 Osmun Pl (Ithaca 623)
Hills, J. B. 3 Ar 446 Casca. Pl
Hinckley, H. N. 4 Ar 409 E. Buffalo (Ithaca 74)
Hinchliff, E. 1 A 600 Univ. Ave
Hinks, W. H. 3 C 116 Osmun Pl (Ithaca 623)
Hinman, R. jr. 1 M 810 Univ. Ave (Bell 129)
Hiscock, G. B. 2 Ag 2 Central Ave
Hiscock, T. 1 M 46 Sheldon Ct
Hitch, A. R. G 126 E. Seneca (Bell 32)
Hitch, E. F. G 706 E. Seneca (Bell 110, Ithaca 829)
Hoag, T. C. 2 C 304 College Ave
Hoagland, J. C. 3 A 2 Central Ave (Bell 30, Ithaca 194)
Hodder, (Miss) M. E. G 68 Thurston Ave
Hodges, C. R. 1 M 427 E. Seneca (Ithaca 27)
Hoehn, C. E. 2 C 123 Quarry (Bell 595-B)
Hoera, C. L. 2 A 123 College Ave
Hoff, M. J. 2 C 515 Stewart Ave (Bell 198, Ithaca 330)
Hoff, O. jr. 2 A 515 Stewart (Bell 178, Ithaca 330)
Hoffert, J. R. 4 C 112 Ferris Pl (Ithaca 3-Y)
Hoffman, E. J. 1 Ag 610 E. Seneca

Hoffman, S. G. 2 M Withdrew
Hoffmann, C. B. 4 M 113 Casca Pk (Ithaca 286-C)
Hofmann, (Miss) R. N. 2 A Sage (Ithaca 1140-X)
Hofstadter, M. 2 C 120 Catherine (Ithaca 625-X)
Hogan, J. A. 1 A 135 Blair
Hogg, C. C. 1 M 312 College Ave
Hogg, G. P. 2 Ag 636 Stewart Ave (Ithaca 782)
Hogue, L. E. 1 Ag Forest Home
Holbrook, E. M. Sp A 708 E. Seneca (Bell 284-J, Ithaca 579-Y)
Holby, L. C. L. 1 Ag 117 DeWitt Pl
Holcombe, (Miss) F. M. 2 A 438 N. Geneva
Holden, R. O. 4 M 133 Linden Ave (Ithaca 190-Y)
Holdredge, E. B. 4 C 102 West Ave
Holland, (Miss) F. A. 2 A 438 N. Geneva
Holland, F. E. 3 C 523 E. Buffalo (Ithaca 613-X)
Hollingshead, R. S. G Univ. Filtra. Plant (Ithaca 1100-X)
Holloway, H. F. Jr. 1 C Willard Ave (Ithaca 806)
Holloway, W. H. Sp Ag 206 College (Ithaca 255-C)
Holmes, A. B. 4 Ar 103 McGraw Pl (Bell 559, Ithaca 226)
Holmes, E. B. 3 C 206 Dryden Rd
Holton, G. Sr L 519 Stewart Ave (Bell 396)
Honeywell, H. G. 1 Ag 127 Dryden Rd (Ithaca 677-C)
Hooey, W. C. 2 A 109 Williams (Ithaca 435-C)
Hook, Warren H. G 316 S. Aurora
Hook, Wallace H. 2 Ag 211 Williams (Bell 361-B)
Hooks, C. E. 1 M 110 Highland Pl (Bell 376)
Hooper, P. 2 M 209 Williams (Ithaca 583-C)
Hoornbeek, C. A. 2 A 702 Univ. Ave (Bell 264, Ithaca 250)
Hope, C. C. 2 M 304 Stewart Ave (Bell 699-B)
Hopkins, A. B. 1 L 503 E. Buffalo (Bell 350, Ithaca 671)
Hopkins, F. S. 4 C 102 West Ave (Bell 598, Ithaca 730-X)
Hopkins, G. J. 2 Ag 625 Univ. Ave (Bell 109)
Hopkins, R. A. 1 L 110 Osmun Pl
Hopkins, R. E. 3 M 201 Dryden Rd (Ithaca 379)
Hopp, G. S. 3 A 506 Dryden Rd (Ithaca 456-X)
Horn, J. M. 1 A 135 Blair (Bell 24)
Hornbeak, J. W. G 7 Bryant Ave (Bell 215-B)
Horner, A. Jr. 2 Ag 107 Edgemoor
Horner, W. W. 1 A 75 Sheldon Ct
Horton, E. A. 1 A 124 Catherine (Ithaca 834)
Horton, (Miss) G. E. 1 A Sage Cott
Horton, (Miss) M. V. 4 A Sage (Bell 92, Ithaca 1132-X)
Horton, (Miss) M. A. 4 A Sage Cott (Bell 576)
Horton, S. S. 1 M 411 N. Cayuga (Ithaca 570-Y)
Horwitz, I. 1 Ag 124 Linden Ave
Hottes, A. C. 2 Ag 228 S. Geneva
Hou, C. F. 1 M 401 Dryden Rd (Ithaca 568)
Hough, L. C. 1 C 408 Stewart Aue
Houghton, S. L. 2 C 600 Univ. Ave
Houlehan, A. E. G 804 E. Seneca (Bell 321, Ithaca 579)
House, H. D. 1 Ag 303 College Ave
House, L. F. 1 Ag 86 Sheldon Ct
Houser, J. S. G Bryant Tract
Houser, S. O. 4 A 205 Linden Ave (Ithaca 743-X)
Houston, G. T. Jr. 2 L 1 Central Ave
Houston, N. 2 M 112 Edgemoor Lane (Bell 345, Ithaca 97)
Hovey, E. A. 4 A 113 Casca. Pk. (Ithaca 286-C)
Hovey, H. K. 1 A 128 Eddy (Ithaca 601)
Howard, (Miss) C. Z. 1A Cornell Hts (Bell 157)
Howard, D. A. 3 C 5 Central Ave (Bell 209, Ithaca 347)
Howard, M. H. 1 L 210 Williams (Ithaca 272)
Howe, (Miss) A. M. G 717 E. Buffalo (Bell 321-B)
Howe, C. D. 1 Ar 216 Univ. Ave (Ithaca 673)
Howe, H. E. G 804 E. Seneca
Howe, W. C. 1 A 107 Edgemoor
Howell, E. V. 2 C 310 Farm (Ithaca 381)
Howell, J. R. 1 M 125 Edgemoor (Bell 371, Ithaca 195)
Howell, J. B. 1 M 125 Dryden Rd
Howell, J. S. Jr L 110 Titus Ave (Bell 470-B)

Howell, L. G. 1 Ag 212 Linden Ave (Ithaca 185-X)
Howell, M. D. 3 Ag 206 College Pl
Howes, H. L. G 315 College Ave
Howland, C. A. 3 C 112 Edgemoor (Bell 345, Ithaca 97)
Howland, (Miss) E. B. 2 A 209 Queen (Ithaca 696-C)
Howland, J. R. 1 L 134 Linden Ave
Hoyt, A. S. 1 C 5 Central Ave
Hoyt, F. W. 1 M 140 College Ave (Ithaca 727)
Hsieh, E. L. G 202 College Pl., So.
Hu, G. H. 1 C 125 Quarry (Ithaca 764)
Hu, M. T. 1 A 127 Linden Ave
Hu, S. S. 1 Ag 409 College Ave
Hu, S. 1 Ag 319 College Ave
Huber, H. L. 2 M 109 Cook
Hubert, M. J. 2 A 203 Coll. Pl. So. (Bell 355)
Huckle, C. 2 A 406 Casca. Pl
Hudson, (Miss) V. M. W. 1 A 805 E. State
Huestis, A. L. 2 A 122 Catherine (Ithaca 402-Y)
Huey, R. 1 Ag 404 Stewart Ave
Huffstot, L. F. 1 C 410 E. Seneca
Hughes, A. jr. 3 M 603 E. Seneca (Bell 105, Ithaca 396)
Hughes, C. W. 1 A 409 Dryden Rd
Hughes, G. J. 1 L 140 College Ave (Ithaca 727)
Hughes, H. M. 2 M 15 South Ave (Bell 533, Ithaca 195-X)
Hughes, T. 1 A 212 Stewart Ave
Hugins, C. R. 4 A 610 E. Seneca (Ithaca 396-Y)
Hull, H. B. 2 M 140 College Ave (Ithaca 727)
Hull, L. L. 1 Ag 212 Linden Ave (Ithaca 185-X)
Hummel, A. 1 L 119 Dryden Rd
Humphrey, H. N. 1 Ag 523 E. Buffalo (Ithaca 613-X)
Humphrey, H. L. 1 A 109 DeWitt Pl (Ithaca 612-X)
Humphrey, R. F. 3 A 523 E. Buffalo (Ithaca 613-X)
Humphreys, (Miss) L. F. 4 Ag Sage (Bell 92, Ithaca 1108)
Hunger, E. A. 2 M 125 Highland Pl (Bell 762-W, Ithaca 75)
Hunn, (Miss) A. E. 2 Ag 3 Garden (Ithaca 332-X)
Hunt, (Miss) A. S. Sp A 117 Eddy (Ithaca 687-X)
Hunt, C. S. 2 C 117 Eddy (Ithaca 687-X)
Hunt, C. W. jr. 3 M 109 E. Seneca (Bell 145)
Hunt, E. H. Sr L 209 Y. M. C. A. (Bell 201-B)
Hunt, G. E. Jr L 503 E. Buffalo (Bell 350)
Hunt, T. M. 3 Ag 17 South Ave (Bell 36-B, Ithaca 97-X)
Hunter, E. D. 2 M 239 Linden Ave (Ithaca 743-C)
Hurd, P. E. 2 M 1 Central Ave
Hurd, R. A. 1 A 206 Univ. Ave
Hurford, J. R. 2 A 103 Highl'd Pl
Hurwitz, W. S. 4 M 117 DeWitt Pl (Bell 404-B, Ithaca 616)
Hussey, T. O. 3 M Rockefeller Hall
Husted, P. H. 1 A 614 Stewart Ave
Hutchinson, (Miss) H. P. 3 A Sage
Hutchinson, W. B. 1 L 407 Dryden Rd
Hutchison, W. A. 1 Ag 32 Thurston Ave
Huyett, D. D. 3 M 710 Thurston Ave (Bell 175, Itheca 817)
Hyatt, F. R. 2 M 203 Williams
Hyatt, R. C. 2 L 410 N. Aurora (Ithaca 791)
Hyland, H. D. 1 M 214 Stewart Ave
Hynds, H. D. 3 C 206 College Pl (Ithaca 255-C)

Iglehart, J. A. W. 1 C 515 Stewart Ave
Ignatiev, G. M. 4 Ag 404 Casca. Bldg
Ihde, W. C. 2 Ag 130 Dryden Rd (Bell 573-B)
Illingworth, J. F. G 126 Catherine
Imbrie, G. K. 4 A 1 Central Ave (Bell 373, Ithaca 194-X)
Ingalls, A. G. 1 A 309 Eddy (Ithaca 70-X)
Ingalls, F. O. 3 A 111 Oak Ave
Inglehart, R. I. 1 L 35 Bryant Ave
Ingraham, D. S. 2 L 503 E. Buffalo
Ingram, H. A. 2 M 115 DeWitt Pl
Ink, J. B. Sp M 217 West Ave (Bell 753, Ithaca 815)
Inman, W. H. 3 M 202 Williams (Ithaca 744-X)
Irish, E. J. 2 A 121 College Ave (Bell 556-W)
Irish, W. E. 2 M 603 E. Seneca (Bell 105, Ithaca 396)
Irvine, (Miss) L. 2 A 802 E. Seneca (Bell 267, Ithaca 320-X)
Irving, J. N. 4 C 204 Stewart Ave (Bell 440)
Isaacs, S. 2 A 109 Summit Ave (Ithaca 203)
Isett, R. T. 2 A 415 Stewart Ave (Bell 270, Ithaca 370-X)
Iszard, H. Y. 2 A 702 E. Buffalo

Ives, K. G. 1 M 1 Central Ave (Bell 373)
Jackman, E. T. 2 M 110 Sage Pl (Bell 426)
Jackson, C. M. 2 M 710 Thurston Ave (Bell 175, Ithaca 817)
Jackson, J. C. 1 C 104 Utica
Jacobs, A. J. 3 M 112 Edgemoor (Bell 395, Ithaca 97)
Jacobson, S. B. 1 Ag 119 College Ave (Ithaca 636-X)
Jaeger, (Miss) E. C. 4 A, G Sage (Bell 92, Ithaca 1132-X)
Jagger, I. C. G 710 Thurston Ave (Bell 175, Ithaca 817)
James, R. L. 3 C 411 N. Cayuga (Ithaca 570-Y)
Jameson, N.M. 4 M 119 Stewart Ave (Bell 386)
Janowitz, M. 4 M 130 Dryden Rd (Bell 573-B)
Jansen, R. R. 1 A 127 College Ave
Jaret, M. 2 A 201 College Ave
Jeffers, R. S. Sp Ag 124 Catherine
Jenison, H. Sp Ag 206 Eddy (Bell 537-B)
Jenkins, (Miss) A. E. 4 Ag 111 Oak Ave (Bell 573, Ithaca 61-X)
Jenks, B. L. 2 A 15 South Ave (Bell 533, Ithaca 198-X)
Jenks, (Miss) M. P. 1 A 924 Cliff St (Ithaca 240-C)
Jennings, D. D., Jr. 2 A 636 Stewart (Ithaca 782)
Jennings, H. M. 2 A 332 Casca. Pl
Jensen, C. N. G 111 Valentine Pl
Jester, (Miss) K. S. 2 A Sage
de Jesus, A. R. 1 L 319 College Ave (Ithaca 491)
Johnson, A. C. 2 M 777 Stewart Ave (Ithaca 250 X)
Johnson, A. A. 1 A 109 Dewitt Pl (Ithaca 612-X)
Johnson, A. L. 3 M 206 Dryden Rd
Johnson, A. T. 4 C 210 College Ave (Ithaca 765-C)
Johnson, Charles B. 1 M Sheldon Ct
Johnson, C. R. 2 C 209 Williams (Ithaca 583-C)
Johnson, Clifford B. 1 L 114 Cook (Ithaca 635)
Johnson, E. R. 1 L 705 E. Seneca
Johnson, F. G. 2 A 110 Sage Place (Bell 426)
Johnson, H. S. 4 C 636 Stewart Ave (Ithaca 782)
Johnson, H. 3 C 523 E. Buffalo (Bell 126-J, Ithaca 613-X)
Johnson, H. E. 1 V 206 Linden Ave
Johnson, J. A. 2 C 306 College Ave (Ithaca 402-X)
Johnson, J. B. 2 M 130 Dryden Rd
Johnson, K. H. 1 Ag Y. M. C. A.
Johnson, Lambert D. 2 A 712 Thurston Ave (Bell 669-W, Ithaca 823)
Johnson, Lawrence D. 2 A 301 College Ave
Johnson, R. M. 1 M 708 Buffalo
Johnson, R. P. 2 M 603 E. Seneca (Bell 105, Ithaca 396)
Johnson, R. R. 1 A 305 Dryden Rd
Johnson, S. C. 1 A 137 Hudson
Johnson, T., Jr. 1 M 210 College (Ithaca 765-C)
Johnston, A. B. 1 M 600 Univ. Ave (Bell 588)
Johnston, C. C. 1 C Forest Home
Johnston, J. C. 2 C 202 Stewart Ave (Bell 386-W, Ithaca 710)
Johnson, M. C. 2 C 107 College Pl
Johnston, R. J. 1 M 321 Dryden Rd (Ithaca 742-X)
Johnston, R. N. 2 M 65 Sheldon Ct
Johnston, W. 1 Ar 74 Thurston Ave (Bell 213, Ithaca 201)
Jonas, M. R. 2 M 205 Williams (Ithaca 583)
Jones, A. H. G 121 E. Mill (Bell 4)
Jones, B. P. 1 Ag 57 Sheldon Ct (Bell 460-B, Ithaca 57)
Jones, C. I. 3 V 110 Stewart Ave (Ithaca 620-X)
Jones, E. T. 3 M 109 Catherine (Bell 385-B)
Jones, E. E. 2 L 202 College Ave (Ithaca 635-X)
Jones, G. H. 2 M 411 E. State
Jones, H. M. 4 L 503 E. Buffalo (Bell 350, Ithaca 671)
Jones, (Miss) H. V. 2 A 706 N. Tioga
Jones, (Miss) J. L. 2 A Sage
Jones, J. H. 1 Ag 208 Dryden Rd (Ithaca 769-X)
Jones, J. P. 1 M 107 Edgemoor
Jones, J. T. 2 M 140 College Ave (Ithaca 727)
Jones, M. T. 2 M Sheldon Ct (Bell 396, Ithaca 38)
Jones, P. W. Sp M 708 E. Seneca (Bell 284-J, Ithaca 579-Y)
Jones, Richard W. 2Ag 108 Ferris Pl
Jones, R. J. 2 M 112 Sage Pl (Bell 394-B, Ithaca 427)

Jones, Roy W. 1 M 407 Dryden Rd
Jones, T. P. Sp Ar 209 College Ave
Jones, W. S. 2 A 503 E. Buffalo
Jordan, L. S. Sp Ag 125 College Ave
Joseph, W. B. 2 C 515 E. State
Joubert, E. G. 1 Ag 411 Dryden Rd
Joyce, H. B. 2 M 96 Waite Ave
Judd, S. G. 4 Ag 32 Thurston Ave
(Bell 213-B, Ithaca 277)
Judson, E. D. 1 M 528 Stewart

Kaffenberger, K. G. 2 M 107 Cook
(Ithaca 445)
Kaiher, R. L. 1 Ar 522 Stewart
Kalmbach, (Miss) A. M. 4 A Sage Cott
Kaminsky, D. B. 1 L 215 Dryden Rd
(Ithaca 832-X)
Kann, F. B. 1 Ag
Kanzler, H G. 2 Ar Sheldon Ct
Kappler, N. G. 1 A 528 Stewart
Karpoutlian, G. 1 Ag 315 Eddy
Kastner, J. Jr. 2 M 108 Cook
Kaufman, G. F. 3 L 310 College Ave
(Ithaca 62-C)
Kaufman, J. A. 1 A 100 Summit Ave
(Ithaca 203)
Kaufman, M. L. 3 C 103 Highland
Pl
Kaufmann, E. G. 4 C 122 Catherine
(Ithaca 402-Y)
Kautsch, K. R. 2 Ar 307 College Ave
Keane, (Miss) M. A. 1 Ag 311 Farm
(Bell 695-B)
Kearney, O. G. Jr. 3 M 118 Cook
Keasbey, A. P. 2 A 528 Stewart Ave
Keating, (Miss) K. J. 1 Ag 111 Oak
Keefer, B. C. 1 M 414 Stewart Ave
Keele, J. G 413 Dryden Rd
Keeler, C. R. 1 M 407 Dryden Kd
Keeler, L. V. 2 C 222 Univ. Ave
(Ithaca 23-X)
Kehl, R. J. 1 M Sheldon Ct
Keichline, (Miss) A. W. 4 Ar Sage
Keil, H. W. 2 Ar 109 Catherine
(Bell 385-B)
Kein, M. 1 Agr 84 Sheldon Ct
Keller, A. W. 1 M 16 Casca. Pl
Keeler, P. P. Jr. 2 A Cerberus Frat
Keenan, W. M. 4 M 133 Blair
(Ithaca 695-Y)
Kellogg, D. W. 1 L 121 College Ave
(Bell 556-W)
Kellogg, (Miss) G. D. 4 A Sage
Kellogg, (Miss) I. M. 2 A 127 Linn
(Ithaca 411-X)
Kellogg, (Miss) M. E. 3 Ag Sage
(Ithaca 1106-X)
Kellogg, R. W. 2 A 133 Quarry
(Bell 6)

Kelly, C. D. 3 A 810 Univ. Ave
Kelly, E. J. 3 C 305 Dryden Rd
(Ithaca 203-X)
Kelly, J. E. 2 A 74 Thurston Ave
(Bell 213, Ithaca 201)
Kelly, J. A. 3 L 519 E. Buffalo
Kemmerer, F. L. 4 A Cornell Hts
(Ithaca 204)
Kendall, L. J. 1 L 118 Ferris Pl
(Ithaca 3)
Kenly, E. B. Jr. 2 M 216 Univ. Ave
Kennedy, C. H. 2 M 140 College Ave
(Ithaca 727)
Kennedy, J. J. 2 A 214 Eddy
Kennedy, R. P. 3 A 209 Eddy
(Bell 386, Ithaca 617-X)
Kennedy, W. E. 2 M 600 Univ. Ave
Kennedy, W. H. G 125 Edgemoor
(Bell 371, Ithaca 195)
(Bell 588, Ithaca 388-C)
Kenny, H. C. 2 A 431 E. Seneca
Kent, (Miss) G. E. 2 A Forest Home
(Ithaca 453)
Kent, J. B. G 201 Dryden Rd
(Ithaca 579)
Kent, O. B. 2 Ag 523 E. Buffalo
(Bell 126-J, Ithaca 613-X)
Kent, P. J. 1 M 201 College Ave
Kent, R. H. 2 M 715 E. Buffalo
(Ithaca 709-X)
Kent, S. B. 4 M 23 Forest Home
Kent, W. T. 1 A 715 E. Buffalo
Keopka, (Miss) C. W. 1 Ag 211 Dryden Rd
Kephart, L. W. 2 Ag 111 Ferris Pl
(Bell 734-B)
Keplinger, J. C. 1 Ag 702 Univ. Ave
Keplinger, R. B. 2 A 702 Univ. Ave
(Bell 264, Ithaca 250)
Kerby, R. T. 2 C 116 Cook
(Ithaca 687)
Kerr, D. C. 2 Ar 1 Central Ave
(Bell 373, Ithaca 194-X)
Kerr, E. C. 1 L 111 Oak Ave
Kerr, J. A. 2 C 712 Thurston
(Bell 669-W, Ithaca 823)
Kerr, J. L. 2 A 320 Aurora
(Ithaca 199-C)
Kerr, L. G. 1 Ag Withdrew
Kerr, N. M. 1 M 409 Dryden Rd
(Ithaca 64-C)
Kessler, H. H. 2 M 110 Edgemoor
(Ithaca 330-X)
Kessler, J. E. 2 M 600 Univ. Ave
(Bell 588, Ithaca 338-C)
Kessler, W. 2 C Y. M. C. A.
(Bell 201,-B Ithaca 229)
Key, Da Yong 1 C 319 College Ave

Keyes, H. F. 1 Ag 121 College Ave (Bell 556-W)
Kidd, N. G. Sp Ag 108 Catherine
Kidde, R. T. 2 C 419 E. Seneca (Bell 303)
Kielland, (Miss) D. E. 1 Ag Sage (Bell 92, Ithaca 1108-X)
Kilburn, F. M. Sp A 214 Stewart Ave
Kiliani, R. B. T. 2 C 123 Highl'd Pl (Bell 572-R)
Killick, F. R. 4 M 125 College Ave (Ithaca 778)
Kimball, H. J. 2 L 119 Stewart Ave
Kimber, G. F. 1 C 112 Ferris Pl (Ithaca 3-Y)
King, (Miss) A. O. G 717 E. Buffalo (Bell 321-B)
King, C. L. 2 A 805 N. Cayuga
King, E. E. G 717 E. Buffalo (Bell 321-B)
King, (Miss) J. L. G Overlook Rd (Ithaca 777)
King, J. D. Sp Ag 303 Eddy
King, Pau Cheng 1 Ag 319 Dryden Rd (Ithaca 572-C)
King, R. P. 3 M 807 E. State
King, R. W. 2 A 805 N. Cayuga
King, Tao 3 C 401 Dryden Rd (Ithaca 568)
Kingsbury, J. A. 4 A 522 N. Aurora (Bell 301-B)
Kinscherf, C. G. 1 A 710 Thurston Ave (Bell 175, Ithaca 817)
Kinscherf, R. G. 2Ar 710 Thurston Ave (Bell 175, Ithaca 817)
Kinsley, H. S. 1 M 302 Mitchell (Ithaca 774)
Kirby, K. D. 2 Ag Forest Home
Kirk, B. 2 A 119 Dryden Rd
Kirk, R. R. G 37 East Ave
Kirkpatrick, H. K. 1 A 327 Eddy (Ithaca 614-X)
Kirkpatrick, N. H. 4 Ar 103 Highland Pl (Ithaca 435)
Kirkup, H. B. 2 M 127 College Ave
Kirschner, C. 1 C 105 DeWitt Pl (Ithaca 612)
Kiso, (Miss) P. 3 A Sage
Kisselburgh, (Miss) I. J. 4 A 213 College Ave (Ithaca 765)
Klaessig, K. O. 1 A 213 College Ave (Ithaca 765)
Klausmeyer, O. A. 2A 519 Stewart Ave (Bell 396)
Kleberg, A. C. 1 C 114 Eddy
Kleegman, (Miss) A. 2A 717 E. Buffalo (Bell 321-B)
Klein, J. F. 3 A 134 Linden Ave (Ithaca 743)
Klein, J. J. 1 A 209 College Ave
Kleinman, F. S. 2 A 119 College Ave (Ithaca 636-X)
Klepser, C. M. 4 M 96 Waite Ave (Bell 640)
Klie, F. H. 2 Ar 207 Williams
Klinck, F. E. G 202 College Ave (Ithaca 635-X)
Kline, O. R. 2 C 614 Stewart Ave (Ithaca 782-X)
Kling, John D. 1 Ag 124 Catherine
Kluge, E. J. J. 2 M Cornell Heights (Ithaca 776)
Knap, H. B. 1 M 17 South Ave (Bell 36-B, Ithaca 974)
Knapp, H. B. 3 Ag 464 Casca. Bldg
Knapp, R. 2 M 208 Williams (Bell 572-B)
Kneeland, M. C. 2 A 625 Univ. Ave (Bell 109, Ithaca 338-X)
Knibloe, W. E. 2 Ag 130 Dryden Rd (Ithaca 573-B)
Knight, A. T. 2 M 102 West Ave (Bell 598, Ithaca 730-X)
Knight, H. H. 1 Ag 212 Univ. Ave
Knipfing, J. G 124 Linden Ave
Knoepke, M. L. 2 L 129 Eddy
Knowles, G. W. 1 Ag 238 Linden Ave
Knowles, H. W. 1 M 110 Edgemoor (Bell 42-B)
Knudson, L. G 108 Brandon Pl (Ithaca 516)
Kobusch, W. H. 1 A 526 Stewart Ave (Bell 36-B, Ithaca 97-X)
Koch, (Miss) H. A. 2 A Sage
Koch, H. 3 L 503 E. Buffalo (Bell 350, Ithaca 671)
Koch, M. M. 2 M 125 Edgemoor
Kocher, B. P. 1 Ag 113 Cook (Ithaca 445-C)
Kochler, J. B. 2 A 519 Stewart Ave (Bell 396)
Koenig, N. E. 1 V 119 College Ave (Ithaca 636-X)
Koerner, W. E. G 807 E. State
Koester, E. F. 2 C 203 College Ave
Kohlberg, L. J. 1 A 113 Oak (Bell 329, Ithaca 737)
Kohn, N. E. 1 Ag 222 Eddy (Ithaca 329-X)
Kolberk, A. 2 C 715 E. State (Ithaca 799)
Koller, J. 2 A 117 Stewart Ave (Ithaca 620)
Koopman, J. 2 C 1 Garden Ave
Kornfield, H. 4 C 205 Dryden Rd (Ithaca 769)

Kotinsky, A. 2A 114 Ferris Pl (Ithaca 3-C)
Kraemer, W. L. 3 M 519 Stewart Ave
Kraft, P. D 2 Ag 108 Catherine (Ithaca 151)
Kraker, J. L. 3 Ag 70 Thurston Ave (Bell 254)
Kramer, W. J., Jr. 1 M 617 N. Cayuga
Kramm, H. E. G 129 College Ave
Kratz, G. D. 2 A 526 Stewart Ave
Krause, A. W. 2 C 127 Quarry (Ithaca 575-C)
Krauss, W. K. 2 L 13 South Ave (Bell 419, Ithaca 196)
Krebs, F. W. 2 M 107 Edgemoor (Bell 674, Ithaca 196-X)
Kreider, A. S. jr. 2 A 108 Cook
Kremer, W. 2 L 600 Univ. Ave (Bell 588, Ithaca 338-C)
Kribs, D. F. Sp Ag 15 South Ave (Bell 533, Ithaca 195-X)
Krieg, W. E. 1 A 213 College Ave
Kriegel, B. 1 C 212 Linden Ave
Krogstod, R. B. 2 L 777 Stewart Ave (Bell 176)
Krohn, L. D. 4 V
Kruse, W. O. 2 Ar 102 West Ave (Bell 598, Ithaca 730-X)
Krutzsch, A. 3 L 519 Stewart Ave
Kuchler, G. W. jr. 2 M Cornell Hts (Ithaca 776)
Kuck, J F. R. 1 C 107 College Ave
Kuh, C. C. 2 A 129 Linden Ave (Ithaca 185-Y)
Kuhlke, G. O. 1 M 221 Eddy
Kuhn, W. R. 3 L 503 E. Buffalo (Bell 350, Ithaca 671)
Kühne, F. 4 M 603 E. Seneca (Bell 105, Ithaca 396)
Kultchar, F. W. 4 M 1½ Central Ave (Bell 268, Ithaca 230)
Kuroda, N. 3 A 504 E. Buffalo (Bell 627-B)
Kutner, S. D. 4 M 127 Catherine (Ithaca 692-C)
Kwank, Seu Zung 1 Ag 129 Eddy
Kyser, (Miss) K. B. G 330 Casca. Pl
Kysor, H. P. Sp Ag 510 Univ. Ave

de Lacazette y Riquelme, A. 2 C 128 Dryden Rd (Bell 615, Ithaca 641)
Lackey, W. T. 1 C 102 Highland Pl
Ladd, C. E. 3 Ag 448 Casca. Pl
LaFever, G. A. 2 M Sheldon Ct
Lafferty, H. R. 4 M 5 Central
Lain, (Miss) M. A. 2 A Sage
Laird, W. R. 1 M 105 Brandon Pl
Lajous, A. R. 2 M 128 Dryden Rd (Bell 615, Ithaca 641)
Laley, R. E. 2 M 636 Stewart Ave (Ithaca 782)
Lamb, E. D. 1 M 508 Univ. Ave
Lambert, E. R. 2 M 408 Stewart Ave (Bell 647)
Lamdin, W. D. 2 Ar 74 Thurston Ave
Lamont, J. D. 1 A 124 Catherine (Ithaca 834)
Lander, R. A. 3 M 105 Catherine (Ithaca 770)
Landis, H. B. 1 L 36 Fall Creek Drive
Landt, J. L. 1 M 508½ E. Buffalo
Lane, J. Barton 3 M 123 Quarry (Bell 795-B)
Lane, L. C. 2 M 618 Stewart Ave (Ithaca 294)
Lang, S. H. 1 A 311 Dryden Rd (Ithaca 185-C)
Lang, W. J. 1 Ar 103 McGraw Pl (Bell 559, Ithaca 226)
Langdon, (Miss) I. G 94 Wait Ave (Bell 673)
Lange, E. H. 3 M 140 College Ave (Ithaca 727)
Lange, P. R. 2 A 212 Linden Ave
Lanman, H. A. 2 M 107 Edgemoor Lane (Bell 674, Ithaca 196-X)
Lanning, F. B. 3 M 702 E. Buffalo (Ithaca 581-X)
LaRoche, E. B. 3 Ar 108 Cook (Ithaca 445-X)
Larrowe, D. M. 1 C Sheldon Ct
Lasher, C. 1 Ag 401 Eddy
Lasher, R. S. 1 M 522 Stewart Ave (Bell 575)
Lathrop, F. B. 1 L 129 Linn
Latimer, T. H. jr. 2 M 515 Stewart
LaTourette, H. 4 A 105 Giles
Lattin, J. D. B. 4 A 222 Casca. Pl
Lau, W. W. 1 M 319 College Ave
Laub, H. jr. 2 C 715 E. Buffalo (Ithaca 509-X)
Laub, L. C. 1 A 708 E. Buffalo
Laue, J. C. A. 3 Ag Barnes Hall
Lauman, A. H. jr. 2 M 74 Thurston
Lautz, H. L. 2 Ag 109 DeWitt Pl
Lautz, W. L. 3 M 109 DeWitt Pl
Law, J. E. 2 M 202 College Pl So. (Ithaca 836)
Law, J. W. 2 Ag 202 Williams (Ithaca 744-X)
Lawall, W. P. 2 A 526 Stewart Ave (Ithaca 183-C)
Lawler, S. L. 1 M 526 Stewart Ave
Lawles, H. D. 1 Ag 132 College Ave

Lawrence, (Mrs.) A. A. Sp Ag 501 N. Tioga
Lawrence, C. J. 1 Ar Hill Crest (Ithaca 686)
Laycock, J. L. 1 Ag 405 Dryden Rd
Lazo, J. 1 L 518 Stewart Ave
Leader, R. F. Sp Ag Forest Home (Ithaca 313-Y)
Learn, C. D. G Forest Home
Leathers, A. W. Sp Ag 208 Farm
LeBoutillier, S. P. 1 Ag 215 Mitchell
Lee, K. S. 1 C 127 Linden Ave
Lee, M. A. G 317 E. Buffalo
Lee, R. J. 4 A 123 Dryden Rd (Ithaca 677-X)
Lee, T. T. 4 C 127 Linden Ave
Lee, W. E. 4 M 805 N. Tioga
Lee, W. K. 1 M 113 Oak Ave (Bell 329)
Lee, Y. S. 2 A 241 Linden Ave
Leete, S. C. 1 Ag 125 College Ave (Ithaca 778)
LeFevre, C. D. 3 M 118 Eddy (Ithaca 601-X)
Lefferts, R. S. 2 Ag 130 Linden Ave (Ithaca 190)
Leggett, E. H. 2 C 110 Edgemoor (Bell 42-B, Ithaca 330-X)
Leggett, H. A. D. Sp Ag 301 Dryden
Leick, L R. 2 Ag 221 Eddy (Ithaca 770 C)
Leidy, M. H. 3 M 206 College Pl (Ithaca 255-C)
Leighty, C. E. G 501 Dryden Rd
Leinroth, J. P. 3 M 315 Eddy (Ithaca 173)
Leland, (Miss) R. G. 4 A 309 College Ave (Ithaca 692-Y)
Lemnitzer, C. C. 1 L 306 College Ave (Ithaca 402-X)
Lemon, B. J. G 209 Eddy (Bell 13-B, Ithaca 1073)
Lemon, C. H. Sp Ag 409 College Ave
Lemon, E. H. Jr L 123 Highland Pl
Lemon, G. N. 4 A 202 College Ave (Ithaca 635-X)
Lent, C. H. 4 C 129 Dryden Rd (Ithaca 832)
Lent, H. D., Jr. 1 A 306 Stewart Ave
Lentz, F. R. 1 A 119 Eddy (Bell 496-W)
deLeon, E. 2 Ag 239 Linden Ave (Ithaca 743-C)
Leonard, E. T. 1 A 134 College Ave
Leonard, M. D. 2 Ag Forest Home (Ithaca 318-C)
Leskowitz, A. 2 A 205 College Ave
Leslie, G. M. 2 M 306 College Ave (Ithaca 402-X)
Lessin, S. 3 C 103 Highland Pl
Lester, N. 1 L 115 Cook
Letsche, J. H. jr. 2 A 600 Univ. Ave (Bell 588)
Levin, B. F. 1 A 401 Eddy
Levine, H. J. 3 C 115 Eddy
Levine, L. 2 M 715 E. Buffalo (Ithaca 509-X)
Levine, S. 4 C 215 Dryden Rd (Ithaca 832-X)
Levy, R. 2 C 210 College Ave (Ithaca 765-C)
Levy, W. D. 1 A 204 Stewart Ave
Lewis, (Miss) C. M. G Sage Cott (Ithaca 1141-X)
Lewis, E. T. 3 Ag 528 Stewart Ave
Lewis, (Miss) O. G. 3 A Sage
Lewis, S. R. Sp Ag 409 College Ave
Lewis, W. J. jr. 4 M 201 Dryden Rd (Ithaca 379)
Lewthwaite, W. H. 1 Ag 703 E. State
Li, K. Y. 2 C 132 College Ave (Ithaca 405-C)
Lidgate, W. O. 2 Ag 107 Edgemoor (Bell 267)
Lieberknecht, F. W. 4 M 140 College Ave (Ithaca 727)
Liepold, A. E. 2 A 64 Sheldon Ct
Liggett, H B. 1 M 125 Edgemoor Lane (Bell 371, Ithaca 195)
Lightfoote, W. R. 1 Ag 105 Dewitt Pl
Lightman, M. A. 2 C 414 Stewart Ave
deLima, E. A. 1 A 526 Stewart Ave
Lin, J. R. G 804 E. State (Bell 497)
Lin, L. K. 2 A 209 College Ave
Lincoln, H. A. 2 M 415 Stewart Ave (Bell 270, Ithaca 307-X)
Lindsay, (Miss) E. C. 4 A Sage
Lipe, C. E. 2 M 102 West Ave (Bell 598)
Lipman, I. B. 4 Ag 414 Casca. Pl (Ithaca 75-X)
Little, J. W. 2 L 125 Edgemoor Lane (Bell 371, Ithaca 195)
Little, W. T. 2 A 234 Linden Ave
Littlefield, G. O. 1 M 214 Stewart Ave
Liu, H. C. 4 A 401 Dryden Rd (Ithaca 548)
Liu, Z. D. 2 C 201 Williams
Livermore, J. R. 2 Ag Barnes Hall (Ithaca 1110)
Livermore, K. C. G 2 Barnes Hall
Lloyd, J. T. G 6 Thurston Ave (Ithaca 699)

Lo, C. C. G 123 Dryden Rd
(Ithaca 677-X)
Lo, P. Y. 1 A 308 Eddy
Lo, Y. C. 2 M 239 Linden Ave
(Ithaca 743-C)
Lockard, A. T. 3 M 220 Eddy
(Bell 115)
Lockwood, A. E. 3 M 302 Stewart Ave
(Bell 699)
Lockwood, E. L. 2 A 212 Univ. Ave
(Ithaca 397)
Lockwood, F. H. 2 M 317 Eddy
Lockwood, H. C. 3 M 618 Stewart Ave
(Ithaca 294)
Locsin, C. L. 2 Ag 313 Eddy
Logan, H. J. 1 L 214 Stewart Ave
Logsdon, K. 2 A 806 E. Seneca
Loh, Y. C. 1 C 409 College Ave
(Ithaca 760)
Lohr, J. M. G 134 College Ave
(Ithaca 695-X)
Loney, B. S. 1 M 706 Stewart Ave
(Ithaca 806-X)
Long, A. M. 3 C 712 Thurston Ave
(Bell 669, Ithaca 823)
Long, D. O. 1 L 113 Dryden Rd
Long, L. W. 2 Ag 138 Linden Ave
Longfield, L. R. 2 M 303 Eddy
(Ithaca 421)
Loomis, F. C. 1 M 408 Stewart
Loomis, V. W. 1 C 115 College Ave
Loos, H. B. 1 A 625 Univ. Ave
(Bell 109, Ithaca 338-X)
Lopatin, A. Sp Ag 713 E. State
Lora y Romero, M. 2 C
Lord, C. H. 3 C 127 Catherine
(Ithaca 692-C)
Lord, G. S. Sr L 201 Dryden Rd
de Lorenzi, J. H. G 519 Stewart Ave
Lormor, H. W. 2 M 603 E. Seneca
Loud, L. 3 A 302 Stewart Ave
(Bell 699)
Lough, W. R. Jr. 1 A 804 State
Lovejoy, F. A. 1 M 113 DeWitt Pl
Lovell, S. P. 3 A 214 Dryden Rd
(Ithaca 77-X)
Lowary, R. C. 4 A 129 College Ave
(Ithaca 405-X)
Lowe, J. T. C. 2 A 133 Quarry
(Bell 6)
Lowman, J. W. 2 A 17 South Ave
Lownsbery, B. F., Jr. 2 M 112 Casca. Ave
Lubke, A. F. 1 M 56 Sheldon Ct
Lubin, H. G 456 Casca. Pl
Luce, H. P. 4 L 112 Edgemoor
(Bell 345, Ithaca 97)
Luce, R. S. 1 M 202 Eddy
(Ithaca 507)
Lucid, L. M. 1 V Absent
Ludlam, T. R. 2 Ar 415 Stewart Ave
(Bell 270, Ithaca 307-X)
Ludwig, D. W. Sp Ag 239 Linden Ave
Lufkin, H. M. 1 A 618 Stewart Ave
(Ithaca 294)
Lum, B. A. 2 Ar 303 E. Mill
(Ithaca 199)
Lundgren, W. E. 1 M 206 College Pl
Lurie, A. 1 Ag 715 E. State
(Ithaca 599)
Lusch, J. S. 2 C 2 South Ave
(Ithaca 346-X)
Luther, W. H. Jr L 109 Catherine
(Bell 385-B)
Lutz, J. M. 1 M 110 Edgemoor
Lux, W. 1 A 516 Stewart Ave
Lydle, W. S. Sp Ag 811 E. State
Lyle. A. Jr. 2 C 516 Univ. Ave
(Bell 559, Ithaca 243)
Lyman, G. S. 2 A 710 Thurston Ave
(Bell 175, Ithaca 476-R)
Lyman, W. W. 3 M 113 Stewart Ave
Lynaugh, W. F. 4 M 205 Eddy
Lynch, E. 3 C 202 Eddy
(Ithaca 507)
Lynes, G. M. 2 M Cayuga Hts
(Bell 181, Ithaca 752-Y)
Lynn, E. A. 3 M 904 N. Aurora
Lyon, P. S. 3 M 111 Osmun Pl
(Bell 349, Ithaca 307)
Lyon, V 1 V 303 College Ave
(Ithaca 692-X)
Lyttle, J. D. 2 A 426 E. Buffalo
(Ithaca 685-X)

McAllister, (Miss) N. C. 3 A 410 Eddy
(Ithaca 428-X)
McArthur, E. G. 4 L 125 Edgemoor
(Bell 371, Ithaca 195)
McArthur, (Miss) E. H. 1 Ag Sage
McBride, F. R. 1 M Y. M. C. A.
McCann, D. G. 3 M 904 N. Aurora
McCarriagher, D. H. 2 L 120 Catherine
(Ithaca 625-X)
McCarthy, P. D. Sr L 1 Central Ave
McCarthy, T. J. 1 L 510 N. Plain
(Ithaca 539-Y)
McCarthy, W. J. 1 Ag 206 College Pl
McCarthy, (Miss) W. Sp A Sage Cott
McCaulley, (Miss) M. 3 A Sage
(Bell 92)
McChesney, J. W. 4 A, 1 M.D. 112 Sage Pl
(Bell 394-B, Ithaca 427)
McClaine, A. F. 1 A Ithaca Hotel
McClave, R. B. 3 M 515 Stewart
(Bell 198, Ithaca 330)

McClay, A. H. 2 M 111 Osmun Pl (Bell 349, Ithaca 307)
McClellan, W. D. 2 M 217 West Ave (Bell 753, Ithaca 815)
McClelland, A. H. 2 V 319 College Ave (Ithaca 491-Y)
McClew, M. H. Sp Ag 119 Stewart (Bell 376-X, Ithaca 1)
McClintock, F. H. 2 L 202 Stewart (Bell 384-W, Ithaca 710)
McClintock, W. G. 2 C 130 Linden
McCloskey, J. B. 3 Ag 32 Thurston
McClure, H. G 704 Stewart Ave
McConnell, J. W. 1 C 101 Eddy (Ithaca 658-C)
McCool, M. M. G 809 E. Seneca (Bell 321, Ithaca 579)
McCord, R. B. 1 V 113 Cook (Ithaca 445-C)
McCorkle, C. A. 3 L 112 Edgemoor Lane
McCormick, A. G. 1 M 109 Cook
McCormick, J. D. 1 C Hill Crest
McCown, A. R. 1 L 110 Edgemoor
McCreery, J. E. 1 M 206 Dryden Rd
McCrone, W. C. 1 C 611 E. State (Ithaca 768-X)
McCully, (Miss) E. F. 3 A Sage (Bell 92, Ithaca 1106)
McCune, J. C. 4 M 702 E. Buffalo (Ithaca 581-X)
McCurdy, J. C. Sp C Forest Home
McCutcheon, W. N. 1 L 406 Stewart
McDonald, D. jr. 2 M 107 Edgemoor Lane (Bell 674, Ithaca 196-X)
Macdonald, D. B. 2 Ar 618 Stewart (Ithaca 294)
Macdonald, (Miss) E. C. 3 A 422 Eddy
MacDonell, D. R. 2 M Sheldon Ct
McDowell, E. T. 1 C 201 Dryden Rd
McElroy, (Miss) M. J. 3 A Sage (Bell 92)
McElroy, R. C. 3 M 206 College Ave
McEwan, T. S. 4 M 221 Eddy
McFarland, (Miss) N. W. 3 A Sage
McGraw, D. 2 M 13 South Ave (Bell 419, Ithaca 196)
McGrew, (Miss) V. M. 4 A 29 East Ave
McGuire, (Miss) M. E. 2 A Sage
Machat, J. T. 2 A 205 Williams (Ithaca 583)
McHose, H. H. 2 M 625 Univ. Ave (Bell 109, Ithaca 338-X)
McHose, M. M. 1 M 414 Stewart (Bell 123-B)
McIlwaine, J. H. 1 M 526 Stewart
McInerney, T. J. G 114 Ferris Pl (Ithaca 3-C)
McIntire, T. B. 3 M 127 Dryden Rd (Ithaca 677-C)
MacIntyre, D. 1 M 119 Stewart Ave (Bell 386, Ithaca 617-X)
McIver, H. G. Sp Ag
McIver, R. D. 2 C Y. M. C. A. (Bell 201-B, Ithaca 229)
Mack, E. C. 1 M 214 Eddy
Mack, F. A. J. 1 C 717 E. State (Bell 496)
McKaig, T. H. 4 Ar 309 College Ave (Ithaca 692-Y)
McKay, (Miss) A.C. 3 Ag 705 E.State (Ithaca 602-X)
McKay, W. J. 3 A 101 Casca Pl
McKee, P. J. 1 M 528 Stewart Ave
McKelvy, C. L. 3 L 201 Dryden Rd (Ithaca 379)
McKelway, (Miss) J. D. 2 A 705 E. Seneca (Ithaca 575-X)
McKendrick, L. 1 M 111 Osmun Pl (Bell 349, Ithaca 307)
McKenna, J. A. 1 A
McKenzie, (Miss) J. E. 2 A Sage
Mackenzie, R. K. 1 M 133 Blair (Ithaca 695-Y)
McKerrow, G. G. 2 Ag Forest Home
McKinney, J. F. 2 L 217 S. Geneva (Bell 31, Ithaca 97)
McKinney, W. P. 1 M 113 Oak Ave
Mackintosh, M. E. 1 M 702 Univ. Ave (Bell 264, Ithaca 250)
MacKrell, E. A. 3 C 123 Highland Pl (Bell 572-R)
MacLachlan, A. 1 M 13 South Ave
McLane, F. W. Sp Ag 209 College Ave
McLaughlin, C. D. 1 M 311 College Ave
McLean, J. C. 4 A 129 College Ave (Ithaca 405-X)
McLean, R. H. 2 A 129 College Ave (Ithaca 405-X)
Macleish, G. G. 2 C 107 College Pl
McLeod, C. H. Sp Ag 210 Stewart Ave
McLeod, (Mrs.) L. R. Sp Ag 318 N. Aurora (Bell 326)
MacLeod, N. L. 3 C 5 Central Ave (Bell 209, Ithaca 347)
MacMahon, J. D. 1 A 121 Catherine
McMath, N. C. 1 C 50 Thurston Ave
McMicken, M. R. 1 M 87 Sheldon Ct (Ithaca 63)
McMonagle, C. 1 L 321 S. Geneva

McMurdy, H. 2 A 206 College Ave (Ithaca 255-C)
McNamara, F. R. 1 M 409 Dryden Rd
McNaughton, E. 4 M 322 N. Aurora
McNear, G. P. jr. 2 M 777 Stewart Ave (Bell 176, Ithaca 250-X)
MacNeil, W. J. G 809 E. State
McNickle, W. J. 4 A 710 Thurston Ave
McNicol, (Miss) M. B. 1 A Sage
Macnoe, G. 2 M 2 Central Ave
McQuillan, A. S. 2 A The Oaks
McSparren, F. W. 1M 406 Stewart Ave
McTarnaghan, T. J. 3 Ag Casca. Bldg
McWhinney, R. S. 1 M 516 Univ. Ave
MacWilliams, H. J. Sp M 702 Univ. Ave (Bell 264, Ithaca 250)
Macy, P. 2 C 410 Stewart Ave (Ithaca 669-X)
Madero, E. E. 2 Ag 128 Dryden Rd (Bell 615, Ithaca 641)
Madsen, (Miss) R. C. 1A 717 E. Buffalo
Maerker, T. S. 1 M 116 Lake
Magner, E. B. 4A 110 Edgemoor Lane (Bell 42-B)
Magnuson, H. E. 1Ar 201 Dryden Rd (Ithaca 379)
Magoun, J. W. 2 M 110 Edgemoor Lane (Bell 42-B, Ithaca 330-X)
Magowan, D. W. 2 A 503 E. Buffalo (Bell 350, Ithaca 671)
Maher, P. L. 2 C 712 Thurston Ave (Bell 669-W, Ithaca 823)
Mahon, J. E. Sr L 440 E. Buffalo (Ithaca 822)
Mahoney, L. C. 2 C 116 Lake (Bell 584)
Maider, J. P. 4 A 201 Oak Ave (Ithaca 61)
Major, C. A. 1 L 5 Central Ave (Bell 209, Ithaca 347)
Maldiner, F. J. 4 L 207 Linden Ave
Malvar, B. 1 C 239 Linden Ave (Ithaca 743-C)
Mandeville, (Miss) M. 3 Ag 209 Eddy (Bell 13-B)
Mankin, G. H. 1 A 601 N. Tioga
Mann, J. S. 3 C 108 Cook (Ithaca 445-X)
Mann, R. L. 3 M 2 Central Ave (Bell 30, Ithaca 194)
Mann, R. J. 3 C 133 Blair (Ithaca 695-Y)
Mann, V. E. 2 M 140 College Ave (Ithaca 727)
Manson, W. R. 1 C 636 Stewart Ave (Ithaca 782)
Mapua, T. 4 Ar 318 Dryden Rd
Marasco, C. J. 2 L 214 Stewart Ave (Bell 429)
Marcus, D. 1 L Withdrew
Marder, L. 1 A 309 Eddy (Ithaca 70-X)
Margolies, A. P. 1 L 219 Linden Ave (Ithaca 77-C)
Mariano, R. 3 M 130 Linn
Markham, E. S. 2 V 232 Linden Ave (Bell 260)
Markson, H. 2 L 130 Dryden Rd (Bell 573-B)
Maroney, J. F. 1 A 305 Dryden Rd
Marquette, B. 1 A 124 Linden Ave
Marrion, R. R. 1 C 35 Bryant Ave
Marsh, (Miss) C. 4 A Sage
Marsh, W. J. G 302 College Ave (Ithaca 14-X)
Marshall, C. C. 4 A 107 Edgemoor Lane (Bell 674, Ithaca 196-X)
Marten, E. 4 Ar 504 E. Buffalo
Martin, E. R. 1 A 36 Fall Creek Dr
Martin, H. U. Sp Ag 404 Stewart Ave
Martin, R. B. Sp Ag 523 E. Buffalo (Bell 126-J, Ithaca 613-X)
Martinez, E. A. 4 L 503 E. Buffalo (Bell 350, Ithaca 671)
Marvin, (Miss) G. A. 2 Ag Sage
Masland, G. H. Sp Ag 216 Univ. Ave (Ithaca 673)
Mason, A. O. 3 A 17 South Ave (Bell 36-B, Ithaca 97-X)
Mason, J. J. 2 A 102 West Ave (Bell 598, Ithaca 730-X)
Mason, L. 1 A 112 Highland Pl
Masten, Z. G. 1 L 130 Linn
Matheson, R. G 804 E Seneca
Mathewson, A. H. 3 A 101 Quarry (Ithaca 604)
Matter, G. E. 1 Ag Coddington Rd
Matthai, J. F. 3 M 810 Univ. Ave (Bell 129)
Mattice, (Miss) C. 1 A 717 E. Buffalo (Bell 321-B)
Mattson, A. W. Jr L 108 Parker Pl (Ithaca 449-X)
Maxfield, C. D. 3 M 105 Quarry (Ithaca 764-X)
Maxon, E. T. 3 Ag 303 College Ave (Bell 692-X)
Maxon, P. J. 2 C 303 College Ave (Ithaca 692-X)
Maxudiau, Y. 1 A Highland Ave (Bell 396)
Maxwell, W. H. 1 M 96 Wait Ave (Bell 640)
May, C. 1 L 518 Stewart Ave (Bell 754)

May, G. C. 4 A 519 Stewart Ave (Bell 396, Ithaca 364-Y)
Mayer, E. C. G 108 Brandon Pl
Mayer, H. 1 A 124 Catherine (Ithaca 834)
Mayes, H. W. G 125 Linden Ave (Ithaca 1023-X)
Mayes, J. R. 4 Ag 125 Linden Ave
Maze, M. M. 2 C 603 E. Seneca (Bell 105, Ithaca 396)
Mead, V. B. Sp Ag 7 Bryant Ave
Meador, D. J. Jr. 3 V 232 Linden Ave (Ithaca 260)
Meads, L. G. 1 M 241 Linden Ave
Means, K. 2 M 112 Edgemoor (Bell 345, Ithaca 97)
Meissner, C. R. 3 C 625 Univ. Ave (Bell 109, Ithaca 307-X)
Meister, H. J. 2 A 603 E. Seneca (Bell 105, Ithaca 396)
Meldrum, A. S. 2 M 5 Central Ave (Bell 209)
Melgaard, H. M. Sp Ag Cor. Dryden Rd and Linden Ave
Mellor, A. R. 3 C 438 Casca. Pl
Melville, (Miss) G. 1 A 717 E. Buffalo
Melville, M. S. 1 M 303 E. Mill (Bell 656-B, Ithaca 199)
Menchero, J. G. 1 C 128 Dryden Rd (Ithaca 461)
Mendel, M. 1 A 213 College Ave (Ithaca 765)
Mendelson, E. 1 Ag 209College Ave
Mendoza, J. P. Jr 2 Ag
Menefee, H. R. 1 C 402 College Ave
Menjou, H. A. 1 Ag 208 Stewart (Ithaca 580–X)
Merchant, E. S. D. 2 V 232 Linden (Bell 260)
Merowitz, W. G. 4 M 408 N Aurora (Ithaca 287)
Merrick, (Miss) G. E. 2 A 301 Casca. Bldg. (Bell 685)
Merrill, C. B. 1 A 116 Ferris Pl
Merrill, D. D. 2 Ar 17 South Ave (Bell 36-B, Ithaca 97-X)
Merrill, (Miss) F. G. 3 A 128 Blair (Ithaca 405)
Merrill, M. C. G 302 Mitchell (Ithaca 774)
Merrill, T. E. 2 Ar 614 Stewart Ave (Ithaca 782-X)
Merriman, C. W. 1 Ag 325 E. State
Merriss, (Miss) M. S. 1 Ag Sage (Bell 92)
Merry, (Miss) C. E. 4 A Sage (Bell 92)
Merryman, L. M. 3 Ag
Mershon, E. J. 1 C 115 Cook
Merz, C. F. 2 M 702 Univ. Ave (Bell 264)
Merz, H. B. 1 M 702 Univ. Ave
Mettenet, F. X. 2 M 102 Highland Pl (Ithaca 71)
van der Meulen, P. A. 2 A 119 Dryden Rd (Ithaca 677)
Meyer, A. B. 1 C 127 Dryden Rd (Ithaca 677-C)
Meyer, R. C. 4 M 710 Thurston Ave (Bell 175, Ithaca 817)
Meyer, T. V. Jr. 2 L 103 McGraw Pl (Bell 559, Ithaca 226)
Meyers, J. M. Jr L 37 Sheldon Ct
Michael, (Miss) C. H. 1 A Forest Home
Midgley, T. Jr. 2 M 528 Stewart Ave
Millard, (Miss) G. E. 3 A 211 Dryden Rd
Millard, H. R. 3 V 507 N. Tioga
Millen, F. H. 1 A 103 Highland Pl (Ithaca 435)
Miller, A. C. 2 A 13 South Ave (Bell 419, Ithaca 196)
Miller, B. H. 2 M 119 Stewart Ave (Bell 386, Ithaca 617-X)
Miller, C. A. 4 M 108 Cook
Miller, C. F. G 502 Dryden Rd (Ithaca 456)
Miller, C. L. 1 A 411 College Ave
Miller, D. C. 3 M 210 College Ave (Ithaca 765-C)
Miller, G. 2 C 206 College Ave
Miller, H. H. 2 M 122 Eddy (Bell 306-B)
Miller, H. B. 1 Ar 603 E. Seneca
Miller, J. G. 2 M 217 West Ave (Bell 753, Ithaca 815)
Miller, J. 2 A 204 Stewart Ave
Miller, J. H. 2 C 2 South Ave (Ithaca 346-X)
Miller, M. J. 1 M 74 Thurston Ave (Ithaca 201, Bell 213)
Miller, O. G. 3 M 112 Edgemoor (Bell 545, Ithaca 97)
Miller, R. G. 2 M 777 Stewart Ave (Bell 176, Ithaca 250-X)
Miller, S. A. 1 Ag 209 College Ave
Miller, S. N. 3 M 315 Eddy (Ithaca 173)
Miller, W. H. 2 M 805 E. Seneca (Ithaca 320)
Milliman, T. E. Sp Ag 307 College Ave
Mills, (Miss) K. H. 1 Ag Sage
Mills, S. D. 2 M 127 Dryden Rd (Ithaca 677-C)

Mills, T. H. 2 M 205 Eddy
Milman, M. 1 V 210 Dryden Rd
Milman, M. L. 2 V 210 Dryden Bd
Miltenberger, G. K. 2 M 600 Univ. Ave (Bell 588, Ithaca 338-C)
Minns, (Miss) I. A. Sp Ag Garden Cottage (Ithaca 271)
Mintz, L. M. Sr L 402 W. Seneca (Ithaca 611)
Misner, E. G. 2 Ag 411 Dryden Rd (Ithaca 255-X)
Mitchell, C. E. 3 Ag 217 Linden Ave (Bell 215)
Mitchell, G. J. 3 Ag 112 Edgemoor Lane (Bell 345, Ithaca 97)
Mitchell, J. F. 3 V 516 N. Tioga (Bell 463-C)
Mitchell, R. V. Sp Ag Poultry Bldg (Ithaca 1123)
Mitchell, W. B. J. 1 L 210 Stewart Ave
Moakley, (Miss) H.T. 2A Willard Ave (Ithaca 806)
Modell, (Miss) J. D. 3 A Sage
Moffatt, J. 1 M 406 Steweart Av
Moffett, F. C. 2 L The Knoll (Ithaca 766)
Moffett, W. F. 1 C 600 Univ. Ave
Molleson, F. M. 2 Ag 96 Waite Ave (Bell 640)
Molleson, G. C. 1 M 202 Stewart Ave (Ithaca 710)
Monroe, D. W. 1 A Forest Home
Monroe, G. E. Jr L 110 W. Mill (Bell 618)
Monteith, (Miss) A. A. 1 A 127 Catherine
Monteith, C. D. 3 M 600 Univ. Ave (Bell 588, Ithaca 338-C)
Montgomery, C. 2 M 1½ Central Ave (Bell 268, Ithaca 230)
Montgomery, H. 4 A 810 Univ. Ave (Bell 129)
Montgomery, J. H. 2 A Campus Exch
Montillon, E. D. 1 Ar 96 Waite Ave (Bell 640)
Montinola, M. A. 1 C Bryant Ave
Mooney, R. A. 1 Ag 415 Stewart Ave
Moore, E. B. 2 A 210 Linden Ave
Moore, H. T. 1 C 406 Stewart Ave (Ithaca 622)
Moore, H. R. 1 C 210 Linden Ave
Moore, R. W. 3 M The Knoll (Ithaca 776)
Moore, W. E. 3 A 209 Williams (Ithaca 583-C)
Mordoff, R. A. 4 Ag Barnes Hall (Bell 561, Ithaca 1110)
Mordoff, W. E. 2 M Barnes Hall (Bell 561, Ithaca 1110)
More, W. A. 2 M 110 Edgemoor Lane (Bell 42-B, Ithaca 330-X)
Morehouse, L. 3A 48 Fall Creek Drive (Bell 96)
Morehouse, M. 2 A 48 Fall Creek Dr (Bell 9-B)
Morehouse, R. 2 A 48 Fall Creek Dr (Bell 9-B)
Morey, C. F. Sr L 440 Buffalo (Ithaca 822)
Morgan, (Miss) A. G 13 East Ave (Bell 296)
Morgan, (Miss) B. L. 4 A Sage
Morgan, F. M. G 308 Stewart Ave
Morgan, J. H. 2 C 127 Eddy (Bell 384-B)
Morgan, K. R. 1 L Withdrew
Morganstein, G. 1 A 119 College Ave (Ithaca 636-X)
Morita, M. 1 V 623 Univ. Ave (Ithaca 246)
Morrill, V. 1 M 410 Stewart Ave
Morris, C. E. 3 V 437 N. Tioga
Morris, E. S. Sp A 407 Dryden Rd
Morris, G. T. 2 M 303 College Ave
Morris, J. Sr L 223 Eddy (Ithaca 614)
Morris, J. H. 2 A 123 Highland Pl
Morris, P. 3 C 213 College Ave (Ithaca 765)
Morris, W. H. G 128 Linn
Morrison, T. M. 2 Ag 125 Edgemoor Lane (Bell 371, Ithaca 195)
Morrissey, J. L. 1 A 122 Catherine (Ithaca 402-Y)
Morrow, C. H. 1 M 205 Dryden Rd
Morrow, L. W. W. 4 M 708 E. Seneca (Bell 323, Ithaca 579-Y)
Morse, C. F. 1 Ag 111 Eddy (Bell 444)
Morse, J. R. 1 V 310 S. Tioga
Morse, R. V. 4 M 512 Edgewood Pl (Bell 123)
Morss, D. F. 4 M 102 Highland Pl (Ithaca 71)
Morton, A. R. Jr L The Knoll (Ithaca 776)
Morton, A. E., Jr. Sp Ag 105 Catherine (Ithaca 770)
Morton, E. E. 2 M 1 Central Ave (Bell 313, Ithaca 194)
Moses, D. B. Sp Ag 7 Bryant
Mosher, (Miss) B. 2 A 400 Oak Ave (Bell 599-B)
Mosier, (Miss) M. M. 1 A Sage (Ithaca 1108)

Mosier, (Miss) M. A. 4 A Sage
(Bell 92, Ithaca 1108)
Mossman, H. A. 1 C 132 College Ave
Mott, S. 3 M 106 Edgemoor Lane
Moulton, F.S. 1 Ar 112 Edgemoor Lane
(Bell 345, Ithaca 97)
Moulton, (Miss) G. R. 2 A Sage
Mowry, L. B. 2 A Cayuga Heights
(Bell 181, Ithaca 752-Y)
Moyer, (Miss) B. W. 2 A Sage
(Ithaca 1108)
Mudge, S. W. 2 M 16 Casca. Park
Ithaca 183-Y)
Mueller, C. H. 1 L 715 E. Buffalo
(Ithaca 509-X)
Muench, W. O. Jr. 2C 117 Stewart Ave
(Ithaca 620)
Muldoon, W. E. 1 V
Mulhearn, L. J. 2 C 307 College Ave
Mulliner, (Miss) B. A. G Sage
(Bell 92, Ithaca 1108-X)
Mumford, W. C. jr. 2 M 202 Eddy
(Ithaca 507)
Munger, H. B. 1 Ag 22 Thurston
Ave
(Bell 43-B, Ithaca 277)
Munk, W. E. 2 M 13 South Ave
(Bell 419, Ithaca 196)
Munn, H. T. 3 C 625 Univ. Ave
(Bell 109, Ithaca 338-X)
Munn, J. H. 2 Ag 125 College Ave
(Ithaca 778)
Munns, J. J. 1 M 129 Eddy
Munoz, M. A. 1 L 122 Dryden Rd
Munro, A. P. 2 A 204 College Ave
Munro, W W. 1 C 204 College Ave
Munroe, D. G. 1 M 219 Eddy
Munschauer, E. A. 3 A 66 Sheldon Ct
Murakami, J. T. 1 Ag 117 DeWitt Pl
(Bell 404-B, Ithaca 616)
Murdock, C. C. G 108 Cook
(Ithaca 445-X)
Murdock, W. 1 M 519 Stewart Ave
(Bell 396)
Murfey, L. W. 1 A 614 Stewart
Murphy, F. P. 2 L 208 Williams
(Bell 572-B)
Murphy, L. E. 1 M 101 Eddy
(Ithaca 157)
Murphy, T J. 1 M 103 Linn
Murray, C. E. Jr. 1 M 516 Univ.
Murray, C. B. 1 L 210 College Ave
Murray, N. A. 4 Ag Cascs. Bldg
Murray, T. C. Sp Ag 209 College Ave
Murrell, T. E. 2 Ar 110 Edgemoor
Lane
(Bell 42-B, Ithaca 330-X)
Murrin, W. R. 1 M 109 Catherine
Myer, E. H. 3 Ag
Myers, C. E. G Y. M. C. A.
(Bell 201-B, Ithaca 229)
Myers, C. H. G 32 Bryant Ave
Myers, (Mrs.) F. S. G 32 Bryant Ave
Myers, G. F. 3 M 111 Osmun Pl
(Bell 349, Ithaca 307)
Myers, J. W. 2 A 304 College Ave
(Ithaca 625)
Myers, W. I. 1 Ag 610 E. Seneca
(Ithaca 396-Y)
Myrick, J. A. 1 M 129 Dryden Rd

Nagel, C. F. Jr. 1 A 201 Williams
Nagel, F. A. 1 L 519 Stewart Ave
(Bell 396, Ithaca 634-X)
Nahigyan, S. K. 4Ag 1194 Casca. Bldg
Nakamigawa, T. 1 M 504 Buffalo
Names, S. 1 C 125 Edgemoor Lane
(Bell 371, Ithaca 195)
Nanz, R. S. 3 Ag 1195 Casca. Bldg
Nash, K. H. 3 M 106 Cook
Neale, J. E. 1 M 74 Thurston Ave
Neethling, J. H. 4 Ag 315 Eddy
Neff, L. E. 3 A 121 Maple
Negley, C. L. 1 C Box 5, Forest Home
Neifeld, M. 2 A 205 College Ave
Nelligan, M. J. 1 M 212 Stewart Ave
Nelson, E. 4 A 352 Casca. Pl.
Nelson, J. I. 3 C 315 Eddy
(Ithaca 173)
Nesbitt, E. D. 2 C 309 Eddy
(Ithaca 70-X)
Nesbitt, E. A. 2 C 309 Eddy
(Ithaca 70-X)
Nester, H. W. 1 C 603 E. Seneca
Netter, W. 2 A 219 Linden Ave
(Ithaca 77-C)
Nevins, R. G. 2 A 777 Stewart Ave
(Bell 176, Ithaca 250-X)
Nevins, T. D. 3 M 608 E. Buffalo
(Ithaca 621-X)
Newberry, A. C. 2 A 1 Central Ave
(Ithaca 194-X)
Newberry, H. C. 1 M 115 Cook
Newbold, T. T. 1 C 202 Eddy
(Ithaca 507)
Newbury, G. H. 2 Ag 408 N. Geneva
(Bell 435)
Newcomb, F. L. 2 M Y. M. C. A.
Newhall, J. 4 Ag Sheldon Ct
Newkirk, A. D. 1 C 306 College Ave
(Ithaca 14-X)
Newlander, C. E. 3 Ag 108 Casca.
Park
(Ithaca 286 X)
Newman, C. H. 2 A Cayuga Hts
(Bell 521, Ithaca 115)
Newman, F. R. 3 A The Knoll
(Ithaca 776)

Newman, H. O. 2 A Cayuga Hts (Bell 521, Ithaca 115)
Newman, J. D. 1 M 221 Eddy
Newman, J. H. 1 A 42 Sheldon Ct
Newman, (Miss) M. L. 1 Ar Cayuga Hts (Bell 521, Ithaca 115)
Niccolls, F. A. Jr. 2 L 411 Dryden Rd (Ithaca 255-X)
Nichols, E. H. G 219 Eddy (Ithaca 626-X, 1130)
Nichols, G. R. 2 M 810 Univ. Ave
Nicholas, (Miss) H. G. 1 A Sage
Nichols, J. S. 2 M 625 Univ. Ave (Bell 109)
Nichols, P. 2 A 219 Eddy (Ithaca 626-X)
Nicholson, F. H. 2 M 108 Catherine
Nickerson, G. L. 1 C 115 College Ave (Ithaca 636)
Nielson, L. J. Sp Ag
Nisbet, W. D. 1 L 702 Univ. Ave
Nitzschke, A. J. 2 Ag 202 Williams (Ithaca 744-X)
Niven, A. F. 2 M 402 Eddy (Bell 485)
Nixon, G. R. 3 A 15 South Ave (Bell 533, Ithaca 195-X)
Nixon, S. F. 3 L 15 South Ave (Ithaca 195-X)
Noback, C. V. 3 V 314 Casca. Bldg
Nock, B. E. 1 M 325 Dryden Rd (Ithaca 808)
Nolker, H. W. 1 M 102 West Ave (Bell 598, Ithaca 730-X)
Noll, C. F. G 503 Dryden Rd (Ithaca 456-C)
Noon, F. C. 4 M 217 West Ave
Norris, E. R. 2 Ar 600 Univ. Ave (Bell 588)
Norris, J. B., Jr. 2 M 117 DeWitt Pl
North, W. R., Jr. 2 Ag 211 Dryden Rd
Northrup, A. B. Sp Ag 5 East Ave
Northrup, (Miss) K. 2 Ag Sage
Norton, A. B. 2 A 119 Dryden Rd (Ithaca 677)
Norton, F. E. 2 A 15 South Ave (Bell 533, Ithaca 194-X)
Norwick, H. Sp Ar 101 Quarry (Ithaca 604)
Nottingham, A. R. G 233 Linden Ave (Ithaca 568-Y)
Noyes, S. H. 2 A 105 Highland Pl
Nugent, J. H. 4 A 5 Central Ave (Bell 209, Ithaca 347)
Nulsen, J. C. 1 M 614 Stewart Ave
Nunez, V. G 315 Eddy (Ithaca 173)
Nusbaum, W. E. 1 C 409 Dryden Rd
Nye, (Miss) C 1 Ag 717 E. Buffalo
Nye, H. B. 3 M 204 College Ave (Bell 487-G)

Oakes, (Miss) M. E. 1 Ag Sage
de Obaldia, F. 1 M 128 Dryden Rd
Oberle, A. 1 V 128 Linn
O'Brien, J. B 4 C 202 Stewart Ave (Bell 386-W, Ithaca 710)
O'Brien, W. J. 4 A 203 College Pl
O'Connell, J. H. 1 L 519 Stewart Ave
O'Connell, W. C. Sp L 107 College Pl (Ithaca 808-X)
O'Connor, B. 2 C 415 Stewart Ave (Bell 210)
O'Connor, E. A. 3 Ar 16 Casca. Park (Ithaca 183-Y)
O'Connor, F. B. 1 C 204 Stewart Ave (Bell 440)
O'Connor, P. J. 2 L 503 E. Buffalo (Bell 350, Ithaca 671)
Odaira, T. G 29 East Ave
Odell, F. E. 1 M 618 Stewart Ave
O'Donnell, B. W. 2 A 121 Quarry (Bell 631)
Oettinger, D. 1 C 123 Dryden Rd
Ogelsby, H. D. 3 C 202 Williams
Ogle, E. A. Sp L 519 Stewart Ave
Ohmer, J. F. jr. 1 M 614 Stewart Ave (Ithaca 782-X)
Ohrt, F. 4 C 603 E. Seneca (Bell 105, Ithaca 396)
Olcott, C. A. 2 C 308 Eddy
Olds, D. S. 4 M 16 Casca. Park (Ithaca 183-Y)
Olin, F. W. jr. 3 M 706 E. Seneca
Olin, J. M. 2 M 706 E. Seneca (Bell 110)
Oliphant, D. C. 3 M Sheldon Ct
Oliver, L. L. 3 V 209 Williams
Ollilainen, K. V. Sp Ag
Olmstead, C. H. 1 C 105 DeWitt Pl (Ithaca 612)
O'Loughlin, D. 1 V 214 Dryden Rd (Ithaca 77-X)
Oppenheimer, L. A. 1 M 222 Eddy
O'Rourke, F. H. 1 C 700 E. Buffalo
Ormsbee, (Miss) H. G. 1 A 717 E. Buffalo
Orth, M. A. 2 V 316 Aurora
Orton, A. W. jr. 2 M 522 Stewart Ave
Osborn, F. C. 2 A 219 Eddy (Ithaca 626-X, Bell 551-J)
Osborne, A. G. 2 A 810 Univ. Ave
Osborne, H. H. 2 A 134 College Ave (Bell 491-X)
Osborne, J. L. 2 A 115 College Ave (Ithaca 636)
Osterhout, W. E. 4 M 129 Dryden Rd (Ithaca 832)

Osterkamp, (Miss) I. B. 1 A Sage
Ostrander, R. B. 2 A 224 Linden Ave (Ithaca 242-C)
Otis, J. C. 2 Ag 403 College Ave
Ott, C. H., Jr. 1 A 114 Stewart Ave
Outes, E. S. 2 M 119 Dryden Rd (Ithaca 677)
Overend, W. S. 1 C 239 Linden Ave
Overhiser, G. B. 1 L 116 Cook (Ithaca 678)
Overocker, R. H. 4 M 109 College Ave
Owen, F. H., Jr. 1 A 21 Sheldon Ct

Pace, O. 1 A 209 College Ave
Pace, P. 4 C Withdrew (Ithaca 445-X)
Pachano, A. 1 A 128 Dryden Rd (Bell 615, Ithaca 641)
Packard, W. 1 M 600 Univ. Ave (Bell 588, Ithaca 338-C)
Pacifico, S. F. 1 L 440 E. Buffalo
Paetow, H. E. Jr. 3 M 905 N. Tioga (Bell 77)
Page, B. S. 2 C 600 Univ. Ave
Page, G. B. 4 M 710 Thurston Ave
Page, J. C. 1 C 109 Cook (Ithaca 491)
Paine, L. B. 1 M 614 Stewart Ave
Paine, W. N. 1 M 702 Univ. Ave (Bell 269, Ithaca 250)
Painton, E. F. 3 V 411 N. Tioga
Palen, C. B. 2 M 445 N. Tioga (Ithaca 714-Y)
Palliser, (Miss) H. L. 1 M.D. Sage
Palmer, E. L. 4 A 317 College Ave
Palmer, H. Sp L 608 E. Buffalo
Palmer, R. M. 2 M 303 Eddy
Palmer, R. S. G 116 Lake
Palmiter, C. W. 1 M 217 Mitchell
Panton, E. C. 1 C Sheldon Ct
Pappenheimer, R. 3 C 109 Summit
Parker, A. V. 2 L 503 E. Buffalo (Ithaca 671)
Parker, A. G. 1 M 528 Stewart (Bell 221-B)
Parker, C. D. 4 A 417 E. Buffalo
Parker, F. S. 2 Ag 112 Edgemoor (Bell 345)
Parker, G. E. 1 C 35 Bryant Ave
Parker, L. M. 4 A 611 E. State (Ithaca 768-X)
Parker, W. F. 4 A 125 Dryden Rd
Parkhurst, G. M. 3 A 306 Eddy (Ithaca 421-X)
Parkhurst, R.W. 2 C 704 E. Buffalo (Ithaca 581)
Parkin, G. W. 1 M 111 Osmun Pl (Bell 349, Ithaca 307)
Parmelee, C. H. 2 M 327 Eddy (Ithaca 614-X)
Parmley, H. M. G 507 N Aurora
Parnes, M. 3 L 124 Linden Ave
Parsons, R. C. 1 C 777 Stewart Ave (Bell 176, Ithaca 250-X)
Passmore, J. F. 2 M 1 Central Ave (Bell 373, Ithaca 194-X)
Patten, W. E. 4 C 610 E. Seneca (Ithaca 396-Y)
Patterson, B. Jr. 1 Ag 614 Stewart
Patterson, E. V. 3 M 712 Thurston Ave
Patterson, H. J. 4 C 48 Sheldon Ct
Patterson, R. C. 4 A 201 Oak Ave (Ithaca 61)
Paul, B. H. 2 Ag 108 Stewart Ave (Bell 146)
Paullin, C. A. 2 M 309 College Ave
Pavek, J. W. 3 C 523 N. Aurora
Pawel, G. W. 4 A 126 Hudson (Bell 767-B)
Payne, O. E. 2 A 96 Waite Ave
Peach, P. L. G 708 E. Seneca (Bell 284-J, Ithaca 579-Y)
Peacock, W. M. Sp Ag Forest Home
Peake, L. J. 2 M 523 E. Buffalo (Bell 126-J, Ithaca 613-X)
Pearsall, G. M. 1 M Y. M. C. A.
Pearson, F. A. 3 Ag 202 Williams (Ithaca 744-X)
Peaslee, H. W. G 216 Univ. Ave (Ithaca 673)
Peck, G. W. 2 Ag 523 E. Buffalo (Bell 126-J, Ithaca 613-X)
Peck, (Miss) M. A. 3 A Sage
Peckitt, L. C. 1 M 414 Stewart Ave (Bell 123-B)
Peebles, S. L. 4 C 206 Univ. Ave (Ithaca 23-Y)
Peirce, (Miss) B. C. G Sage (Ithaca 1141)
Pelton, C. 2 V 310 College Ave
Pendleton, F. A. 2 A Forest Home
Penney, M. E. G 217 Mitchell
Pennington, J. 1 M 408 Univ. Ave
Pepper, L. 1 C 217 Mitchell
Perez, J. R. 1 M 128 Dryden Rd
Perkins, F. K. 3 C 202 Williams (Ithaca 744-X)
Perkins, G. A. 2 A 119 College Ave (Ithaca 636-X)
Perkins, H. B. 3 A 119 College Ave (Ithaca 636-X)
Perkins, R. W. 1 M 206 College Ave
Perl, E. G. 1 Ag 105 College Ave (Ithaca 778-X)
Perl, F. H. 4 Ag 105 College Ave (Ithaca 778-X)

Perrella, A. C. 1 L 440 E. Buffalo (Ithaca 822)
Perrine, I. G 105 Cottage Pl (Ithaca 594-X)
Perry, L. J. 1 M 114 Cook (Ithaca 635)
Pertsch, J. G., Jr. G 210 College Ave (Ithaca 765-C)
Peters, H. W. 1 M 410 Stewart Ave
Peters, J. W. 1 Ar 712 Thurston Ave (Bell 699-W)
Peterson, E. W. 2 Ag 301 Dryden Rd (Ithaca 742)
Peterson, W. F. 4 M 777 Stewart Ave (Bell 176, Ithaca 250-X)
Petteys, J. C. 1 L 101 Casca. Pl
Pettit, F., Jr. 2 Ar 103 McGraw Pl
Pettit, K. D. 2 M 107 Edgemoor Lane (Bell 674)
Pezold, A. J. 1 Ag 305 Dryden Rd (Ithaca 203-X)
Pfau, E. T. 2 M 102 Highland Pl (Ithaca 71)
Pfeiffer, K. E. 2 A 5 Central Ave (Bell 209, Ithaca 347)
Phelps, B. N. 1 Ag 121 Catherine (Ithaca 385-J)
Phelps, (Miss) E. L. 1 Ag Sage
Phillips, J. M. 1 M 307 E. Marshall
Phillips, L. R. 3 M 109 DeWitt Pl (Ithaca 612-X)
Phillips, W. E. 1 M 110 Highland Pl
Phillips, W. H. 2 M 109 DeWitt Pl
Philp, G. L. 1 Ag 115 College Ave
Phinny, C. M. Jr. 1 M 618 Stewart Ave
Pickens, E. M. 3 V 607 E. Seneca
Picker, D. H. 2 C 116 Cook (Ithaca 687)
Pickerill, H. M. 4 Ag 327 Eddy (Ithaca 614-X)
Piddian, J. 3 C 129 Dryden Rd (Ithaca 832)
Pierce, F. A. 1 L 108 Catherine
Pierce, O. J. 2 C 114 Ferris Pl (Ithaca 3-C)
Pierce, R. E. 4 A 202 Eddy (Ithaca 507)
Ping, C. 1 Ag 310 College Ave (Ithaca 62-C)
Pinney, E. M. 1 M 704 E. Buffalo
Piper, (Miss) F. R. 1 A 111 Oak Ave
Pitcher, L. B. 1 A Hill Crest
Pitner, H. L. 2 C 636 Stewart Ave (Ithaca 782)
Place, E. G. 4 M 123 Quarry (Bell 795-B)
Plamondon, C. A., Jr. 2 A 777 Stewart (Bell 176, Ithaca 250-X)
Platoff, J. N. 2 L 702 E. Buffalo (Ithaca 581-X)
Platt, H. M. 4 M 133 Linden Ave (Ithaca 190-Y)
Plaut, R. 1 A 113 Oak Ave (Bell 329, Ithaca 737)
Ploss, P. 4 C 212 Linden Ave
Plumb, L. A. 1 L 130 Dryden Rd
Plummer, J. K. G 308 Eddy (Bell 436-J)
Plunkett, C. R. 2 A 215 Dryden Rd
Polak, H. 4 C 119 College Ave (Ithaca 636-X)
Polhemus, L. A. Sp Ag 105 Brandon
Pollock, A. 1 A 2 South Ave (Ithaca 246-X)
Pollock, J. 1 Ag 222 Eddy (Ithaca 329-X)
Pollock, (Miss) L. B. 1 A Sage
Pologe, B. 1 A 209 College Ave
Ponce, G. R. 1 L 208 Williams
Pope, C. J. 2 M 810 Univ. Ave
Pope, H. B. 1 C 715 E. Buffalo
Pope, S. A. 1 M 516 Univ. Ave (Ithaca 423)
Pope, W. Gates 3 Agr 614 E. State
Pope, W. George 3 M 422 Eddy
Popoff, S. J. 3 A 302 Mitchell
dePorrata, D. F. 2 C 311 Dryden Rd
dePorrata, L. A. 1 M 311 Dryden Rd
Porter, B. A. 2 M 114 Stewart Ave (Ithaca 576-X)
Porter, L. L. 3 M 712 Thurston Ave (Bell 669-W, Ithaca 823)
Porter, (Miss) M. J. 4 A Sage
Post, (Miss) E. I. 2 A Sage
Post, R. W. 2 M 74 Thurston Ave
Post, W. W. Jr L Forest Home
Potter, A. L. 1 A 210 Stewart Ave
Potts, E. Sp Ag 9 Reservoir Ave
Potts, (Miss) J. F. 3 A Sage
Potts, (Miss) K. W. 3 A Sage
Poultney, R. 1 Ag 409 College Ave
Pound, G. H. 2 Ag 133 Blair (Ithaca 695-Y)
Pounsford, A. G. 2 M 411 Dryden Rd (Ithaca 255-X)
Powell, H. A. 1 C 108 Cook (Ithaca 445-X)
Powell, M. J. 1 M 309 College Ave
Power, F. S. 1 M 618 Stewart Ave (Ithaca 294)
Power, C. E. G 150 Casca. Pl
Power, H. C. 4 A Y.M.C.A (Bell 201-B, Ithaca 229)
Powers, (Miss) E. E. Sp Ag 522 E. State
Powers, T. M. 1 A 134 Linden Ave (Ithaca 743)

Pratt, R. K. 2 M 401 Casca. Pl.
Pratt, R. P. 1 M 712 Thurston Ave
Pratt, W. E. 1 M 401 Casca. Pl
Pratt, W. H. 2 A 201 Dryden Rd
(Ithaca 379)
Prescott, C. S 2 M 2 Central Ave
(Bell 30, Ithaca 194)
Prescott, W. A. 1 A 806 E. Seneca
(Ithaca 575)
Prest, H. M. 1 M 96 Waite Ave
Price, L. C. 2 M 202 College Ave
(Ithaca 635-X)
Price, W. M. 3 C 111 Osmun Pl
(Bell 307, Ithaca 349))
Prince, J. 1 M 105 DeWitt Pl
Pritchard, J. F. 4 A 62 Sheldon Ct
Pritchard, L. C. 3 Ag 510 Hudson
(Ithaca 588)
Procter, R. W. 3 M Cayuga Hts.
(Bell 181, Ithaca 752-Y)
Proctor, D. C. 1 M Sheldon Ct
Proctor, R. B. 2 C 1½ Central Ave
(Bell 268, Ithaca 230)
Proctor, R. V. 2 M The Knoll
(Ithaca 776)
Proper, B. S. 1 A 327 Eddy
(Ithaca 614-X)
Prophet, W. B. Sp Ag Sheldon Ct
Propp, N. A. 3 L 109 Summit Ave
Provost, D. L. 1 C 528 Stewart
(Bell 221)
Prucha, M. J. G 502½ Univ. Ave
Puffer, L. R. 1 C 614 E. State
Puga, N. V. 1 Ag 119 Dryden Rd
(Ithaca 677)
Pusch, H. V. 2 L 102 West Ave
(Bell 598, Ithaca 730-X)
Putnam, A. J. 1 A 113 DeWitt Pl
Putnam, F. 2 Ag 113 DeWitt Pl
(Bell 750-B)
Putnam, H. N. 1 Ar 603 E. Seneca
(Bell 105, Ithaca 396)
Putnam, J. B. 1 L 114 Stewart Ave
Putnam, J. F. G 309 Eddy
Quakenbush, S. M. 1 M 105 High'd Pl
Quenan, (Miss) A. C. 4 A Sage
Queral, E. G. 1 V 109 DeWitt Pl
Queral, R. 1 C 109 DeWitt Pl
Quinton, A. B. Jr. 1 C 202 College Ave
(Ithaca 635-X)
Quirin, (Miss) A. H. 4 A Sage
Quirin, (Miss) I. M. 2 Ag Sage

Rae, E. 2 M 702 Univ. Ave
(Bell 264, Ithaca 250)
Rahr, F. W. 1 A 522 Stewart Ave
(Bell 522)
Ralph, W. M. 2 A 209 Eddy
(Bell 13-B)
Ramirez, G. A. 2 C 206 Univ. Ave
(Ithaca 23-Y)
Ramsey, G. W. 1 Ar
Randall, R. W. 2 Ar Cornell Hts.
Rangel, M. 1 M 135 Blair
(Bell 24)
Rankin, E. H. 3 A 116 Spring
(Bell 327)
Rankin, W. H. G Harvard Pl
Raphael, T. 2 Ag 129 Linden Ave
(Ithaca 185-Y)
Rappleye, W.S. 1 Ag 129 Linden Ave
(Ithaca 185-Y)
Rasbach, D. B. 3 C 202 Williams
(Ithaca 744-X)
Rathbun, S. S. 4 M 302 College Ave
(Ithaca 14-X)
Rausch, R. H. 2 M 106 Highland Pl
Ray, H. E. 2 A 217 West Ave
(Ithaca 815)
Ray, (Miss) P. A. 2 A 405 W. Green
(Ithaca 709-C)
Ray, R. L. 2 A 306 Stewart Ave
Raymond, C.B. 2 Ag 233 Linden Ave
(Ithaca 568-Y)
Raynolds, J. F. 2 M 1 Central Ave
(Bell 373)
Raynor, L. P. 1 C 127 College Ave
Read, V. R. 2 M 109 Catherine Ave
Rearwin, L. C. 1 Ag Absent
Rebman, C. G. 1 M 238 Linden Ave
Reck, W. M. 1 C 127 College Ave
Redfield, H. W. G 7 Reservoir Ave
(Ithaca 337)
Reed, (Miss) A. A. 2 A Sage Cott
Reed, H. J. 1 A 206 Dryden Rd
Reed, I. C. Sp Ag 315 Eddy
(Ithaca 173)
Reed, L. F. 1 V 510 Univ. Ave
Reed, (Miss) O. E. 2 A Sage Cott
Rees, A. F., Jr. 1 M 518 Stewart Ave
Rees, F. M. 1 M 516 Univ. Ave
Rees, L. B. 2 M 107 Edgemoor Lane
(Bell 674)
Reeve, R. C. 1 Ag 16 Casca. Park
(Ithaca 183-Y)
Reeves, D. H. 1 M 92 Waite Ave
(Ithaca 277-X)
Reggiardo, J. 2 M Box 337
Regula, A. S. 1 C 120 Linden Ave
Reich, O. D. 2 M 306 College Ave
(Ithaca 402-X)
Reid, L. 2 L 123 Highland Pl
Reid, R. D. 1 A 125 Highland Pl
(Ithaca 75)
Reid, W. H. 4 M 201 Oak Ave
(Ithaca 61)
Reid, H. P. 4 M Barnes Hall
(Bell 561, Ithaca 1110)

Reilly, A. R. 2 C 125 College Ave (Ithaca 778)
Reinicker, N. G. 2 M 203 Williams
Reinhardt, F. 2 M 129 Linden Ave (Ithaca 185-Y)
Reins, L. M. 1 A 68 Sheldon Ct
Reinstein, V. 2 A
Rekate, E. A. 4 A 126 Hudson (Bell 767-B)
Remsen, P. 3 C 2 South Ave (Ithaca 346-X)
Renard, A. E. Jr. 1 A 202 Stewart Ave
Renton, J. L. 2 M Sheldon Ct
Repko, S. A. 1 A 402 College Ave
Requa, (Miss) H. R. 4 A Sage
Retana, A. O. 1 M 119 Dryden Rd (Ithaca 677)
Reumann, C. H. 2 A 431 E. Seneca (Bell 319)
Reutersham, M. A. 1 Ar Y.M.C.A.
Reutlinger, A. 2 C 13 South Ave (Bell 419, Ithaca 196)
de Revere, A.W. 4 M 110 Osmun Pl (Bell 279, Ithaca 613)
Rewalt, J. K. 4 M 223 Eddy (Ithaca 614)
Rex, C. P. 2 A 15 South Ave (Bell 533, Ithaca 195-X)
Reyneau, P. O. 2 M 214 West Ave (Bell 753, Ithaca 815)
Reynolds, B. J. 1 Ag 109 Williams
Reynolds, H. B. 4 M 106 Highl'd Pl (Bell 756)
Reynolds, K. L. 1 A 614 E. Buffalo
Rhoads, R. B. 4 Ar 17 South Ave (Bell 36-B)
Rhodes, F. H. G 502 Dryden Rd
Rhodes, G. S. Sp Ag 116 Osmun Pl (Ithaca 623)
Rhodes, H. F. 2 Ag 211 Y. M. C. A.
Rhodes, L. S. 2 C 408 Univ. Ave (Ithaca 761)
Rhynus, C. P. 3 C 612 E. State (Ithaca 6-X)
Ribsam, C. F. 2 Ag 32 Thurston Ave (Bell 213-B, Ithaca 277)
Rice, D. B. 1 Ag 526 Stewart Ave
Rice, F. E. G 804 E Seneca (Ithaca 579)
Rice, R. A. 1 L 103 McGraw Pl
Rice, W. M. 2 L 1½ Central Ave
Rich, G. T. Sp Ag 92 Waite Ave
Rich, J. L. G 92 Waite Ave (Bell 321, Ithaca 277-Y)
Richardson, E.T. 1 M 600 Univ. Ave
Richardson, H. N. 1 C 127 College Ave
Richardson, (Miss) R. 2 A 114 Third
Richardson, W.P. Sp A 614 Stewart Ave
Richey, A. L. 4 M 915 E. State (Ithaca 780-C)
Richmond, P. A. 2 M 15 South Ave (Bell 533, Ithaca 195-X)
Ricker, C. S. 4 M 38 Fall Creek Drive (Ithaca 354-Y)
Rickard, G. E. 2 A 112 Ferris Pl (Ithaca 3-Y)
Ridgway, H. 1 A 127 College Ave
Riegelman, H. 1 A Sheldon Ct
Riegger, (Miss) E. Sp A Sage Cott
Riegger, H. E. G 308 Stewart Ave (Ithaca 833-C)
Rife, R. S. G 18 Delaware Ave
Riker, C. E. 1 Ag 123 Highland Pl
Riley, A. D. 2 A 96 Waite Ave
Riley, A. M. 2 M 104 Fairmount Ave
Rinke, G. R. 2 M 110 Edgemoor
Ripley, J. P. 2 M 17 South Ave (Bell 36-B, Ithaca 97-X)
Ripley, W. H. 2 M 16 Casca. Park (Ithaca 183-Y)
Rising, J. 2 M 211 Williams (Bell 361-B)
Ritch, C. P. 1 A 105 DeWitt Pl
Ritschard, V. 4 M 116 Oak Ave (Bell 902)
Ritter, H. S. 4 A 302 College Ave (Ithaca 14-X)
Rivera, J. C. 1 L 206 College Ave
Robb, B. B. 4 Ag 201 Casca. Pl
Robb, H. S. 2 Ar 706 E. Buffalo (Ithaca 583-X)
Robb, S. E. 4 A 527 E. Buffalo (Bell 126-B)
Robbins, (Miss) L. C. H. 1 A Sage
Roberts, A. M. 2 M 600 Univ. Ave (Bell 588, Ithaca 338-C)
Roberts, A. S. G 206 College Ave (Ithaca 255-C)
Roberts, (Miss) E. P. 2 A Sage (Bell 576, Ithaca 1142)
Roberts, J. F. 2 V 202 Williams (Ithaca 744-X)
Roberts, J. J. 1 C 306 College Ave (Ithaca 14-X)
Roberts, O. E., Jr. 1 A 409 Dryden Rd (Ithaca 64-C)
Robinson, G. G. 1 C Forest Home
Robinson, J. W. 1 A 527 E. Buffalo
Robinson, K. 1 M 618 Stewart Ave (Ithaca 294)
Robinson, (Miss) M. L. 2 Ag Sage
Robinson, R. M. 2 M R. D. 2
Robinson, S. M. Sp Ag 214 Linden Ave
Robson, W. Sp Ag Forest Home
Rockefeller, V. H. 3 Ag 521 E. State (Bell 518)

Rockhill, C. R. 1 M 502 Dryden Rd (Ithaca 456)
Rockwell, F. L. 1 C 528 Stewart Ave
Rockwell, G. H. 2 M 125 Edgemoor (Bell 371)
Rockwell, K. D. 3 Ag 119 Stewart Ave (Bell 386, Ithaca 617-X)
Rodenhiser, L. A. 2A 214 Dryden Rd (Ithaca 77-X)
Rodgers, R. C. G 6 South Ave (Bell 209, Ithaca 347)
Roe, J. W. 1 L 36 Fall Creek Drive
Roehrig, H. L. 1 M 208 Chestnut (Ithaca 529-Y)
Rogers, A. L. 3 M 209 College Ave
Rogers, E. 2 A 2 Central Ave (Bell 30, Ithaca 194)
Rogers, E. B. 1 A 109 Catherine (Bell 385-B)
Rogers, F. E. Sp Ag 127 Dryden Rd (Ithaca 677-C)
Rogers, F. S. 1 M 614 E State
Rogers, G. H. 1 A 407 Dryden Rd
Rogers, G. M. 4 M 411 N. Cayuga (Ithaca 570-Y)
Rogers, J. W. 2 A 406 Stewart Ave
Rogers, M. E. 1 Ag 319 Dryden Rd
Rogers, R. 1 L 209 College Ave
Rohr, C. A. 4 M 109 Summit Ave (Ithaca 203)
Rolph, W. D. 4 A 208 Williams (Bell 572-B)
Romm, N. 2 M 711 East Seneca
Roof, J. R. 1 M 103 Highland Pl (Bell 435)
Roos, D. G. 4 M 105 Highland Pl (Bell 320, Ithaca 435-C)
Root, E. F. Sp M 919 E. State
Rope, R. F. 4 L 122 Catherine
Roper, M. P. 1 M 109 Williams (Ithaca 435 C)
Rose, C. C. 3 A 111 Osmun Pl (Bell 349, Ithaca 307)
Rose, G. S. Sp Ar 203 Bollege Pl (Bell 355)
Rose, W. P. 4 A 111 Osmun Pl (Bell 349, Ithaca 307)
Rosebro, H. R. 3 M 107 College Pl (Ithaca 808-X)
Rosebaum, J. 2 Ag Forest Home (Ithaca 91-C)
Rosenbaum, J. G 1 Garden Ave (Ithaca 1090)
Rosenbaum S. 4 Ag 1 Garden Ave (Ithaca 1090)
Rosenberg, A. D. 2 M 109 Summit Ave
Rosenberg, A. 2 Ar 805 E. Seneca (Ithaca 320)
Rosenberg, D. H. 2 A 202 College Ave (Ithaca 635-X)
Rosenberg, H. H. 1 A 202 College Ave (Bell 635-X, Ithaca 635-X)
Rosenblatt, M. C. 4 M 127 Catherine (Ithaca 693-C)
Rosenfeld, E. L. 1 A 129 Linden Ave
Rosenfeld, H. 3 A 129 Linden Ave
Rosenthal, G. W. 2 M Sheldon Ct
Rosenthal, W. C. 4 M Sheldon Ct
Rosenwald, L. J. 2 M Sheldon Ct
Rosenzwerg, S. 1 C Absent
Roshirt, R. J. 1 A 205 Williams
Ross, J. D. 3 M 103 McGraw Pl (Bell 559, Ithaca 226)
Ross, R. W. 2 A 126 Linden Ave
Rossbach, W. S. 2 M 109 Summit Ave
Rossiter, W. G. 4 M 1½ Central Ave (Bell 268)
Roth, E. K. 3 A 202 Casca. Park (Ithaca 807-X)
Roth, H. 1 A 406 Stewart Ave (Ithaca 622)
Rothenberger, A. K. 4 Ag 105 Eddy (Ithaca 658-X
Rothenberger, W. H. 4 Ag 708 E. Seneca (Bell 284-J, Ithaca 579-Y)
Rothmaler, O. 2 M 105 Highland Pl (Bell 320, Ithaca 430-C)
Rothstein, M. 1 Ag 528 Stewart Ave (Bell 221-B)
Rountree, A. C. 3 C Hill Crest (Ithaca 623)
Rouse, W. E. 2 M 2 Central Ave
Routh, J. W. 2 C 414 Eddy (Bell 692-J)
Rowe, J. G. jr. 1 M 102 Highland Pl (Ithaca 71)
Rowe, R. 2 V 232 Linden Ave
Rowland, A. E. 2 M 401 Eddy (Ithaca 428-Y)
Royer, H. B. 1 C 708 E. Buffalo
Royston, F. E. 1 M 406 Stewart Ave
Rubinow, W. G. 2 C 116 Cook (Ithaca 687)
Rubio, A. J. 4 V 209 College Ave
Ruckmich, C. A. G 130 Linn
Rudolph, W. 2 M 102 Highland Pl (Ithaca 71)
Rugge, F. W. 2 L 207 Williams
Rumsey, L. C. 2 M 310 W. State (Bell 449)
Rundio, (Miss) H. 2 Ag 811 E. State (Bell 497)
Rundio, (Miss) J. 1 Ag 811 E. State (Bell 497)

Rusack, (Miss) M. 2 A 115 Ridgewood Rd
(Bell 650)
Russell, B. F. 1 Ag 129 Linden Ave
(Ithaca 155-Y)
Russell, C. L. 1 M 16 Casca. Pl
Russell, (Miss) D. 1 A Sage
Russell, F. L. 3 M 217 Linden Ave
(Bell 217)
Russell, R. H. 2 M 118 Cook
(Ithaca 491-X)
Russell, S. A. 3 M 515 Stewart Ave
(Bell 198, Ithaca 330)
Russell, W. 2 M 111 Osmun Pl
(Bell 349, Ithaca 307)
Russell, W. J. 1 M 125 Catherine
(Ithaca 402-C)
Rutledge, J. E. 4 M 107 College Pl
(Ithaca 808-X)
Ryan, C. G. 1 M 208 Dryden Rd
(Ithaca 769-X)
Ryan, Russell Jay 1L 512 Stewart Ave
Ryan, W. J. G 111 Osmun Pl
(Bell 349, Ithaca 307)
Ryder, A. 2 M 402 College Ave
(Ithaca 90-X)
Ryder, C. A. 1 Ag 43 East Ave
(Ithaca 1099-X)
Ryder, E. A. 2 M Cayuga Hts
(Bell 181, Ithaca 752-Y)
Ryder, V. C. 2 L 2 South Ave
(Ithaca 346-X)
Ryman, L. H. 2 C 523 E. Buffalo
(Bell 126-J, Ithaca 613-X)
Rymarczick, L. B. 1 M 410 Stewart Ave
Ryon, E. L. 3 L 119 Dryden Rd
(Ithaca 677)

Saalfield, A. J. jr. 2 A 702 Univ. Ave
(Bell 264, Ithaca 250)
Sachs, F. 2 A 128 Eddy
(Ithaca 601)
Sadvoransky, (Miss) R. 2 A
Sainburg, P. C 3 A 201 College Ave
St. John, E. M. 4 A 302 N. Cayuga
(Bell 26, Ithaca 227-X)
Salade, L. A. Jr. 1 M 414 Stewart Ave
Salas y Rodriguez, M. J. 3 M 301 Dryden Rd
(Ithaca 742)
Salcedo, J. A. 1 Ag
Saleski, (Miss) E. M. 1 A Sage
Salisbury, G. C. 3 M 1 Central Ave
(Bell 373, Ithaca 194-X)
Salmowitz, L. 1 C 7 Bryant
(Bell 215-B)
Salpeter, C. 2 A 128 Eddy
(Ithaca 601)
Samkoff, J. 1 C 715 E. State
(Ithaca 799)
Sancho, F. S. 2 C 319 College Ave
(Ithaca 491-Y)
Sanderson, G. Jr. 4 L 1½ Central Ave
(Bell 268, Ithaca 330)
Sanderson, J. P. Jr. 1 Ag 22 Harvard Pl
Sanderson, M. R. 2 A 712 Thurston Ave
(Bell 669-W, Ithaca 862)
Sandford, R. H. 1 C Y. M. C. A.
Sands, H. C. 3 Ag 5 East Ave
(Ithaca 271-X)
Sanford, E. B. 2 A Forest Home
(Ithaca 378-C)
Sanford, H. L. G 204 College Ave
Sanyal, J. N. 1 C 303 College Ave
(Ithaca 692-X)
Sardina, S. 1 M 210 College Ave
(Ithaca 765-C)
Sargent, G. J. G 130 Dryden Rd
(Bell 573-B)
Sarratt, C. M. 4 A 129 Dryden Rd
(Ithaca 380)
Saunders, G. E. 2 A 13 South Ave
Savage, W. J. 1 L 121 College Ave
Sawyer, H. M. 3 M 116 Osmun Pl
(Ithaca 623)
Sawyer, T. D. 1 C 528 Stewart Ave
Sayer, H. D. 1 L 125 Highl'd Pl
(Bell 762-W)
Sayre, L. A. 2 M 307 E. Marshall
Scarrett, W. T. 2 C 516 Univ. Ave
Schaefer, F. H. 1 V 209 Williams
Schaetzle, T. C. 2 C 307 College Ave
Schagrin, H. 4 A 140 College Ave
(Ithaca 727)
Scharschu, C. A. 2 A
Scheiver, H. B. 2 L 306 Eddy
(Ithaca 421-X)
Schellentrager, J. H. 1 M 527 E. Buffalo
Schempp, G. C., Jr. 2 Ag 202 Williams
(Ithaca 744-X)
Scheu, E. M. 2 M 110 Edgemoor
(Bell 42-B)
Schiele, A. R. 1 M 715 E. Buffalo
Schiff, M. 3 M 311 Dryden Rd
Schindler, H. 1 C 213 College Ave
(Ithaca 765)
Schirick, H. E. 1L 210 College Ave
Schirmer, G. 2 C 202 Stewart Ave
(Bell 386-W, Ithaca 710)
Schlegel, R. 2 C 103 Highland Pl
(Ithaca 435)
Schleich, (Miss) H. F. 4 A Sage
(Bell 92, Ithaca 1108)
Schludeberg, C. 4 M 805 N. Tioga
Schmeck, H. P. 4 C 122 Catherine
(Ithaca 402-Y)

Schmelter, H. E. R. 2 Ag 7 Bryant Ave (Bell 215-B)
Schmid, G. F. 2 A 103 McGraw (Bell 559, Ithaca 226)
Schmid, R. H. 2 A 103 McGraw Pl (Bell 559, Ithaca 226)
Schmidt, C. B. 2 Ag 636 Stewart Ave (Ithaca 782)
Schmidt, E. F. E. 3 C 302 Casca. Pl
Schneider, H. F. 1 C 121 College Ave
Schoff, A. L. 1 M 118 Cook (Ithaca 491-X)
Schotta, J. A. 2 M 806 E. Seneca (Ithaca 575)
Schrader, A. C. 1 M 105 Brandon Pl (Ithaca 666-X)
Schroeter, E. J. 1 M 123 Dryden Rd
Schubert, G. A. 2 A 115 College Ave (Ithaca 636)
Schultheis, D. 2 A Y. M. C. A. (Bell 201-B, Ithaca 229)
Schultze, L. C. 1 C 135 Blair
Schurman, G. M. 2 A 777 Stewart Ave (Bell 176)
Schuster, C. H. 3 Ag
Schwartz, C. 1 C 715 E. Buffalo
Schwartz, L. H. 4 Ag 302 Eddy (Bell 498-B)
Schwartz, S. 1 C 119 College Ave (Bell 636-X)
Schwartzman, J. 3 A 201 College Ave
Schwarzenberg, C. 2 Ar 47 a Sheldon Ct
Schwarzbach, (Miss) O. P. 1 A Sage
Schwedes, H. A. 2 C 57 Sheldon Ct (Bell 460-B)
Schweid, M. 2 C 806 E. Seneca (Ithaca 575)
Scofield, E. C. 1 A 134 College Ave
Scofield, G. H. Sp Ag 327 Eddy (Ithaca 614-X)
Scofield, R. B. 1 C 123 Dryden Rd
Scofield, W. C., Jr. Jr L 123 Dryden Rd (Ithaca 677-X)
Scott, John H. Sr L 111 N. Tioga (Bell 248, Ithaca 214)
Scott, P. M. 2 M 124 Catherine (Ithaca 834)
Scott, R. H. 2 V 312 College Ave
Scott, T. F. 2 A 806 E. Seneca (Ithaca 575)
Scott, W. R. 1 M 600 Univ. Ave (Bell 588)
Scudder, S. D. Jr. 1 L 202 Stewart Ave (Bell 386-W, Ithaca 710)
Scully, P. F. 1 C 129 College Ave (Ithaca 405-X)
Seagrave, A. F. 1 A 108 Parker
Seagrave, C. N. 3 C 108 Parker (Ithaca 449-X)
Seaman, (Miss) A. 2 Ag 223 Eddy (Ithaca 614)
Seaman, D. S. 1 A 17 South Ave (Bell 36-B, Ithaca 97-X)
Seaman, H. J. Jr. 1 M 110 Edgemoor
Searing, E. R. 2 Ag 502 Dryden Rd
Secrest, (Miss) B. G. 2 A Sage (Bell 92, Ithaca 1108)
Seeley, D. H. 2 M 122 Catherine (Ithaca 402-Y)
Seely, W. G. 1 Ar 214 Eddy
Seelye, (Miss) C. E. 3 A Sage (Ithaca 92)
Seeman, W. 1 A 221 Eddy (Ithaca 770-C)
Segalowitz, O. 3 M 201 College Ave
Segovia, D. M. G 128 Dryden Rd (Ithaca 641)
Seiden, J. J. 1 L 129 Eddy
Seigler, (Miss) F. M. 2 A Sage
Seipp, (Miss) A. M. 1 A 113 Stewart
Seipp, H. G. 4 A 113 Cook (Ithaca 445-C)
Selby, F. S. 1 C 17 South Ave (Bell 36-B, Ithaca 97-X)
Selden, G. H. 1 M 401 Dryden Rd
Selecter, I. 2 Ag 715 E. State (Ithaca 599)
Selkin, W. J. 1 V 409 College Ave
Selling, H. M. 2 M 411 College Ave (Ithaca 452-Y)
Senecal, J. N. 1 A 110 Cook
Senior, T K. 4 M Hill Crest
Seymour, R. L. 1 M 58 Thurston
Shackelford, G. 1 M Sheldon Ct
Shackleford, R. 3 M 414 Stewart
Shamberg, H. D. 3 M 201 Williams
Shamberger, J. P. L. 2 M 306 Eddy
Shane, M. V. 1 A 614 Stewart
Shaner, R. H. 1 M 220 Eddy (Bell 115)
Shanly, M. H. 1 L 301 Dryden Rd
Shannon, W. M. Jr. 1 C 715 E (Ithaca 509)
Shanok, A. Sp Ag 713 E. State
Shaper, B. W. 2 A The Knoll (Bell 905-J, Ithaca 776)
Shapiro, N. 2 M 109 Williams
Sharp, F. K. Sp Ar 101 Quarry
Sharpe, N. M. 2 A 109 Parker Pl
Shaul, K A. 3 V 219 Linden Ave
Shaw, E. S. 1 Ag 211 Dryden Rd
Shaw, F. C. 2 Ag 32 Thurston Ave (Bell 213 B, Ithaca 277)
Shaw, J. H. 2 M 515 Stewart Ave (Bell 198, Ithaca 330)

Shaw, R. N. 2 V 311 College Ave (Bell 658, Ithaca 418-X)
Shaw, W. K. 2 C 306 College Ave
Shays, W. B. 1 M 119 Dryden Rd
Shears, W. L. H. 1 A Withdrew
Sheldon, F. 1 M 74 Thurston Ave
Sheldon, (Miss) P. G. G Cayuga Hts (Ithaca 301-C)
Shelton, A. M. 1 L 114 Stewart Ave
Shen, M. T. 2 C 113 N. Aurora
Shen, N. 1 M 319 College Ave
Shepard, E. M., Jr. 2 M 220 Eddy
Shepard, (Miss) R. S. 4 A Sage
Shepherd, H. M. 1 Ar 408 Univ. Ave
Sherbakoff, C. D. 4 Ag 316 Casca. Bldg
Sheridan, E. E. 4 A 810 Univ. Ave (Bell 129)
Sherlock, R. E. 1 A 704 Stewart Ave
Sherman, J. H. 4 A 427 E. Seneca (Ithaca 27)
Sherwin, H. M. 1 Ag West Hill (Bell 351-F)
Sherwin, J. H. 2 M 706 Stewart Ave (Ithaca 806-X)
Sherwood, C. M. G 301 College Ave
Sherwood, R. H. 1 A 234 Linden Ave
Sherwood, W. F. 2 C 128 Hudson
Shilling, D. W. 2 M 74 Thurston Ave (Bell 213, Ithaca 201)
Shimer, C. E. 4 Ag 319 Dryden Rd
Shimmel, C D. 2 Ag 704 E. State
Shipman, L. D. 3 C 2 South Ave (Ithaca 346-X)
Shirk, D. A. 1 M 528 Stewart Ave
Shiverick, A. 2 A 618 Stewart Ave (Bell 209)
Shoemaker, H. G. 1 A 210 College Ave
Shoemaker, R. C. 1 M 202 Eddy (Ithaca 507)
Sholes, J. D. Sp Ag 105 Catherine (Ithaca 77)
Shollenberger, (Miss) H. O. 4 A Sage
Short, F. 2 M 2 The Circle (Bell 262-B)
Shostac, (Miss) L. 2 Ag Forest Home
Shultz, G. B. 1 L 118 Ferris Pl
Shultz, R. M. 1 C 321 Dryden Rd (Ithaca 742-X)
Shutz, R. L. 1 A 702 Univ. Ave (Bell 264, Ithaca 250)
Shultz, W. D. 2 L 702 Univ. Ave (Bell 265, Ithaca 250)
Shuttleworth, W. 4 Ag 48 Sheldon Ct
Sibert, H. W. 1 M 704 Stewart Ave
Sichel, S. 1 L 238 Linden Ave
Sickmon, C. H. 1 C 105 Highl'd Pl
Sidebottom, H. G. 2 A 1 Central Ave (Bell 373, Ithaca 194-X)
Siebert, W. P. Jr. 2 M 519 Stewart Ave
Sill, J. M. 4 C 702 E. Buffalo (Ithaca 581-X)
Sill, W. H. 1 A 615 E. State (Ithaca 602)
Silva, S. 2 M 128 Dryden Rd
Silver, C. 2 A 134 College Ave (Ithaca 695-X)
Silverman, H. I. 3 M 37 West Ave (Bell 774-B)
Silverstein, R. P. 2 A 115 Eddy
Simmons, L. N. 3 L 303 College Ave (Ithaca 692-X)
Simmons, (Miss) M. E. 2 Ar 521 E. State
Simms, R. 2 V 402 College Ave (Ithaca 90-X)
Simon, S. 2 A 213 College Ave
Simon, S. L. 2 M 115 W. Buffalo (Bell 250)
Simonds, E. J. 1 A 132 Blair
Simons, L. R. 4 Ag 309 College Ave (Ithaca 692-Y)
Simons, W. B. 2 M 1 Central Ave (Bell 373, Ithaca 194-X)
Simonson, C. E. 2 A 129 Eddy (Ithaca 507-X)
Simpson, (Miss) B. H. 1 A Sage
Simson, L. D. 2 M 119 Stewart Ave
Sinclaire, R. O. 1 M 706 E. Buffalo
Singleton, G. A. 1 V 308 Univ. Ave (Ithaca 416)
Sisson, (Miss) A. R. 4 A Sage Cott
Sisson, (Miss) M. A. 1 A Sage
Sivyer, B. L. Sp M 125 Edgemoor Lane
Skeels, (Miss) M. L. 1 A 717 E. Buffalo
Skerrett, (Miss) M. T. 3 A Sage (Ithaca 1106)
Skillen, (Miss) M. H. 2 A 308 Farm (Ithaca 411)
Skinner, C. B. 1 V 121 Catherine (Ithaca 385-J)
Skinner, R. E. 2 Ag 33 Sheldon Ct (Bell 460-B)
Slack, L. W. Sp Ar 219 Eddy
Slater, B. J. 1 MD 105 Catherine
Slaymaker, W. W. 3 M 107 Edgemoor Lane
Sloane, G. G. 3 C 106 Cook
Slocum, L. A. 1 A 5 East Ave (Ithaca 271-X)
Slocum, C. L. Sp Ag Goldwin Smith
Slocum, F. A. Sp Ag 139 Spencer Pl
Slocum, L. M. Jr. 4 M 113 Cook Ithaca 445-C)
Sluyter, R. E. 3 Ar 101 Eddy (Ithaca 157)
Small, J. H. 1 Ag 704 E. Buffalo (Ithaca 851)

Smiley, H. B. 1 Ag 31 Thurston Ave
Smith, A. H. G 221 Eddy
Smith, A. L. 3 C 122 Catherine (Ithaca 402-Y)
Smith, B. L. 1 C 301 Dryden Rd
Smith, Claire E. Sp Agr 327 W. State
Smith, Charles E. 2 C
Smith, C. H. W. 1 M 614 E. Buffalo
Smith, E. D. 1 Ag 202 College Ave
Smith, D. A. 2 C 207 Linden Ave
Smith, D. F. 2 M 411 Dryden Rd (Ithaca 255-X)
Smith, Douglas A. 1 M 521 State
Smith, Dwight Sp Ag 305 Dryden Rd
Smith, E. L. 4 C 110 Edgemoor (Bell 426, Ithaca 330-X)
Smith, E. P. 3 Ag 201 Williams
Smith, E. C. 1 M 526 Stewart Ave
Smith, F. C. 1 Ag 11 Waite Ave (Bell 379)
Smith, F. A. C. 3 Ag 125 Catherine (Ithaca 402-C)
Smih, F. H. Sr L 13 South Ave
Smith, G. C. G 238 Linden Ave (Bell 243)
Smith, H. E. 1M 702 Univ. Ave
Smith, H. V. 1 M 210 Stewart Ave (Ithaca 580-Y)
Smith, J. E. 4 M 116 Osmun Pl (Ithaca 623)
Smith, James H. 1 M 76 Sheldon Ct
Smith, Joseph H. 1 M 125 Edgemoor (Bell 371)
Smith, J. S. 1 A 702 E. Buffalo
Smith, J. W. 3 C Barnes Hall
Smith, J. 4 A 215 Dryden Rd (Ithaca 832-X)
Smith, Leslie B. Sp Ag Forest Home
Smith, Loren B. 1 Ag 306 Eddy
Smith, (Miss) L. W. G 13 East Ave (Bell 296)
Smith, (Miss) L. O. 4 A Sage
Smith, (Miss) N. 2 A Sage Cott (Bell 576, Ithaca 1142)
Smith, N. Sp Ag 43 East Ave (Bell 172, Ithaca 1099-X)
Smith, O. W. 3 Ag 302 E. Railroad (Ithaca 794-Y)
Smith, O. M. 2 Ag 120 Catherine (Ithaca 625-X)
Smith, P. E. G 502 Dryden Rd
Smith, (Miss) P. H. 1 Ag 107 Quarry (Bell 6-R)
Smith, R. B. 2 L 130 Linden Ave (Ithaca 190)
Smith, (Mrs) R. G. 15 East Ave (Bell 15)
Smith, R. M. 1 A 132 College Ave
Smith, S. H. 2 C 124 Catherine (Ithaca 834)
Smith, W. H. 2 Ar 319 Dryden Rd (Bell 742-C)
Smith, W. T. 2 C 523 E. Buffalo (Ithaca 613-X)
Smith, W. W. Sp Ag 206 Eddy
Snodgrass, L. I. 2 Ag 303 College (Ithaca 692-X)
Snow, B. H. 2 A 107 Edgemoor (Bell 674, Ithaca 196-X)
Snyder, C. D. 1 M Hill Crest (Ithaca 686)
Snyder, D. E. 3 A 302 Eddy (Bell 498-B)
Snyder, E. 1 Ag 206 Linden Ave
Snyder, (Miss) F. K. 2 A Sage Cott (Bell 576, Ithaca 1142)
Snyder, H. H. 1 C 125 Catherine (Ithaca 402-C)
Snyder, H. W. 1 Ag 35 Bryant
Snyder, J. L. Jr. 2 M 431 E. Seneca (Bell 319)
Sobel, J. W. 1 C
Solomon, R. L. 1 A 36 Sheldon Ct
Somerville, W. A. S. 1 M 306 Eddy (Ithaca 421-X)
Sonnenfeld, H. 3 Ag 328 Dryden Rd
Sourwine, J. A. 3 C 325 Dryden Rd (Ithaca 808)
South, F. Jr. 3 M 527 E. Buffalo (Bell 126-B)
Southard, H. E. 2 M 110 Sage Pl (Bell 426)
Southwick, C. 2 M 222 Univ. Ave (Ithaca 23-X)
Souza, A. C. P. 1 C 308 Eddy
Sowdon, W. K. 4 M 116 Osmun Pl (Ithaca 623)
Spalding, L. 2 C 2 The Circle (Bell 262-B)
Spamer, M. A. 2 C 103 College Ave
Sparfield, E. H. W. 3 C 205 Linden (Ithaca 743)
Spates, T. G. 2 M 109 Catharine (Bell 385-B)
Spear, S. H. 1 C 301 Dryden Rd
Speed, (Miss) E. R. 4 A 911 E. State (Bell 41)
Speer, J. F. 2 C 205 Eddy
Spencer, (Miss) B. L. 1 A Sage (Bell 92, Ithaca 1139)
Spencer, (Miss) G. 2 A Sage
Spence., H. M. 1 L 119 Eddy (Bell 496-B)
Spencer, L. V. 4 M 636 Stewart Ave (Ithaca 782)

Spencer, (Miss) M. E. 4 A Sage (Bell 92, Ithaca 1140)
Spencer, (Miss) V. 4 A Sage
Sperry, W. M. 1 L 13 South Ave (Bell 419, Ithaca 196)
Speyer, (Miss) A. W. Sp Ag Sage
Spillman, R. 1 Ag 123 Dryden Rd
Spindler, (Miss) I. E. 2 A 111 Oak Ave (Bell 573, Ithaca 61-X)
Spooner, C. S. G Forest Home Dr (Ithaca 313-X)
Spooner, L. H. 2 Ag 507 N. Tioga
Sprague, E. L. 1 L 812 Univ. Ave (Bell 129)
Sprague, F. D. 1 C 202 College Ave (Ithaca 635-X)
Sprague, T. M. 3 Ag 106 Cook
Spraker, R. D. 2 A 111 Osmun Pl
Spransy, B. C. 1 M 222 Eddy
Stack, A. H. 1 M 526 Stewart Ave (Ithaca 183-C)
Stafford, N. L., Jr. 4 M 205 Eddy
Stahl, D. V. 1 M 706 E. Buffalo
Stahl, E. C. M. 2 M 96 Waite Ave
Stahl, J. J. 3 C 615 E. State
Stanwood, H. C. 2 M 103 McGraw Pl (Bell 559, Ithaca 226)
Stapley, E. R. 1 C 114 Eddy
Starbuck, F. L. 2 Ar 207 Linden Ave
Starbuck, H. A., Jr. 1 V 202 Eddy
Stark, F. E. 1 M 109 College Ave
Stark, P. C. 1 Ag 625 Univ. Ave (Bell 109, Ithaca 339-X)
Starkweather. A. K. 3 C 210 Linden
Starr, B. F. Jr. 2 M 106 Highl'd Pl (Bell 756)
Starr, C. B. 1 M 201 Oak Ave
Starret, H. A. 2 A 13 South Ave (Bell 419, Ithaca 196)
Stasch, B. H. 1 Ag 209 Williams (Ithaca 583-C)
Stearns, N. F. 2 Ag 127 Eddy (Bell 384-B)
Stearns, R. I. Jr L 17 South Ave
Stecker, (Miss) M. L. G Sage Cott
Steer, (Miss) E. A. 2 A Sage (Bell 92)
Steinhardt, M. I. 2 A 109 Summit Ave
Steinlauf, H. 2 Ar 117 DeWitt Pl (Bell 404-B, Ithaca 616)
Steitz, J. M. Sp Ag 130 Dryden Rd
Stephens, F. M. 2 M 2 Central Ave (Bell 30, Ithaca 194)
Stephenson, (Miss) E. C. G Sage Cott (Ithaca 1141-X)
Stephenson, H. C. 1Ag 125 Catherine (Ithaca 402-C)
Stephenson, W.G. 2Ag 125 Catherine (Ithaca 402-C)
Steps, R. A. 4 M 120 McClune Terr
Stern, J. S. 2 A 69-B Sheldon Ct
Stern, J. L. 2 M 516 Stewart Ave (Bell 320-B)
Stern, V. 1 Ag 129 Linden Ave (Ithaca 185-Y)
Sternbergh, J. H. Jr. 1 M 406 Stewart
Steve, N. D. 1 Ag
Stevens. B. C. 1 Ag 217 Mitchell
Stevens, E. A. Sp Ag Casca. Pl
Stevens, E. H. 2 Ag 214 Eddy (Ithaca 626)
Stevens, G. G. 3 V 405 S. Albany (Bell 477)
Stevens, H. G. 2 M 304 College Ave (Ithaca 625)
Stevens, H. W. 1 A 304 College Ave (Ithaca 625)
Stevens, J. F. G 502 N. Aurora (Ithaca 297)
Stevens, J. G. G 614 E. State (Ithaca 6-C)
Stevens, S. M. Jr. 1 A 1 Central Ave
Stevens, W. H. 1 M 108 Catherine (Ithaca 151)
Stevens, W. S. G 127 Linden Ave (Ithaca 141)
Stevenson, A. L. 2C 710 Thurston Ave (Bell 175, Ithaca 476-R)
Stevenson, J. A. G 128 Eddy (Ithaca 601)
Stevenson, (Miss) L.S. G 13 East Ave
Stevenson, S. H. 2 Ag 302 E. Railroad Ave (Ithaca 794-Y)
Stevenson, W. H. 1 V 209 Williams
Stewart, C. A. G 804 E. Seneca
Stewart, C. G. 1 C 103 Linn
Stewart, J. P. G 804 E. Seneca
Stewart, V. B. G 233 Linden Ave
Stibolt, V. A. 3 C 102 West Ave (Bell 598, Ithaca 730-X)
Stichter, J. L. 4 M 103 College Pl (Ithaca 568-X)
Stillwell, E. G. Sp Ar 317 Eddy
Stimpson. E. A. 2 M 319 Dryden Rd (Ithaca 742-C)
Stimson, S. N. 2 Ag 422 Eddy (Bell 676, Ithaca 630)
Stivers, (Miss) C. M. 4 A Sage (Bell 92, Ithaca 1132)
Stockly, G. J. 2 M 706 E. Seneca (Bell 110, Ithaca 829)
Stockstrom, A. L. 1 M 614 Stewart
Stoddard, J. W. jr. 2 M 15 South Ave Bell 533, Ithaca 135-X)
Stokoe W. C. 1 Ag 113 Cook (Ithaca 445-C)
Stone, G. C. 4 C 315 Eddy

Stone, (Miss) J. A. 2 A 91 Waite Ave (Bell 616-B)
Stone, M. W. 1 M 125 Highland Pl (Bell 762 W)
Stone, N. S. 1 A 522 Stewart Ave (Bell 575)
Stone, O. F. 1 M 310 College Ave
Stone, R. E. G 130 Dryden Rd
Storrer, J. 2 A 416 E. Seneca (Bell 38-B)
Story, A. P. 2 A Hill Crest (Ithaca 686)
Stover, A. Jr. 1A 36 Fall Creek Drive
Stow, W. K. 2 Ag Hill Crest
Stowell, C. S. 1 Ag 138 Linden Ave (Ithaca 190-X)
Strahan, D. P. 1 A 432 N. Tioga
Strahan, J. C. J. 2 C 5 Central Ave (Bell 209, Ithaca 347)
Strahan, J. L. 3 Ag 432 N. Tioga
Strait, H. G. Sp Ag 108 Catherine (Ithaca 151)
Strait, E. D. 2 Ag 108 Catherine (Ithaca 151)
Straus, W. R. G 123 Dryden Rd
Strauss, C. W. 1 A 105 Catherine
Strauss, F. A. 2 A 516 Stewart Ave (Bell 320-B)
Strawbridge, R. E. 1 M 505 N. Tioga (Bell 542)
Strelitz, J. M. 2 A 706 E. Buffalo (Ithaca 583-X)
Strempel, E. R. 3 A 603 E. Seneca (Bell 105, Ithaca 396)
Strobridge, J. B. 2 A 519 Stewart Ave (Bell 396)
Strohm, H. C. 3 M 106 Brandon Pl (Ithaca 666-X)
Strong, C. L. 3 M 219 Linden Ave (Ithaca 77)
Strong, F. E. Sp Ag 114 Forest Home (Ithaca 378-X)
Strong, W. O. 4 Ag Forcing Hse (Ithaca 1089)
Struck, H. W. 2 M 306 Stewart Ave (Bell 68-B)
Stryke, (Miss) A. C. G Cornell Hts. (Ithaca 756-X)
Stryker, E. D. Jr. 1A 140 College Ave (Ithaca 727)
Stuart, (Miss) M. 4 A Sage (Bell 92)
Stuart, W. C. 1 C 1018 N. Cayuga
Stuber, A. 2 M 13 South Ave (Bell 419, Ithaca 196)
Stude, A. J. 4 M 115 DeWitt Pl (Ithaca 617)
Sturges, R. Jr L 210 Stewart Ave (Ithaca 580-Y)
Sturmfelsz, G. J. Jr. 2 M 210 College Ave (Ithaca 765-C)
Sturrock, J. F. 2 M 519 S. Albany
Suiter, W. C. 2 M 401 Casca. Pk
Sullivan, D. F. 1 C Stewart Ave
Sullivan, E. A. 1 L 210 Linden Ave
Sullivan, E. D. Sp L Stewart Ave
Sullivan, L. J. 2 M 102 West Ave (Bell 598, Ithaca 730-X)
Sullivan, M. W. 2 V 214 Dryden Rd (Ithaca 77-X)
Summers, R. E. J. 1 C 205 College Ave
Summers, W. F. 1 C 205 College Ave
Sumner, W. H. 1 V 413 Dryden Rd
Super, S. L. 2 C 526 Stewart Ave (Ithaca 183-C)
Suppes, W. R. 1 Ag 528 Stewart Ave
Supplee, G. C. 2 Ag 213 College Ave (Ithaca 765)
Supplee, G. W. 1 A 127 College Ave
Surles, A. W. 1 Ar Hill Crest (Ithaca 686)
Sutherland, L. T. G 138 Linden Ave (Ithaca 190-X)
Sutphen, M. E. 1 Ag 206 College Ave
Sutton, P. B. 1 C 125 Catherine (Ithaca 402-C)
Sutton, S. H. 1 M 704 E. State (Ithaca 658)
Swalm, J. M. 3 M 111 Osmun Pl (Bell 349, Ithaca 307)
Swalm, R. A. 1 M 111 Osmun Pl (Bell 349, Ithaca 307)
Swalwell, M. F. 1 M 625 Univ. Ave (Bell 109, Ithaca 138-X)
Swan, B. L. 1 L 507 N. Cayuga
Swartwood, H. A. Jr L 440 E. Buffalo (Ithaca 822)
Swift, F. H. G 124 Catherine (Ithaca 834)
Swift, J. J. 1 Ag Box 155, Ithaca (Ithaca 207)
Swift, L. B. 3 M 105 Catherine (Ithaca 770)
Swinton, D. R. 4 M 125 Highland Pl (Bell 762-W, Ithaca 75)
Switzer, (Miss) C. M. 4 A Sage
Switzer, F. G. 2 M 105 Catherine (Ithaca 770)
Switzer, H. B. 2 Ag 206 Casca. Pl (Ithaca 772-X)
Sworts, W. Sp Ag 134 Casca. Pl
Symonds, R. W. 1 M 214 Dryden Rd (Ithaca 77-X)
Sze, C. Y. F. 2 A 108 Catherine (Ithaca 151)

Taft, F. W. 2 A 610 E. Seneca

Tall, G. W. Jr. 2 M 706 E. Buffalo
Talman, L. A. 2 M 112 Casca Ave
Tappan, F. G. G 122 Falls (Ithaca 444-Y)
Tate, R. L. 4 C 217 Linden Ave (Bell 215)
Taylor, C. A. 1 Ag 448 Casca. Pl
Taylor, C. M. 1 A 127 College Ave
Taylor, C. L. 3 C 302 College Ave (Ithaca 14-X)
Taylor, E. A. 1 M 105 Catherine (Ithaca 770)
Taylor, E. H. 3 C 110 Osmun Pl (Bell 279, Ithaca 613)
Taylor, G. H. G Absent
Taylor, H. O. G 115 Stewart Ave (Ithaca 771-X)
Taylor, H. L. 4 A 806 E. Sencea (Ithaca 575)
Taylor, R. A. Sp M 105 Catherine
Taylor, R. S. 3 M 222 Eddy
Taylor, S. L. 2 C 121 College Ave
Taylor, T. R. 1 M Absent
Taylor, W. D. 2 M 239 Linden Ave (Ithaca 743-C)
Taylor, W. H. 2 M 125 Edgemoor (Bell 371, Ithaca 195)
Teagle, E. H. 1 A 17 South Ave (Bell 97-X)
Teall, J. R. 1 A 110 Cook
Teller, (Miss) L. L. 2 A Sage (Bell 92, Ithaca 1108-X)
Temple, C. R. 3 Ag 309 E. Buffalo (Bell 179)
Templeman, J. P. G 241 Linden Ave
Ten Hagen, H. 2 C 210 College Ave (Ithaca 765-C)
Tenny, F. A. 3 Ag 523 E. Buffalo (Ithaca 613-X, Bell 126-J)
TerKnile, C. V. 1 M 16 Casca. Park
Terry, H. P. 1 L 209 College Ave
Terry, J. P. 4 Ag 131 Quarry (Bell 466-B)
Tewksbury, B. R. 2 M 125 E. Mill
Tewksbury, R. G. 1 A 518 Stewart (Bell 754)
Tewksbury, T. L. 2 Ar 625 Univ.
Thatcher, W. F. 2 A 625 Univ. Ave
Thayer, C. S. 2 M 116 Osmun Pl (Ithaca 623)
Thiele, C. M. 4 C 102 West Ave (Bell 598, Ithaca 730-X)
Thomas, C. E. 2 M 113 Cook (Ithaca 445-C
Thomas, C. B. 1 M Hill Crest (Bell 623, Ithaca 686)
Thomas, H. A. C. 2 Ag 712 E. Buffalo (Bell 498-J)
Thomas, J. jr. 2 L 322 Casca. Pl
Thomas, (Miss) L. S. Sp Ag 240 Linden Ave
Thomassen, V. G. 4 C Barnes Hall (Bell 561, Ithaca 1011)
Thompsett, G. W. 1 V Forest Home
Thompson, A. L. 4 Ag 32 Thurston Ave (Bell 213-B, Ithaca 277)
Thompson, A. M. 1 C 810 Univ. Ave (Bell 129)
Thompson, E. E. 4 C 122 Catherine (Ithaca 402-Y)
Thompson, E. J. 1 Ag R. F. D. 2
Thompson, G. E. G 214 Stewart Ave
Thompson, H. A. 1 Ag 114 Ferris Pl (Ithaca 3-C)
Thompson, K. F. 1 C 221 Prospect (Bell 311-B)
Thompson, (Miss) N. B. 1 Ag Sage (Ithaca 1106)
Thompson, P. W. G 708 E. Seneca (Bell 284-J, Ithaca 579-Y)
Thompson, U. Jr. Sp M 638 Stewart (Ithaca 294-X)
Thompson, W. R. Sp Ag
Thomson, J. E. 2 M 107 Edgemoor (Bell 674)
Thomson, S. M. 1 Ag 303 Eddy
Thorne, H. W. 1 M 414 Stewart (Bell 123-B)
Thorne, W. J. 4 M 74 Thurston Ave (Bell 213, Ithaca 201)
Thornell, C. W. 1 Ag 133 Linden
Thorp, G. B. 1 A 614 E. Buffalo (Ithaca 581-Y)
Thorp, (Miss) M. B. 3 A Sage (Bell 92)
Threefoot, L. M. 2M Sheldon Ct
Thummel, G. B. 1 L 1½ Central Ave (Bell 268, Ithaca 240)
Thurman, B. H. G 209 Williams
Thurnauer, M. H. 2 A 109 Summit Ave
Thurston, E. W. 4 Ag 109 DeWitt Pl (Ithaca 612-X)
Thurstone, L. L. 3 M 108 Catherine (Ithaca 151)
Thweatt, H. 2 C 207 Linden Ave
Tidd, G. W. 2 M 112 Edgemoor (Bell 345, Ithaca 97)
Tierney, E. M. 1 M 412 Stewart
Tiffany, G. U. Sp Ag 9 Reservoir Ave (Ithaca 1101-X)
Tilbury, (Miss) M. R. 1 Ag Sage (Ithaca 1106)
Tilden, H. A. 1 Ar 15 South Ave
Tilley, N. N. 1 M 302 Mitchell (Ithaca 774)

Tillou, H. J. 2 L 403 College Ave (Ithaca 691)
Tillou, R. M, Sp Ag 403 College Ave
Tillson, H. J. 1 V 121 Catherine (Bell 385-J)
Tillson, H. W. 1 V 121 Catherine (Bell 385-J)
Tilson, H. 2 M Hill Crest (Bell 623, Ithaca 686)
Tilton, J. N., Jr. 2 Ar 107 College Pl (Ithaca 808-X)
Timmerman, L. B. 1 M 15 South Ave (Bell 533, Ithaca 195-X)
Tinkler, L. G. 1 A 608 E. Buffalo
Tinsley, R. R. 1 A 522 Stewart Ave (Bell 575)
Tisdale, E. M. 1 Ar 209 College Ave
Titchener, P. F. 2 M. 133 Quarry (Bell 6)
Tjomsland, (Miss) A. 4 A 1 M.D 202 Williams
Toan, T. L. 3 L 112 Edgemoor Lane (Bell 345, Ithaca 97)
Tobias, C. B. Sp Ag 120 Linden Ave
Tomes, E. J. 2 Ag 130 Dryden Rd
Tompkins, L. J. 3 V 319 College Ave (Ithaca 491-Y)
Tong, W. S. 2 M 411 College Ave
Tonkin, L. L. 2 M 1 Central Ave (Bell 323, Ithaca 194-X)
Tonks, (Miss) E. G Triphammer Rd
Topp, A. 1 Ar 618 Stewart Ave
Torbert, V. W. 4 Ar 210 Williams (Ithaca 772)
Torrance, C. E. G 105 Hudson
Torrance, F. C. 4 M 313 S. Aurora (Bell 182-J)
Torrance, R. S. 1 C 134 Linden Ave
Torrey, O. C. 4 A 625 Univ. Ave (Bell 109, Ithaca 338-X)
Torian, G. I. 1 Ar 17 South Ave (Bell 36-B, Ithaca 97-X)
Tourison, W. H. 1 L 125 Edgemoor (Bell 371, Ithaca 195)
Toussaint, A. F. C. 1 M 116 Osmun Pl (Ithaca 623)
Tower, C. H. G 103 Quarry (Bell 631-B)
Tower, C. L. 3 M 1½ Central Ave (Bell 268, Ithaca 230)
Towers, A. C. 4 M 119 Dryden Rd (Ithaca 677)
Towne, P. S. Sp Ag 108 Cook
Townsend, C. E. G 208 Farm
Townsend, D. W. 1 C 128 Eddy
Townsend, (Miss) L. 2 A Sage
Tozer, F. W. 1 C R. F. D. No. 3
Traeger, P. Jr. 2 M 110 Cook
Trainer, E. 1 M Sheldon Court
Trask, C. H. 3 C 108 Casca. Park (Ithaca 286-X)
Trasvina, B. 2 A 217 West Ave
Tree, R. T. 1 M 408 Stewart Ave
Trego, A. C. 2 M 103 McGraw Pl (Bell 559, Ithaca 226)
Treman, L. C. 1 Ag 125 College Ave
Triest, R. M. 3 M 72 Sheldon Ct
Truesdell, E. S., Jr. 1 M 109 Catherine
Trump, C. C. 4 M 103 Highland Pl (Bell 762-B, Ithaca 435)
Tsai, P. Y. 2 C 113 N. Aurora (Bell 10-X, Ithaca 492)
Tschirky, L 3 M 208 Stewart Ave (Ithaca 580-X)
Tsen, M. K. 1 M 319 College Ave
Tsou, Y. H. 2 Ag 310 College Ave (Ithaca 62-C)
Tucker, E. F. 2 M 523 E. Buffalo (Ithaca 613-X)
Tucker, E. S. 1 L 708 E. Buffalo (Ithaca 582)
Tupper, (Miss) L. E. 1 A 106 Brandon Pl
Turley, C. L. 1 M 127 Dryden Rd (Ithaca 677-C)
Turlington, J. E. G 125 Linden Ave (Ithaca 141)
Turlington, (Mrs.) M. B. 1 Ag 125 Linden Ave (Ithaca 141)
Turnbull, J. G. 3 L 110 Edgemoor (Bell 426), Ithaca 330-X)
Turnbull, (Miss) M. C. Sp Ag 308 Farm (Ithaca 411)
Turnbull, R. R. 1 Ag 310 Farm (Ithaca 831)
Turnbull, W. R. Sp Ag Forest Home
Turner, C. L. 2 M 440 Casca. Pl
Turner, J. R. G 601 N. Tioga
Turner, M. W. 4 C 205 Dryden Rd (Ithaca 769)
Turner, W. W. 1 M 116 Lake
Tutthell, (Miss) M. B. 1 A Sage
Tuttle, E. M. 4 Ag 113 Stewart Ave (Bell 272)
Tuttle, J. R. G 217 Mitchell (Bell 392)
Tuvin, J. H. 3 M 306 Eddy (Ithaca 421-X)
Twaddell, J. S. 3 L 107 College Pl (Ithaca 808-X)
Tyler, F. H. 2 M 214 Dryden Rd (Ithaca 77-X)
Tyson, B. 3 Ag 214 Dryden Rd (Ithaca 77-X)

Tyson, O. S. 3 M 103 McGraw Pl
(Bell 559, Ithaca 226)
Uihlein, E. C. 2 L Withdrew
Ulbricht, T. C. G 426 E. Buffalo
(Ithaca 683-X)
Ulrich, L. J. G 502 Dryden Rd
Unckles, H. W. G 226 Eddy
(Bell 115-B)
Underhill, H. O. 1 C 74 Thurston
(Bell 201, Ithaca 103)
Underwood, E. V. Sp Ag 420 E. Seneca
Underwood, H. J. 4 A 13 South Ave
(Bell 419)
Underwood, P. H. G 312 College Ave
(Bell 473)
Undritz, (Miss) E. 2 A Sage
Updegraff, S. G. Jr. 1 Ag 414 Stewart
Upson, W. H. 1 Ag 123 Dryden Rd
Urband, E. M. 2 Ar 322 N. Tioga
(Ithaca 291)
Utter, F. P. 1 A 307 College Ave
Utter, (Miss) L. L. G 317 S. Aurora
(Ithaca 231-X)

Vaiden, C. M. 2 C 113 DeWitt Pl
(Bell 750-B)
Vail, (Miss) H. A. 2 A Sage
Vail, I. R. 3 V 411 N. Tioga
(Bell 613)
Vail, M. D. 1 A 17 South Ave
(Ithaca 97-X)
VanAtta, E. 2 Ag 409 College Ave
(Ithaca 760-C)
VanBenschoten, A. 1 Ag 512 W. State
VanBuren, H. L. 3 Ag Cornell Hts
(Ithaca 277-X)
VanBuren, J. R. Sp Ag Cornell Hts
(Ithaca 277-X)
VanCott, W. Q. 4 A 812 Univ. Ave
(Bell 129)
Vanderbeek, H. A. 4 C 108 Casca. Pl
(Ithaca 286-X)
VanDerhoef, M. 3 M 119 Stewart Ave
(Bell 386, Ithaca 617-X)
Vanderlyn, D. F. 1 M 402 College Ave
Vanderveer, J. K., Jr. 1 C 415 Stewart
(Bell 270, Ithaca 307-X)
VanHoesen, G. C. 2 Ag 402 N. Cayuga
(Bell 375)
VanInwegen, H. B. 2 Ar Hill Crest
(Bell 623, Ithaca 686)
VanKirk, W. 2 C 810 Univ Ave
(Bell 129)
VanKirk, W. H. 3 Ag 413 Dryden Rd
(Ithaca 831-C)
VanKleek, A. R. 2 Ag 217 Linden
Ave
(Bell 215)

VanLaw, D. 2 M 109 Catherine
(Bell 385-B)
Vann, D. C. 4 Ag 413 Dryden Rd
(Ithaca 831-C)
Vann, (Miss) M.H. 3 A 717 E. Buffalo
(Ithaca 625-X, Bell 321-B)
VanSchaack, G. S. 1 L 527 E. Buffalo
(Bell 126-B)
VanSiclen, A. L. 2 C 710 Thurston
Ave
(Bell 175, Ithaca 817)
Vant, E. H. 1 L 110 Utica
VanValkenburgh, H. B. 3 M 305 Dryden Rd
(Ithaca 203-X)
VanVliet, H. D. Sp Ag 105 Eddy
Vassar, (Miss) R. A. 2 A 438 N.
Geneva
Vaughan, J. L. 1 L 209 College Ave
Vaughn, C. E. 1 M 140 College Ave
(Ithaca 727)
Vautrot, L. R, 2 M 121 Quarry
Veazey, J. A. G 317 College Ave
Veazie, G. S. Sp Ar 408 Stewart Ave
(Bell 647)
Verity, C. W. 3 M Hill Crest
(Bell 623, Ithaca 686)
Vernon, (Miss) E. 2 A 111 Oak Ave
(Bell 573, Ithaca 612)
Verwiebe, W.A. 4A-G 101 Casca Lodge
Very, W. R. M. 1 M 119 Stewart Ave
(Bell 386, Ithaca 617-X)
Vietor, H. 1 A 102 West Ave
(Bell 598, Ithaca 730-X)
Vincent, J. D. 2 M 407 Dryden Rd
Vivo, S. 2 M 220 Univ. Ave
Vivoni, A. 1 C 206 College Ave
(Bell 2, Ithaca 727-X)
Visher, (Miss) D. 109 Valentine Pl
Voege, (Miss) M. E. 717 E. Buffalo
Vogt, C. W. 1. 1 526 Stewart Ave
Volz, C. A. M 210 College Ave
(Ithaca 765-C)
VonEngeln, O. D. G 416 Eddy
(Ithaca 1046-X)
Voorhees, A. C. 2 M 202 Williams
(Ithaca 744-X)
Voorhees, (Miss) R. 4A 717 E. Buffalo
(Bell 321-B)
Vorhis, (Miss) C.E. 1Ag 222 Univ. Ave
(Ithaca 23-X)
Vose, C. R. 1 M 203 S. College Pl
(Bell 355)
Vreeland, E. P. 3 A Sheldon Ct
Vreeland, W. C. F. T. 2 A
Vroome, E. P. 2 M 118 Cook
(Ithaca 491-X)

Waddington, J. P. 2 Ag 117 Oak Ave

Wadman, H. A. 2 M 410 Stewart Ave (Ithaca 669-X)
Wadsworth, R. E. G New Greenhouses
Wagner, W. C. G 512 Stewart Ave (Bell 754-B)
Wait, C. 2 M 1½ Central Ave (Bell 268, Ithaca 230)
Wait, J. P. 3 L 711 E. Seneca (Ithaca 577)
Wait, N. E. 2 L 410 Stewart Ave
Wait, R. S. 1 C 115 College Ave (Ithaca 636)
Wait, S. P. 1 L 410 Stewart Ave (Ithaca 664-X)
Waite, (Mrs.) J. C. Sp A Casca. Pl
Waitt, (Miss) D. B. 4 A Sage
Wakeley, A. W. 4 M Cayuga Hts (Bell 181, Ithaca 752-Y)
Wakeley, G. B. 1 M 74 Thurston (Bell 211, Ithaca 103)
Walden, W. M. 2 A 710 Thurston Ave (Bell 175, Ithaca 817)
Wales, W. H. Jr 3 C 506 Dryden Rd
Walker, F. H. Sp Ag 319 College Ave
Walker, H. Wellington 1 Ag R.F.D.2, (Ithaca 1111-X)
Walker, H. Wehle 4 A 138 Linden (Ithaca 190-X)
Walker, J. B. jr. 2 L 415 Stewart Ave (Bell 270)
Walker, L. V. G 2 South Ave
Walker, (Miss) M. E. 1 MD Irving Pl
Walker, R. W. 2 L 415 Stewart Ave (Bell 270, Ithaca 307-X)
Wall, C. H. Sp Ag 114 Forest Home
Wallace, D. W. 2 M 516 Univ. Ave
Wallace, F. R. 2 M 510 E. Seneca
Wallace, G. L. 2 Ag 129 Linden Ave (Ithaca 185-Y)
Wallace, R. B. 1 Ag
Wallach, K. 1 A Sheldon Ct
Walrath, H. L. 1 L 123 Dryden Rd
Walter, G. L. Jr. 2 A 415 Stewart Ave (Bell 270, Ithaca 307-X)
Walter, H. K. 1 A 415 Stewart Ave (Bell 270)
deWaltoff, M. Sp Ag 201 College Ave
Walton, W. W. 1 Ar 410 Stewart Ave
Walz, M. F. 4 A Y. M. C. A.
Walzer, J 4 M 205 College Ave
Walzer, S. J. 2 C 205 College Ave
Walzer, W. 2 L 205 College Ave
Wambaugh, R. H. 2 M 127 Catherine (Ithaca, 692-C)
Wang, S. T. 1 M 107 Cook (Ithaca 445)
Wang, I. T. 1 Ag 107 Cook
Wang, P. G 7 Bryant Ave (Bell 215-B)
Wang, Y. 1 A 319 Dryden Rd
Wanner, W. E. 2 M 117 Dewitt Pl (Bell 404-B, Ithaca 616)
Wanzer, C. T. 2 C 506 N. Tioga (Ithaca 298-C)
Ward, A. A. 2 C 708 E. Buffalo (Ithaca 582)
Ward, D. S. 2 Ar 712 Thurston Ave (Bell 669-W, Ithaca 825)
Ward, D. D. 2 Ag 109 DeWitt Pl (Ithaca 612-X)
Ward, J. C. 1 M 516 Stewart Ave
Ward, J. J. 1 A 117 Stewart
Ward, J. W. 2 M 304 College Ave
Ward, K. O. 1 A 109 Dewitt Pl
Ward, R. P. 4 Ar 603 E. Seneca (Bell 105, Ithaca 396)
Ward, L. S. 2 L 109 DeWitt Pl (Ithaca 612-X)
Ward, W. T. 2 A 110 Edgemoor (Bell 42-B)
Wardle, F. W. 1 Ag 224 Linden Ave
Waring, R. G. 1 Ag 35 Bryant Ave
Warner, (Miss) G. B. 2 A 807 E. State
Warner, H. S. 4 C 13 South Ave (Bell 419, Ithaca 196)
Warner, M. F. 4 M 103 McGraw Pl
Warner, R. J. 2A 209 College Ave
Washburn, R. S. 2 Ag 120 Catherine (Ithaca 625-X)
Wassilieff, I. J. Sp. Ag 316 Casca. Pl
Waterman, (Miss) H. E. 2 A Sage
Waters, H. H. 2 M 209 W. State
Watrous, R. W. 3 M 127 Dryden Rd (Ithaca 677-C)
Watson, E. F. 1 M 445 N. Tioga (Ithaca 714-Y)
Watson, F. B. 1 M 130 Dryden Rd
Watson, G. B. 2 C 202 Williams (Ithaca 744-X)
Watson, (Miss) G. E. 4 A The Circle (Bell 262-B)
Watson, H. L. 4 M 452 Casca. Pl
Watson, (Miss) I. L 2 A Sage Cott
Watson, J. R. 1 C 409 College Ave
Watson, M. R. 2 C 110 Osmun Pl (Bell 279, Ithaca 613)
Watt, C. M. 4 A 205 Linden Ave (Ithaca 743-X)
Waxman, L. 2 L 209 Williams
Weary, R. D. 2 Ar 2 Central Ave (Bell 30, Ithaca 194)
Weaver, D. W. 2 C 16 Casca. Pk (Ithaca 183-Y)
Weaver, E. J. 1 C 1½ Central Ave (Bell 268, Ithaca 230)
Weaver, L. J. 1 A 414 Stewart Ave
Webb, J. R. 4 C 208 Dryden Rd (Ithaca 769-X)
Webber, O. B. 2 V 134 College Ave

Weber, J. H. 1 Ag Casca. Pl
Webster, A. K. 1 C 114 Cook
Webster, (Miss) M. E. 1 Ag Alumnae House
Weekes, C. P., 2 M 13 South Ave (Ithaca 196)
Wegg, D. S. Jr. Sp M 217 West Ave (Bell 753, Ithaca 815)
Wegner, F. E. 2 L 103 College Pl
Wehr, F. 3 M 810 Univ. Ave (Bell 129)
Wei, D. K. 2 Ag 406 Stewart Ave (Ithaca 622)
Wei, E. F. 2 M 401 Dryden Rd (Ithaca 568)
Weidenthal, H. G. 2 A 204 College (Bell 487-J)
Weidler, W. E. 3 A 125 Longworth Lane
Weigel, P. 2 Ar 506 Dryden Rd (Ithaca 456-X)
Weil, (Miss) C. 2 A Sage (Ithaca 1108-X)
Weil, M. L. 2 L Sheldon Ct
Weinberger, A. B. 2 M 301 College Ave (Ithaca 692)
Weinstein, M. 1 A 205 College Ave
Weisbrod, B. H. 2 A 318 N. Tioga
Weiser, R. M. 1 M 516 Stewart Ave
Weiss, C. 2 C 311 Dryden Rd (Ithaca 185-C)
Weiss, H. A. J. 3 M 202 Eddy (Ithaca 507)
Weiss, S. 2 C 214 Stewart Ave
Weitzer, B. Sp Ag 128 Eddy (Ithaca 601)
Welch, A. E. 2 M 108 Cook
Welles, H. V. 2 M 13 South Ave
Welles, T. L. jr. 2 C 777 Stewart Ave (Bell 176, Ith7ca 250-X)
Wellman, H. C. 1 M 306 Stewart
Wellman, S. K. 1 M 220 Eddy
Wellman, W. 1 M 810 Univ. Ave (Bell 129, Ithaca 226-X)
Wells, A. S. 1 M 209 College Ave
Wells, J. J. 1 A 105 S. Aurora (Bell 670 B)
Wells, W. A. 1 C 2 South Ave (Ithaca 346-X)
Wells, W. K. 2 M 74 Thurston Ave (Bell 213, Ithaca 201)
Welsh, R. D. 2 C 103 College Ave
Welsh, T. W. B. G 111 Osmun Pl (Bell 349, Ithaca 307)
Welton, T. Sp Ag 102 West Ave (Bell 598, Ithaca 730-X)
Wendt, E. F. 2 M 603 E. Seneca (Bell 105)
Wendt, J. A. F. 1 M 105 Highland Ave
Wermuth, J. J. 2 V 232 Linden Ave (Bell 260)
Werner, V. H. 3 A 113 Cook (Ithaca 445-C)
West, A. K. 2 A 210 Williams (Ithaca 772)
West, R. J. 1 C 614 Stewart Ave
Weston, E. H. 1 A 110 Edgemoor (Bell 426, Ithaca 330-X)
Wetzel, C. H. 2 M 209 Williams
Wheat, J. C. 1 V 437 N. Tioga
Wheeler, H. T. 4 M 317 College Ave (Bell 61-B)
Wheeler, H. D. 2 M 125 Edgemoor (Bell 371, Ithaca 195-A)
Wheeler, H. L. 2 M 5 Central Ave (Bell 347, Ithaca 209)
Wheeler, H. Q. 1 M 603 E. Seneca (Bell 105, Ithaca 396)
Wheeler, (Miss) M. W. 3 Ag Sage
Wheeler, P. T. 2 C 201 S. Aurora
Wheeler, W. R. 2 M 518 Stewart Ave
Wheelock, B. H. 1 V 307 College Ave
Whinery, J. E. 2 Ag 17 South Ave (Bell 36-B, Ithaca 97-X)
Whipple, L. F. 2 Ag 127 Eddy (Bell 384-B)
Whipple, W. S. 1 Ag 109 DeWitt Pl (Ithaca 612-X)
Whitaker, S. J., Jr. 1 L
White, A. H. 2 Ag 214 Dryden Rd (Ithaca 77-X)
White, A. E. 2 Ag 239 Linden Ave (Ithaca 743-C)
White, B. H. 2 Ag 118 Ferris Pl
White, F. M. 3 C 625 Univ. Ave (Bell 109)
White, H. L. 3 A 625 Univ. Ave (Bell 109)
White, J. D. 3 A 515 Stewart Ave (Bell 198, Ithaca 330)
White, L. M. G 127 Highland Ave (Bell 738-B)
White, R. L. 3 C 127 Catherine (Ithaca 692-C)
White, (Miss) R. F. 2 A Sage
White, S. H. 3 Ag 214 Dryden Rd
White, V. 1 Ag 108 Catherine
White, W. A. 3 C 5 Central Ave (Bell 209, Ithaca 347)
Whited, E. W. 3 M 106 Highland Pl (Bell 756)
Whitehead, J. F. 1 M 2 Central Ave
Whiteley, M. L. 2 A Sage
Whitman, C. N. 1 A 217 West Ave (Bell 753, Ithaca 815)
Whiting, F. R. 1 M 715 E. Buffalo
Whitney, C. W. 2 Ag 301 Dryden Rd (Ithaca 769-Y)
Whitney, C. S. 1 C 116 Lake
Whitney, N. J. 3 Ag 109 DeWitt Pl (Ithaca 612-X)
Whitney, S. E. 1 C 121 E. Seneca

Whitney, W. N. 2 C 132 Blair
Whitty, J. J. 4 M 429 W. Buffalo
Whyte, J. S. 2 M 1 Central Ave (Bell 373, Ithaca 194-X)
Whyte, R. B. 2 M 431 E. Seneca (Bell 319)
Wick, L. T. 3 M 302 College Ave
Wick, W. S. 1 Ar 1 15 College Ave (Ithaca 636)
Wicks, E. M. 1 L 2 South Ave
Wiechers, A. C. 1 Ag 711 E. Seneca (Ithaca 577)
Wiener, N. G 134 College Ave
Wigand, R. C. 3 A 306 College Ave (Ithaca 402-X)
Wiggins, R. W. 4 M 324 College Ave (Bell 753, Ithaca 815)
Wight, F. J. 2 M 217 West Ave (Bell 753, Ithaca 815)
Wight, G. J. 1 A 221 Prospect (Bell 311)
Wight, S. B., Jr. 2 M Hill Crest (Bell 623, Ithaca 686)
Wilber, D. T. G 321 Dryden Rd (Ithaca 742-X)
Wilbor, C. W. Sp Ag 209 College Ave
Wilbur, C. C. Sp Ag 713 E. State
Wilbur, H. S. 1 L 108 Casca. Park
Wilcox, G. L. 2 C 105 Catherine
Wilcox, R. J. 1 Ag 209 College Ave
Wild, L. P. 1 A 132 College Ave (Ithaca 405-C)
Wilder, P. 3 A 15 South Ave (Bell 533, Ithaca 195-X)
Wilke, E. L. 2 M 603 E. Seneca (Bell 105, Ithaca 396)
Wilkie, W. O. 2 Ag 201 Casca. Pl (Ithaca 772-X)
Wilkin, J. G. 1 Ag 127 College Ave
Wilkins, C. A. Sp Ag 407 E. Buffalo
Wilkinson, M. J. Sp Ag 327 Eddy (Ithaca 614-K)
Will, H. H. 2 L 810 Univ Ave (Bell 129, Ithaca 226-X)
Williams, A. E. 3 V 307 College Ave
Williams, C. H. G 323 Pleasant (Ithaca 20-C)
Williams, C. T. 1 C 108 Catherine
Williams, (Miss) E.M. 2 A 115 Valentine Pl (Bell 107)
Williams, E. P. 2 L 208 Williams (Bell 572-B)
Williams, F. E. 1 A 109 Catherine
Williams, H. D. 1 L 516 Stewart Ave
Williams, L. B. 1 M 516 Univ. Ave
Williams, L. A. 1 M 119 Dryden Rd (Ithaca 677)
Williams, (Miss) L.M. 4 A Sage (Bell 92, Ithaca 1139)
Williams, M. R. 2 Ar 110 Edgemoor (Bell 42-B)
Williams, P. 1 M 115 Valentine Pl
Williams, (Miss) R. 2 A Sage
Williams, W. W. 2 A 115 Valentine Pl (Bell 107)
Williamson, G. M. 1 M 135 Blair (Bell 34)
Williamson, H. H. 1 M 103 McGraw
Willis, (Miss) K.M. 1 A 111 Oak Ave (Bell 573, Ithaca 61-X)
Willsey, G. M. 1 L 306 College Ave (Ithaca 402-X)
Wilson, A. J. G 310 E. Mill (Ithaca 789-X)
Wilson, A. W. 1 Ag 212 Linden Ave (Ithaca 185-X)
Wilson, C. L. 2 C 625 Univ. Ave (Bell 109, Ithaca 338-X)
Wilson, C. B. 2 A 209 Williams (Ithaca 583-C)
Wilson, (Miss) D. G. 1A 113 Stewart
Wilson, E. L. 2 V 306 College Ave (Ithaca 402-X)
Wilson, E. C. 4 M 102 West Ave (Bell 279, Ithaca 613)
Wilson, E. P. 4 M 1115 Linn (Ithaca 399-X)
Wilson, G. E. 3 C 710 Thurston Ave (Ithaca 817)
Wilson, H. C. 2 A 503 E. Buffalo (Bell 350, Ithaca 607)
Wilson, H. G. 2 A 526 Stewart Ave (Ithaca 183-C)
Wilson, H. J. 2 A 101 Linn
Wilson, J. F. 1 C 409 Dryden Rd (Ithaca 64-C)
Wilson, L A. G 708 E. Seneca (Bell 284-J, Ithaca 579-Y)
Wilson, (Miss) M. 2 A 526 Stewart Ave (Ithaca 183-C)
Wilson, M. C. 1 Ag 204 Stewart Ave
Wilson, T. J. 4 A 302 Mitchell (Ithaca 774)
Wilson, W. R. 2 Ag 319 Dryden Rd (Ithaca 742-C)
Wilson, W. de S. 2 Ag 32 Thurston Ave (Bell 213-B, Ithaca 277)
Wilson, W. S. 1 M 406 Stewart Ave
Wiltse, C. L. 4 A 404 Oak Ave (Bell 437-B)
Wimpfleimer, C A 1 A Sheldon Ct
Wing, (Miss) L. W. G 3 Reservoir (Bell 160)
Wing, S. R. G 208 Dryden Rd (Ithaca 769-X)
Wing, R. N. 4 M 101 Quarry (Ithaca 604)
Winship, R. 4 M 458 Casca Pl
Winslow, C. G. 2 M 214 Dryden Rd (Ithaca 77-X)
Winslow, J. E. O. 2 A 206 Quarry
Winslow, John 2 M 206 Quarry
Winston, W. O. Jr. 4 M Y. M. C. A. (Ithaca 229)

Winters, R. Y. G 401 Dryden Rd (Ithaca 568)
Wipperman, F. B. 2 M 710 Thurston (Bell 476, Ithaca 715)
Wischhusen, F. G. 2 Ag 7 Bryant Ave
Wiseltier, B. 1 Ag 209 College Ave
Wiseltier, H. 1 Ag 209 College Ave
Wisner, H G. Jr. 2 M 603 E. Seneca (Bell 105, Ithaca 395)
Wissmann, (Miss) W. C. 4 A Sage
Wolf, F. A. G Forest Home
Wolff, W. W. 3 M 303 College Ave (Ithaca 692-X)
Wolfson, G. M. 4 A 516 Stewart Ave
Wolle, R. H. 2 M 107 Dryden Rd
Wollenweber, G. 4 C 708 E. Seneca (Bell 323-F, Ithaca 579-Y)
Wong, P. 2 A 302 College Ave (Ithaca 14-X)
Wong, Y. S. 2 C 58 Thurston Ave
Wood, B. L. 4 C 129 Dryden Rd (Ithaca 832)
Wood, F. J. 1 M 202 Casca. Pk (Ithaca 804-X)
Wood, H. H. 2 M 625 Univ. Ave (Bell 109, Ithaca 338-X)
Wood, J. B. 2 M 15 South Ave (Bell 533, Ithaca 195-X)
Wood, O. A. 1 M 130 Dryden Rd (Bell 573)
Wood, Peirce M. 1 M Hill Crest (Bell 623, Ithaca 586)
Woodberry, (Miss) E. M. 3 A 420 W Mill
Woodland, R. H. 2 A 2 Central Ave
Woodruff, W. W. 4 M 202 College Pl S. (Ithaca 836)
Woods, W. N. 2 C 202 Stewart Ave (Bell 386-W, Ithaca 710)
Woolf, D. G. 3 Ag 112 Ferris Pl (Ithaca 3-Y)
Woollen, J. S- 1 Ag 107 Cook
Woolston, C. C. 1 Ag 109 DeWitt Pl
Wooster, C. G. 3 Ag 201 Casca. Pl (Ithaca 772-X)
Worcester, C. W. 1 Ar 704 Stewart
Work, P. G 310 College Ave (Ithaca 62-C)
Wortham, H. F. 1 Ag 413 Dryden Rd (Ithaca 831-A)
Wright, A. Charles 1 Ag 304 College
Wright, C. S. G Wyckoff Flats (Bell 213-B, Ithaca 277)
Wright, D. E. 2 V 311 College Ave
Wright, (Miss) F. M. 2 A Sage
Wright, F. M. 1 M 114 Eddy
Wright H. B. 1 C 124 Catherine (Ithaca 834)
Wright, (Miss) M. E. 1 Ag 402 S. Aurora (Ithaca 712-X)
Wright, S. 3 M 2 South Ave (Ithaca 346-X)
Wright, W. S. 2 M 706 E. Buffalo (Ithaca 583-X)
Wurts, T. C. 2 M 217 West Ave (Ithaca 815)
Wyckoff, (Miss) F. A. 4 Ag 94 Wait Ave
Wyckoff, M. M. 3 C 127 Linden (Ithaca 141)
Wyker, A. O. 2 A The Knoll (Ithaca 776)
Wynne, L. B. 2 A 105 Catherine
Wynne, T. N. 2 M 608 E. Buffalo

Yale, B. W. 1 Ag Sheldon Ct
de Ycaza, M. 4 Ag 125 E. Mill
Yewell, J. E. 3 C 410 N. Aurora Ithaca 791)
Yoakum, F. E. Jr. 2 M Sheldon Ct (Bell 752-J)
Young, E. L. 2 M 239 Linden Ave (Ithaca 743-C)
Young, (Miss) G. W. 2 A Sage
Young, L. B. 2 A 109 Orchard Pl (Bell 466)
Young, R. A. 3 Ar The Knoll (Ithaca 776)
Young, S. E. 1 A 109 Catherine
Younglove, D. 3 M 117 Stewart Ave (Ithaca 620)
Yount, A. S. Sp A 502 Dryden Rd
Yu, T. M. 1 Ag 204 College Ave

Zabriskie, W. H. 2 M 2 South Ave (Ithaca 346-X)
Zagoren, L. I. 1 C 212 Linden Ave (Ithaca 185-X)
Zambrana J. A. 1 A 409 College Ave
Zang, A. F. 2 A 510 Stewart Ave (Bell 396, Ithaca 634-X)
Zeiger, K. G. 1 M 411 Dryden Rd (Ithaca 255-X)
Zeller, G. O. jr. 4 A 515 Stewart Ave (Bell 198, Ithaca 330)
Zeller, H. 1 L 515 Stewart Ave (Bell 198, Ithaca 330)
Zeller, R. 2 M 515 Stewart Ave (Bell 198, Ithaca 330)
Zink, G. W. 2 M 302 Eddy (Bell 498-B)
Zink, R. E. 2 M 123 Dryden Rd (Ithaca 677-X)
Zinnecker, W. D. G 130 Casca. Bldg.
Zinssmeister, C. L. 1 Ag 132 College
Zirinsky, L. 2 L 130 Linden Ave
Zouck, G. H. 4 M 202 College Ave (Ithaca 635-X)
Zung, Y. 1 Ag 409 College Ave
Zurich, D. W. 1 C 120 Linden Ave