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The Cornell Countryman



CORNELL UNIVERSITY
COLLEGE OF AGRICULTURE
ITHACA, N. Y.

Tubular Separators

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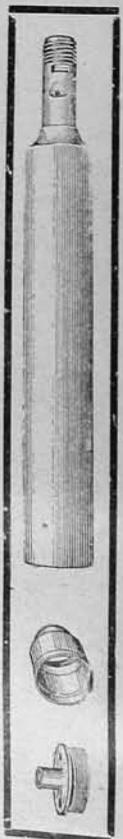
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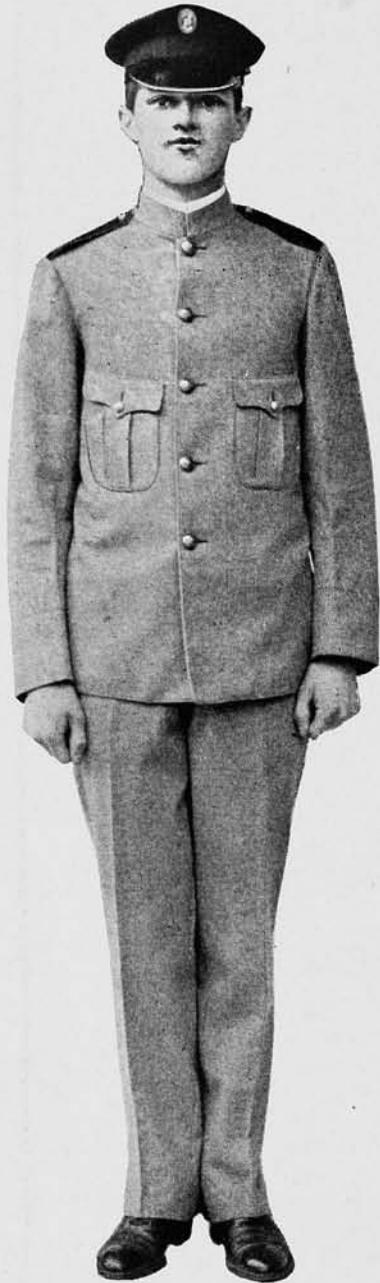
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THE CORNELL COUNTRYMAN is an Illustrated Monthly Magazine, published by students and graduates of the Cornell University College of Agriculture.

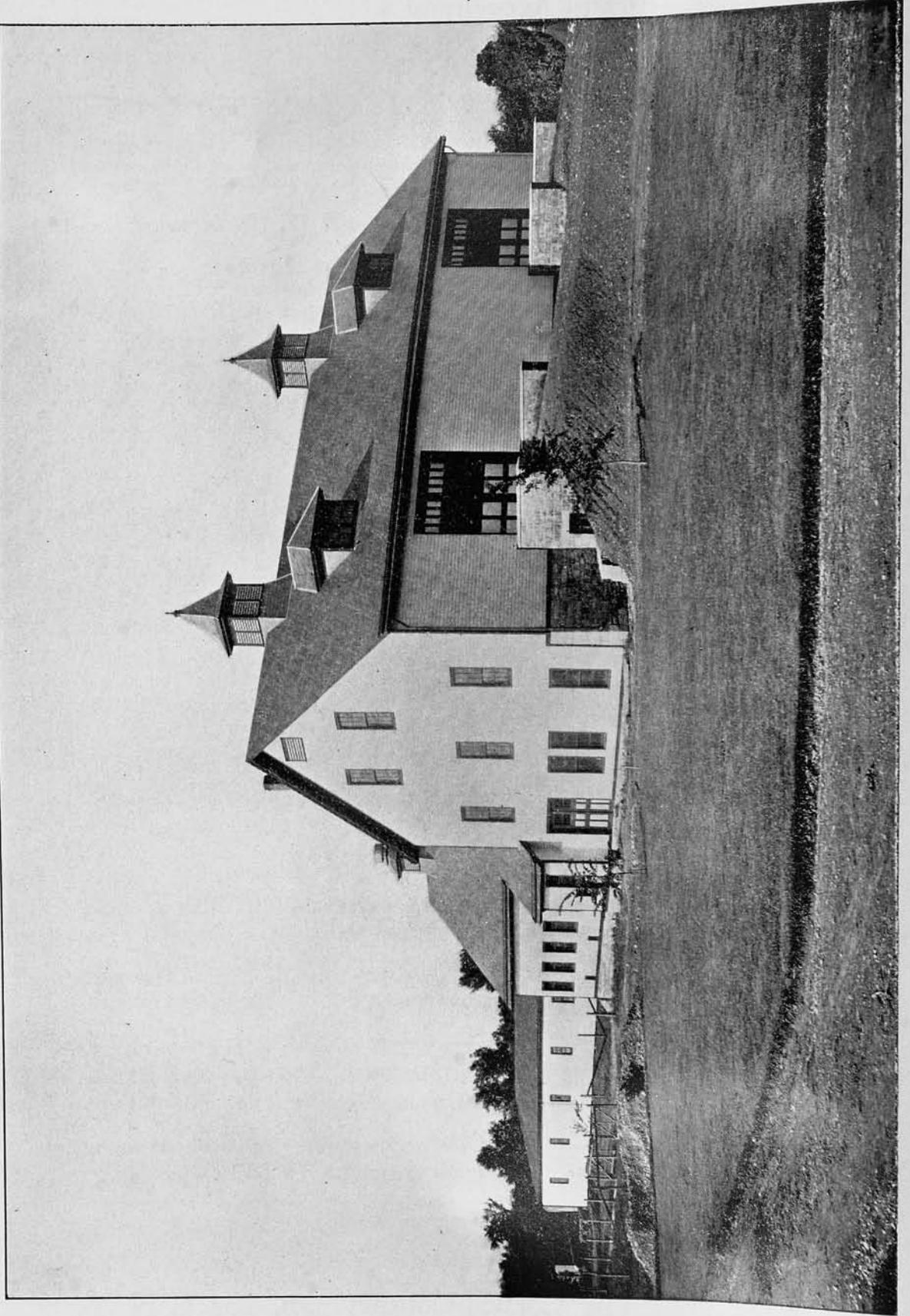
MANUSCRIPT for publication should be received by the 10th of the month preceding that in which it is to be published.

SUBSCRIPTIONS, \$1.00 per year, 10 cents per copy. At the expiration of each Subscription, notice and renewal blank will be enclosed. In order to insure renewal remittance must be made before the publication of next issue.

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ADDRESS all communications to,

The Cornell Countryman, Ithaca, N Y.



NEW BARNS AT THE NEW YORK AGRICULTURAL EXPERIMENT STATION, GENEVA, N. Y.

THE CORNELL COUNTRYMAN

VOL. 2.

OCTOBER, 1904

NO. 1

THE ESSENTIALS OF A COLLEGE EDUCATION

By Dr. W. H. Jordan,

Director of the Geneva Experiment Station

AMONG the most important decisions which a college student must make are those which pertain to the determination of his lines of study. There was a time when these decisions were not to any extent left to the student, one curriculum was open to him and from that no deviation was allowed. Now a system of electives is established in many institutions which allows a student great latitude in selecting the larger part of his work, and it is only required (or should be) that the subjects and arrangement shall be properly co-ordinated. This change from a dogmatic to a liberal treatment of the student we commonly regard as advantageous to his intellectual welfare and to his ultimate success. But the situation has its dangers.

It is obvious that a student's selection of studies will be materially influenced, if not controlled, by his personal estimate of values, and as young men and women enter college for greatly unlike reasons and with widely varying ends in view, it is certain that there will be no agreement as to values, and it is quite likely that some estimates will be neither accurate nor wise. There certainly must be at least a few things in a college training that are alike valuable and necessary to all persons, no matter where they live or what they do.

Emerson once wrote that "life is a search after power." This suggests that the young person seeks a college course in order to acquire greater personal power in some direction. Personal power, power to master, power to control, measures what a man is as an effective force or agent, sometimes in one line of effort and sometimes in another.

Personal power being in the man what steam is in the engine, let us consider what it is in its essentials, how it may be applied and what it should accomplish. We may leave out of discussion all except the student of serious purpose who is moved by a strong determination to accomplish something. How then shall such a student apply his time and energy when in college in order that he may gain the largest degree of personal power, which he may use for the highest and most worthy ends?

The relations which every person must sustain in order to meet life's normal conditions and in which personal power determines influence and success are in general two; the relation of the individual to other individuals either singly or in the mass, in other words the social relation, and the relation to an occupation. While the social and the occupation relations do not stand entirely apart, but are more or less interrelated, we may use this classification for the purposes of discussion.

In what do man's social relations consist? He is a citizen of the nation, of the state and of the municipality. As such, if he is a worthy citizen, he must exercise his civic rights and meet his civic responsibilities. He is a member of a church organization, perhaps, and in this relation or in some other he must meet ethical problems affecting the individual and the community. He lives with others in a home and he may be the largest factor in determining its ideals and standards. These are human relations, the relations of man to man. They involve not only the fulfillment of duty to others but the exercise of influence over others. Whether this duty is met and this in-

fluence exerted so as to promote the highest interest of society and of the individual depends not alone upon a man's moral purpose but in part upon his clearness of vision—upon what he knows of those facts and principles that lie at the base of social and economic conditions. Ignorance of a sound philosophy of social and political conditions, even though "sanctified," is dangerous in any one but a social and political zero.

But even if a man's knowledge is extensive and accurate then his influence, that is, his power over others, outside of example is the power to convince or persuade, a power largely dependent upon an ability to think clearly combined with a readiness of speech and accuracy and attractiveness of expression in presenting the truth.

Besides a man's duty to society there is his obligation to himself which calls upon him to fit himself to get from life's experiences the largest and most satisfactory enjoyments. Literature, art, music, the platform are among his opportunities and his appreciation of these and what he appropriates from them will certainly depend to a large degree upon knowledge of a certain kind. The man who knows little of literature, who does not understand the simple terms of philosophy and to whom much of the vocabulary of this scientific age is meaningless has serious limitations and is scarcely an ideal product of college halls.

It is in the various human relations which call us to the fulfillment of duty, which involve personal influence and in which we find our highest enjoyments that we exercise the chiefest powers with which we are endowed, powers that stand in the most important relations of any to social and individual welfare.

In the light of the foregoing conclusions let us consider the case of the young man who enters college simply in order to fit himself for a particular occupation. This young man, and we fear he is increasingly in evidence, affirms that he is seeking a college training simply because of its commercial value, that is because the college

graduate is likely to command for his time or services a larger money compensation than the non-graduate.

Such a student in selecting his courses generally declares that he wants nothing but that which is "practical" or which bears directly on his chosen occupation. Language, literature, economics, philosophy and ethics, yes, science only so far as it is "practical" he discards as useless for his purpose. He would cultivate to the highest possible degree his ability to do a particular thing and would pay no attention to his intellectual development in any other direction.

There are several reasons why this student decides unwisely.

In the first place, the possession of a knowledge of technical facts combined with skill of the hand and eye does not necessarily give the power which is essential to large success. There is no power in a fact or in a technical process. The power which we are discussing lies in the man and its exercise comes in the use of what he knows. Two men may have equal knowledge of the composition of soils, fertilizers and crops but be very unequal in their success in applying this knowledge, this inequality being due, outside of differences in natural ability, to unlike mental power, that is to unlike ability to reason and co-ordinate facts in their bearing upon a particular problem. Such reasoning power comes from mental discipline and while certain technical studies have high disciplinary value, attention to these alone does not produce a well-rounded and symmetrical mental development,—the result is a one-sided development and the subject of it has serious limitations of mental vision.

Moreover, every occupation has its economic and social relations and success sometimes depends more largely upon a clear vision concerning economic conditions and the ability to direct and control men than it does upon mere technical expertness. The fact is, the man whose vision is clearest and broadest in regard to affairs and society as a whole is, other things being equal, the best equipped man, the man

of the greatest power, whether in business or professional life.

Still further, the student who would pursue only practical studies virtually assumes that a man's occupation is the chief thing in his life. It is so far as bread winning is concerned, but bread winning is properly not so much an end in itself as it is a means to larger ends. Unfortunately men make the gaining of wealth a chief end and aim, but a life so devoted is distorted and misses larger values. If we labor wisely we do so in order that we may have the best possible homes, render the largest possible social service and secure for ourselves in return intellectual and moral enlargement and refinement. Shall the young man assume, then, that the farm or the shop is to be the chiefest thing in his life and shall the college allow him to choose his studies on this basis?

Fortunately some young men, even before the time of entering college arrives, acquire a broad view of what life should be and desire to fit themselves, not only for business success but to be efficient and useful members of society. These have come to perceive, faintly perhaps, that large and true success consists not alone in the

power which a man acquires and uses for mere personal ends, but more largely in the social service which he is able to render.

Students of this class, even though they are fitting themselves for a particular occupation, will not despise the humanities, but will make every effort to so extend their period of study that they will secure a broad and liberal training.

In considering the essentials of personal power the student of agriculture should not be regarded as an exception. There is nowhere a greater opportunity for the fruitful exercise of social and political wisdom and influence than by the man who is to be a leader among the agricultural people. To be an instructive example for the best farm methods is certainly a most worthy position to attain, but to be a good farmer is not necessarily to be a good or useful citizen.

When, however, there is added to business intelligence a wise and strong influence in all that makes for the civic and social welfare of the community we have an illustration of a man who fulfills all the functions of a citizen and who stands as a safeguard against political and social disaster.



THE MODEL DAIRY OF THE LOUISIANA PURCHASE EXPOSITION

By C. W. Melick.

THE Model Dairy of the World's Fair located near the center of the Palace of Agriculture is fully equipped with all of the latest appliances for dairy use. It is built on the show case plan for the purpose of displaying to those who are unfamiliar with dairy work the machinery in operation and the dairy products prepared for the market. To those who are familiar with dairy work it reveals the most sanitary and convenient arrangement of dairy machinery which modern methods can afford.

The operating creamery as it is called is 250 feet long and 20 feet wide with 20 feet between floor and ceiling for ventilation. One entire side of the dairy is lined with small windows at the top for the purpose of lighting. The walls beneath these windows are made of Rinald's porcelain enamel. The large glass plates on the opposite side are 8 by 8 feet in size, and are so set that all operations in the dairy are visible from the outside.

The "Model Dairy" is divided into rooms in the following order: a record room, chemical laboratory, where milk is analyzed from the cows that are in the Dairy Cow Demonstration, a cheese room, a farm dairy room, a creamery room where the pasteurizing and churning is done, a dairy refrigerator, a sanitary milk room where milk is clarified and bottled, a number of wash and store rooms, and a booth where milk, cream and buttermilk are sold.

The milk testing laboratory is equipped with five different styles of Babcock testers furnished by the Vermont Farm Machine Co., of Bellows Falls, Vt., and the Creamery Package Co. of Chicago, Ill.

There is also a display of various products that are manufactured from milk: Casein paste paint, cold water paint, water proof paint, casein glue in paste form, pure milk sugar in crys-

taline form, dry milk containing butter fat, extra pure powdered casein for food purposes, refined commercial milk sugar in powdered form, dry skimmed milk in powdered form, and crude casein from milk.

The cheese room is equipped with three 150-gallon vats, cutters, moulds, presses and a curing room.

The creamery room is furnished with a 150-gallon tempering vat, a Twentieth Century Heater, two sanitary milk pumps, one U. S. cream separator of 1,500 pounds capacity, one Alpha DeLaval cream separator of 3,000 pounds capacity, one Danish Weston cream separator of 3,000 pounds per hour, one Reed pasteurizer and star milk cooler, one 100-gallon ripener and two starter cans, a Sturges & Burns pasteurizer, a Boyd cream ripening vat, a No. A2 Disbrow churn and compressed air pump for forcing the cream from the pasteurizer into the churn. The machinery is all run by motor power.

The farm dairy room is furnished with a Simpson's "Jumbo" mould and cutter, several small churns and printers, and a Karl Kiefer filter.

The sanitary milk plant contains an Alpha DeLaval cream separator of 1,000 capacity, a Farrington pasteurizer, an up-to-date bottle filler, and a ten-ton refrigerating machine, which is used for cooling the dairy refrigerator, milk boxes in the booth, and the water that is used in the creamery department. This ice machine is operated by a fifteen horse power Keystone motor.

This is no doubt the most complete plant of latest scientific machinery that has ever been put in operation.

The dairy is operated in a practical business way as well as for display. Every pound of butter, cream, milk or buttermilk is accounted for by the bookkeeper in the booth.

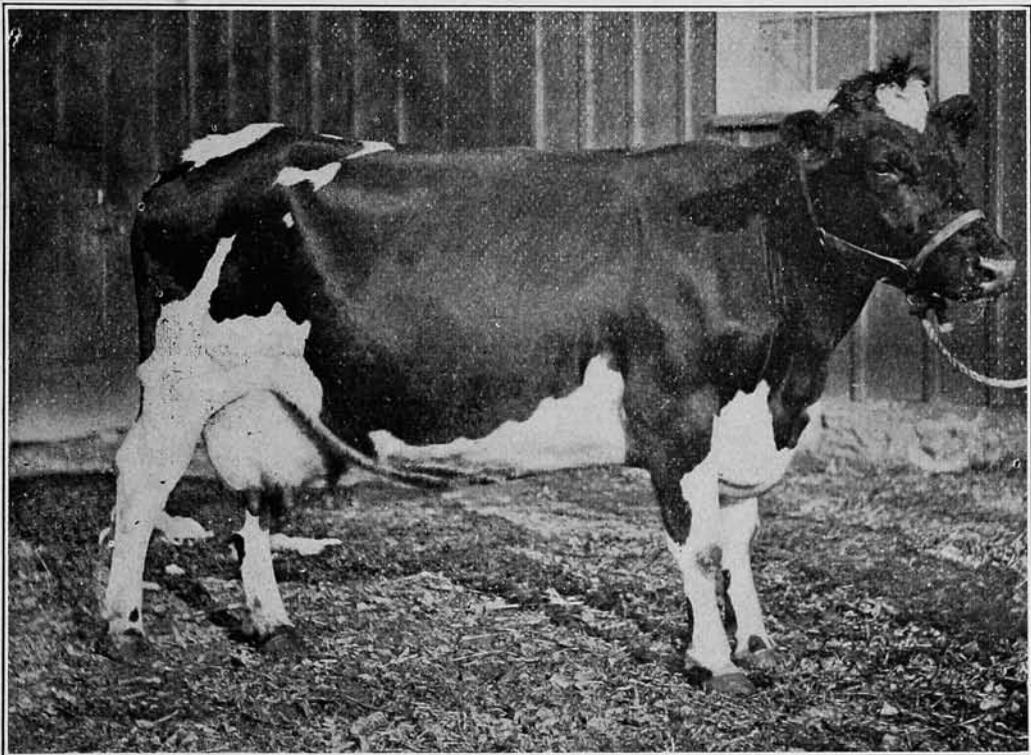
The work in the testing room is done

by a student of the Wisconsin, one of Purdue, and one of Missouri University. The farm dairy room and creamery is operated by a graduate of the University of Nebraska. From one hundred to two hundred pounds of butter are made there every day. It is all sold at the dairy at 25c per pound and there is a demand for more.

These laboratories are under the supervision of Professor Erf of the Kansas Agricultural College.

The sanitary milk plant is run by a student of the Illinois University, and the booth by Miss Bottorff of Purdue

and sample the milk of each cow in the Jersey barn three times every day. They also watch each milker to see that no dishonest work is done. A student of Oberlin College, Ohio, and one of Missouri University conduct the work in the Short Horn barn; one from Ames Agricultural College, Iowa, and one from Missouri have the oversight of the work in the Holstein barn, and one from Illinois University and one from Ames College, Iowa, are in charge of the Brown Swiss barn. The two latter students together with a student from Chicago and Wisconsin



A TYPICAL HOLSTEIN AT 10 YEARS

University. These departments are controlled by the St. Louis Sanitary Dairy Co.

The "Model Dairy" is supplied with milk from the herds on exhibition in the Dairy Cow Demonstration Test. Twenty-five Jerseys, twenty-nine Short Horns, fifteen Holsteins, and five Brown Swiss are competing for \$2,000.00 in prizes offered for the cows producing the largest amount of butter fat and other solids at the least cost for one hundred and twenty days.

A student of the University of Wisconsin and one of Bellevue College, Nebraska, weigh the feed and milk,

Universities figure the amount of butter fat and other solids produced by each cow from the daily reports made by the boys in the testing laboratory. They also figure the cost of feed and value of milk products.

This test is being carried on under the supervision of Professor Farrington of the University of Wisconsin.

Every student employed has had special training in agricultural work, most of them having specialized in Dairy Husbandry. The entire system is a unique, practical plan, where a great deal of information may be obtained by visitors to the fair.

THE AGRICULTURAL STUDENT'S OBLIGATION

By *H. W. Collingwood,*
Editor Rural New Yorker

IT seems to be settled in all civilized countries that three classes of citizens are entitled to a trade education at public expense. The soldier, the sailor and the farmer are selected as peculiar wards of the State. Soldier and sailor fight for their country. It is generally understood that the life of the educated soldier belongs to his country. Since he paid the State nothing for his training his life is a constant demand note, and he must pay the obligation at call. A West Point graduate who refused to serve in the army in time of a just and unavoidable war would be voted an ungrateful fellow who shirked an obligation.

Many of us who have obtained our education at an agricultural college fail to realize that the obligation to the Fatherland is really as great with us as with the educated soldier. If we will stop and think for a moment this point will be made clear. Society does not train lawyers, doctors and carpenters out of its own pocket, but for ages it has been thought wise to train special men to fight for the rest. The reason why the farmer was included with the fighter in this class was because civilization has taught us that the man who feeds his countrymen is a more useful citizen than he who fights for them, and that special training is as necessary for the feeders of a nation as for its fighters. Many reasons have been given for the founding of our agricultural colleges and the efforts to organize a system of agricultural education distinct from the old idea of a classical college training. The true reason for it was found in the clear-eyed vision of far-seeing men who saw that the most useful citizen of the country must be broadened and taught along the line of his own work. As we dignify and ennoble the life of the feeder we shall bring the balance of the power back from the hands of the fighter.

I would like to point out to every

agricultural student at Cornell that when he accepts the offer of a farmer's education he assumes an obligation. His country has just as much right to demand his services as she has to call upon the educated soldier at West Point or the educated sailor at Annapolis. Some of our colleges have struggled on with so few students that a boy was almost justified in thinking he put the college under obligation to himself for attending it. That time has gone, and it should now be a part of the creed of every agricultural college in the land that when the State educates a farmer the State has a right to a share of that farmer's life. I have heard old teachers say that the defect in the proposed agricultural education is that it cuts out all the spiritual side of the classical course, and leaves nothing but the material side. They say it is like eating bread and butter in a boarding house, when the meal should carry an idea of what home costs and means. I know that this objection has kept some farmers from sending their boys to an agricultural college. I would remove it by making college and student remember the obligation to country.

I have often wondered just why young men attended agricultural colleges twenty years ago. Many of them cannot give the real reason. In my own case I know that two facts led me to an agricultural course. There had come into my life a settled and unconquerable feeling that I could not be satisfied until I had at least tried to obtain an education of some sort. At that time I did not know what "education" means, and therefore lost much of the inspiration that should go with it. I entered an agricultural college because the qualifications for admission were within my reach, and it was possible for me to pay my way with my own labor. I did not realize at that time, nor did my classmates realize the nobler purpose for which the col-

lege was established. It was to us a public convenience, a cheap source of education such as it was, and I regret to say that we patronized it with what seems to me now a selfish motive. I regret that the early agricultural colleges did not start with something of the following proposition to young men:

"Your country needs you on the farm as land owner and worker. While we respect the ambition of any young man to help himself and train his powers for his own benefit this institution is supported not so much to put education within reach of the individual as to strengthen and dignify agriculture. As military and naval students take the oath of allegiance to their country, so those who enter here to study at public expense assume a public obligation!"

The earlier colleges felt themselves too weak and too poor to make this the dominating idea of their life. That is one reason why they failed for so long. The State wrongly judged their success by the number of students they attracted. They could only compete with other institutions with the advantage of free tuition. In some cases their courses were arranged so as to help this unfair competition with in-

stitutions not supported by the State. No college or student can have true power as a mere imitator. If the agricultural colleges are to endure they must teach agriculture in such a way that it will inspire students to realize the obligation I have mentioned. I want to say these things now because the Agricultural College of Cornell University is entering upon a new era. It has now the strong backing of the State, and what is of far greater importance, the expectant confidence of the farmers of New York State. I doubt whether the history of education in this country records a greater educational opportunity than has been offered Cornell. I doubt whether the University yet realizes it fully. This opportunity will be met less by members of the faculty than by students who feel under obligations to do certain definite things:—

Own a piece of farm land.

Work with their own hands upon it if possible.

Never disparage the business of farming, but talk of its possibilities rather than its advantages.

Act as a missionary to carry the knowledge of agricultural science down as well as up.

Feel that by doing these things you are serving your country.

FORGET-ME-NOT

WHEN to the flowers so beautiful—
 The Father gave a name,
 Back came a little blue-eyed one
 (All timidly it came)
 And standing at its Father's feet,
 And gazing in his face—
 It said in low and trembling tones,
 With sweet and gentle grace
 "Dear God, the name thou gavest
 me
 Alas! I have forgot."
 Then kindly looked the Father
 down,
 And said, "Forget-me-not."
 —Selected.

FROM CITY TO COUNTRY

By Lce A. Chase, Cornell '04.

THE College of Agriculture is an institution primarily for the instruction of farmers' sons. It offers them an opportunity for the study of the natural sciences and of their bearing on agriculture. It prepares them to become farmers just as other professional and technical courses prepare men to become doctors, lawyers or engineers.

If the course is for the farmers' sons, why do so many city men enter it? Surely a college course cannot make a farmer out of a man who does not know a plow from a horse-rake. A knowledge of the chemical composition of plants or of their Latin names will not enable a man to plow a straight furrow.

We have all heard similar remarks. But why, then, do so many men come directly from the farm to the college of Law or Medicine or Engineering? These boys know just as little of the professions which they have chosen as do their city friends know of practical agriculture. Yet we do not insist that a country boy practice medicine for a time to get experience before he goes to college. Why insist that a city boy spend some time on a farm before entering an agricultural college?

His work in college will be a direct preparation for future work on the farm. A one or two years' special course, including a large amount of

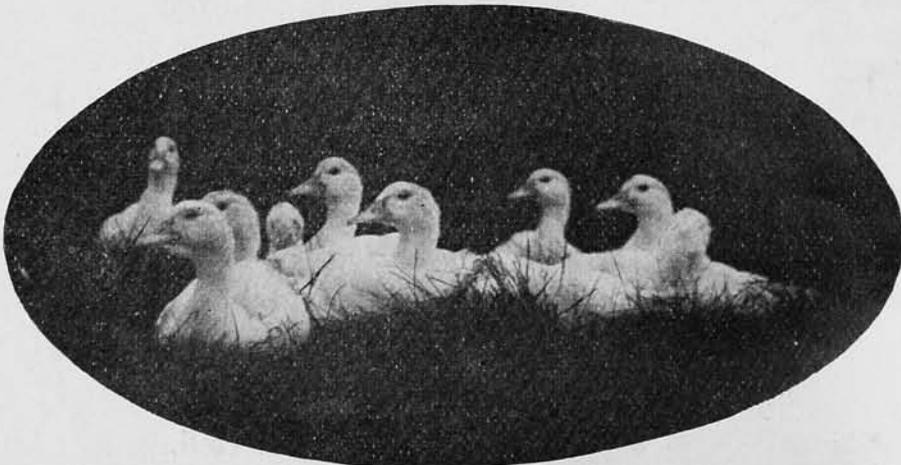
practical work under competent instruction, will familiarize him with farm methods as the same length of time spent in aimless farming could not do. While he must still acquire experience before he can operate a farm with profit, he will gain that experience much more quickly and with less expense than if he had not gone to college.

The regular four years' course offers even better opportunities. The general culture, the knowledge of the sciences which are related to agriculture, and the more detailed study of purely agricultural subjects which it affords combine to make the graduate a more successful farmer and a happier man.

The course offers, also, excellent preparation for some work which does not involve actual farm practice. Chemistry, Botany, Dairy, Landscape Architecture, Nature Study and Forestry open opportunities for those who do not intend to become farmers.

Whatever may be their special purpose for coming to college the enthusiasm about them, the earnest work of their teachers and the attractiveness of the subjects can not fail to exert a strong influence.

Let us not look with pity on the city boy who is studying agriculture in college. He has chosen that calling and is preparing for it in the wisest way.



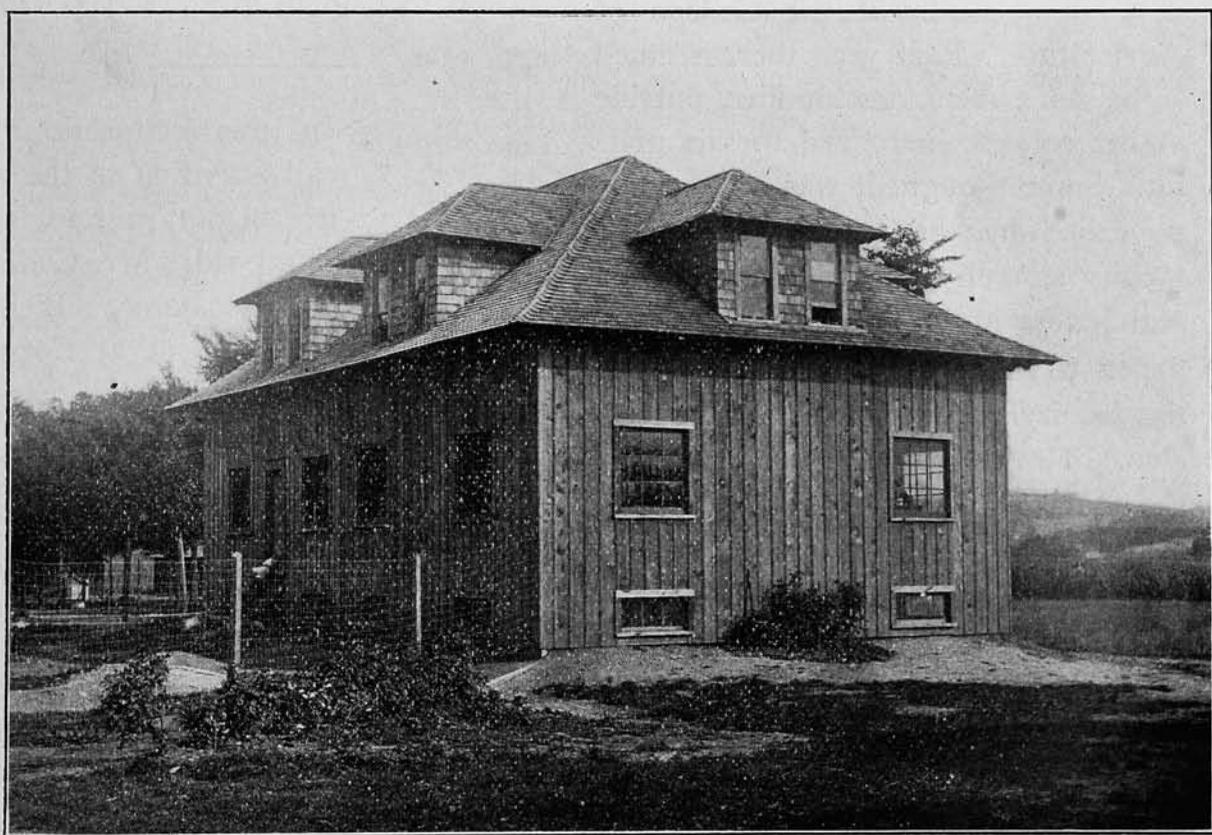
CORNELL'S NEW POULTRY BUILDING

By Professor J. E. Rice

DURING the summer a new building has been erected which is to be known as the Poultry Headquarters. This is the main building of the Poultry Department. It is a two-story structure, 46 feet long by 30 feet wide, with a basement under the entire building. It has a Swiss roof with six double dormer windows, which makes a very pleasing architectural effect. The large basement, which is well lighted and has a very high ceil-

poultry plant and who assist in giving instruction in poultry practice. By this experiment in student labor it is hoped to give the most promising students who have completed the regular, one year or special courses, an opportunity to do advanced work in experimentation and to acquire special skill in poultry management, which can only come through the personal handling of poultry day in and day out.

A certain wage is paid these student



ing, contains the incubator cellar, 30 feet square, slaughter house and egg room, 16 x 20, and a root cellar, 10 x 16. The first floor is to be divided into a large feed room for storing grain, cooking, weighing and mixing feed, a locker and wash room, reading room, museum, office and a carpenter shop. The second floor will contain six rooms, each about 15 feet square, with two dormer windows in each. Five of these rooms will be occupied by the poultry student assistants who do all the work at the

assistants which enables them to earn money while obtaining their education. Each student assistant is given complete charge and is held responsible for a certain part of the poultry work for a given time. The assignments are then changed so that during the year each student assistant will have had charge and will have done all of the various kinds of work on the University plant, which now contains fifteen varieties and about 500 individuals.

The Cornell Countryman

C. S. WILSON, Editor

| | | | |
|-----------------------------------------------------------------|---|---|--------------------|
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OCTOBER, 1904

The Cornell Countryman

The Cornell Countryman is published by the students of the College of Agriculture. Last year there seemed to be some misunderstanding, outside of the college, in regard to this matter. Some thought it was a magazine published by the entire college, the faculty as well as the students. Several letters of business regarding the paper were received by members of the faculty. This is a wrong impression. The magazine is published by the student body alone. The advice of the members of the faculty is asked and much work is done by them for the Countryman. The faculty, however, is not responsible for the character of the magazine.

With this issue the Cornell Countryman begins its second volume. But little change will be made from the magazine of the previous year. The character of the articles during the year will be threefold; practical, educational and scientific. Special attention will be given to the practical problems which confront the average farmer of to-day. We also wish the Former Student column to continue as one of the strong features of the Magazine.

To New Students

The Countryman bids those students who come to Cornell for the first time a hearty welcome. It also extends a greeting to those who come back as graduates or as undergraduates. We ask a hearty co-operation from you all. Remember that the Countryman belongs to all of us. Each student should feel as deep an interest in its success as do the members of the board. What the board does for the magazine is done gratuitously. We ask you then to take a pride in your college paper and be willing to help in every way possible.

The Student's Obligation

In this connection we call attention to the article in our present issue by W. H. Collingwood. Mr. Collingwood's words strike home. It is a privilege to be a student at Cornell, but it is an opportunity that carries also an obligation. In proportion as we get much from our college, others will expect much from us. If this spirit of service and loyalty, however, is strong within us, when our college days are over, our lives will continue to be an honor to Cornell.

Progressive Methods at Geneva Station

We publish in this issue an article by Dr. W. H. Jordan, director of the experiment station at Geneva. Our frontispiece represents the new barn at this station, the plans for which were made by Dr. Jordan himself. The primary purpose of the barn is experimental and its construction is such as to allow perfect control in experiment work, especially in the line of sanitary milk. It also offers opportunity for conducting feeding and di-

gestion experiments and investigations in storing forage crops. It is not a commercial barn, yet at the same time it offers many suggestions to the business farmer. Dr. Jordan is a Cornell man, having received his doctor's degree here. He is energetic and ambitious and since he has been at Geneva has completely reorganized the Station. With the exception of the Chemical Laboratory, every building now on the Station grounds has been built or completely changed by him.

The National Nurseryman

We wish to call attention to the change in editorial management of the *National Nurseryman*, the official organ of the American Association of Nurserymen and one of the leading trade journals among our nurserymen and fruit growers.

Mr. Ralph T. Olcott, the former editor, has retired from the company to devote himself more exclusively to other publishing enterprises. The new editor is Professor John Craig.

We cannot better state the purpose of the *National Nurseryman* than to quote a portion of Professor Craig's editorial foreword. He says: "The mission of the Journal is to act as a medium of exchange between nurserymen, a bureau of information for grower and planter alike. Primarily a trade journal, yet its sympathies are with the man who buys to make his home more homelike, or fills his orchard or vineyard, as well as the man who grows to sell. The interests of the two are inseparable. The better the tree the nurseryman grows, the larger his sales; the better the variety, the larger the demand. We would ask the confidence of the grower and

the planter on these matters of quality of stock and excellence of variety. Our columns will be open to a fair, above board, discussion of methods and intrinsic values. Let the *National Nurseryman* be a medium of practical as well as commercial information."

Professor Craig adds that the Journal wishes to bring the nurserymen into closer touch with the station worker, and to this end he announces a special department which shall make timely reviews of experiment station publications bearing upon the work of the tree grower as well as of the tree planter.

He concludes with these words:—"The paper must be thoroughly alive; it must be sane; it must be up-to-date and reliable. All these things it cannot be without your help. We confidently expect that our subscribers will not only be interested in reading the *Nurseryman*, but will wish to swell the news column by contributing timely items."

We know already that the *National Nurseryman* will maintain these standards, and we feel that in these last words Professor Craig has aptly expressed our own feeling in regard to the *Cornell Countryman*.

The editors of the *Countryman* wish to feel that they have the united interest and support of all Cornell agriculturists. An interest that takes pleasure in hearing what other Cornellians are doing, and a support that gladly contributes a news item or a helpful thought, and thus binds us together by a common interest in each other and by a common loyalty for the "better things" for which our college stands.

GENERAL AGRICULTURAL NEWS

The Bureau of Soils, United States Department of Agriculture, has undertaken two soil survey areas in New York State during the season of 1904. The larger of these constitutes all of Cayuga County south of latitude 43 north, while the smaller area, adjoining it on the south, comprises practically all of the six northern townships of Tompkins County. The total area included in both maps will amount to something over 1,000 square miles.

Mr. J. E. Lapham and Mr. H. H. Bennett of the Bureau of Soils have charge of the Cayuga County area, and Professor J. A. Bonsteel of the Bureau of Soils, at present assigned to Cornell University, has been assisted by Mr. M. Quiroga, a graduate student in soils and agronomy, in the survey of Tompkins County.

The surveys will comprise lithographic maps accompanying a description of the soil types, methods of agriculture, special crops and adaptations of crops to soils. They will be published as separate reports and are expected to appear in one year's time.

The Tompkins County area includes more than a dozen distinct classes of soils. These are represented on the map classified according to varying proportions of clay, silt and sand in the soil. The correlation of several of these soils with those of the grape region of northern Chautauqua county will be of interest to the horticulturist.

In addition to the actual areal work it is probable that a limited amount of experimental work will soon be taken up in northern Tompkins county to determine the factors controlling soil fertility.

With the completion of these maps an almost unbroken belt of soil surveys will be formed extending from Lake Ontario to the Pennsylvania line. The Wayne county area of 1902 and the Syracuse area of 1903, join the Cayuga area of 1904 on the north. This is extended south by the Tomp-

kins County area which is separate from the Bigflats area of Chemung County by an interval of only ten or twelve miles. In this way all of the major soil types of Central and Western New York have been classified and studied in these five areas.

* * *

In addition to its force engaged in forest-reserve work, the *Bureau of Forestry* has this summer 116 skilled men in the field. Of these 68, scattered in 26 States, are studying commercial trees, making working plans for woodlots and forests, and gathering data invaluable for the proper management of wooded areas. The remaining 48 experts, divided among 10 other States, are studying means of replacing the forest on lands from which it has been denuded, making planting plans for tracts to be forested, and planting in the western forest reserves. The data they will gather will be worked over and condensed by the office force this winter, and put into shape for practical use.

* * *

An index to the Experiment Station Record has just been published by the U. S. Department of Agriculture in Washington. Everybody surely welcomes this useful key to a lot of valuable condensed material, an access to which has thus been made easy. The book fills a long-felt want in the line of reference books facilitating the use of the best agricultural and scientific literature.

* * *

Cornell Nature Study Leaflets is the title of a new publication to appear in November. The work will comprise selections from Nature-Study Leaflets, Home Reading Courses, Junior Naturalists' Monthlies and other material previously published by the College. The book will include about 500 pages and will be published by the State and distributed by the College to all New York applicants who send the necessary postage.

CORNELL NEWS

NEW STUDENTS

To New Agricultural Students: Greeting!

You are now entering on a new life. You are to devote yourselves to new ideals. Here are men and women who have given their lives to the acquiring of knowledge in special fields; this knowledge they will give you freely. More than that, they will give you advice, for they are men and women of experience and they have thought deeply on the problems that have confronted them. Every good teacher has a strong personality and individuality; this personality will influence you, even though it be so complex as to escape analysis. To the student, the teacher is usually more important than the subject that he teaches. You should aim to come into close touch with many teachers, even though their particular subjects for the time may not interest you. You need point of view more than you need facts.

You represent a new name in education. You are an agricultural student. Only in recent years has agriculture taken its place with the subjects that are considered to be worthy of attention in a college or university. Agriculture has been dignified; it is now an academic subject; it may be as efficient means of training the mind as other academic subjects; it has won its place with difficulty: it has little in tradition to sustain it as an educational force,—therefore it depends on you to maintain and to forward its newly acquired importance. The value of such education is proved by its products.

You are to associate with many men of many minds. It would be a mistake if you were to confine your acquaintanceship to the College of Agriculture. Here you have an opportunity to get a point of view from every angle upon any public question. If you quit college a narrow-minded man, you will not be an educated man,

however well you have passed your subjects.

Your life at college will be somewhat isolated from the strenuous affairs of the time. Herein will lie much of its value, for your ideals will have free play and your conclusions will be unbiased by contemporaneous contingencies. By the time you leave college, your habit of thought should be so well set that your judgments unconsciously will rest upon fundamental integrity and justice.

Those who teach are glad of every earnest new student, because it means one more opportunity to help uplift their fellow men. They are especially glad of every new student from the ranks of those who labor and who create wealth. The day of the agricultural student is coming, as it has come for those in other callings. You are greeted as one of those who is to enter into the new sentiment of a new time.

L. H. BAILEY.

* * *

The whole of college life is not what one gets from books. An important part, and the part which makes the well rounded man, is found in one's social relations. If we wish to leave college well equipped for life, we should not neglect this training. For this purpose several organizations have been formed in the College. A short note of their history and character is given below. We urge all students to attend one or more of these meetings regularly. The associations which we make at such meetings will always be cherished and remembered.

* * *

The Agricultural Association is the representative association of the agricultural student body. Here business is transacted, parliamentary rules observed, debates encouraged, and the outside and inside interests of the student body safeguarded. In addition to this, the social side of life is by no means neglected. Every stud-

ent, man or woman, will find it of greatest value to attend these meetings which alternate with those of the Agricultural Assembly, i. e., every other Tuesday night at eight o'clock in Morrill hall, room 19. Dear recollections of many distinguished professors and men of affairs are woven into the history of the Nestor among our clubs, an institution which had its beginning in the early seventies, when Cornell first began to exert an influence upon American agricultural education.

* * *

The Lazy Club is one of the features of horticultural life at Cornell. It was originated by Professor Bailey in 1895, and was first a horticultural seminar which met in Professor Bailey's house on East Avenue. A year later the organization took on its present character of a weekly club open to all students interested in horticulture and holding a regular meeting every Monday night in the Lazy Club room at the Forcing House.

The Lazy Club, as its name suggests, is a distinctly informal affair. There is no membership except those who wish to attend, and no president, secretary, treasurer or parliamentary rules of any kind. Among its former members are noted horticulturists in the agricultural colleges and experiment stations all over our country. Professor Craig is always present at the meetings of the club and leads the discussion or introduces the speaker of the evening.

* * *

The Poultry Association was established in the fall of 1903 as one of the results of the reorganization of the poultry department under Professor James E. Rice. The purpose of the association is to stimulate an interest and enthusiasm for the best in poultry work.

One strong feature of the association is the holding of an annual poultry show which is designed to familiarize the students with the different breeds and varieties of poultry, to give more thorough knowledge of the fine

points of judging fowls and to afford practice in the actual running of a show. The association holds its meetings once a month in the Poultry Building, where various phases of the poultry industry and its allied sciences are discussed.

* * *

The Winter-Course students have two organizations which hold regular meetings during the eleven weeks of the course and which are reorganized each year. The Dairy Club meets on Saturday evening in the Dairy Building and much interest is taken in the discussion of various phases of dairy work. The club of the winter agricultural students, called last year the Bailey Agricultural Club, meets every Thursday night in the Trophy room at Barnes hall. Enthusiasm has always attended the meetings of this club. From 1900—1903, when Professor Craig was associated with Cornell's Agricultural extension work throughout the State, the Club was known as the Craig Agricultural Club and in the winter of 1903 was directly instrumental in the organization of the Agricultural Experimenters' League of New York.

* * *

The Agricultural Assembly meets semi-monthly on Tuesday night in the reading room at Barnes hall. Dean Bailey and the members of the Faculty wished to come into closer touch with the student body. For this purpose the Assembly was started. It held its first meeting last fall. At these gatherings Professor Bailey talks or reads, after which refreshments are served by the wives of the faculty and the women of the college, and a social good time is enjoyed. The Agricultural Assemblies have been attended by a spirit and enthusiasm that plainly shows their mission in the life of the agricultural student at Cornell. Never before has there been such a strong feeling of unity and common brotherhood in the College of Agriculture as has been brought out by these bi-weekly assemblies.

CAMPUS NOTES

Professor Roberts will, this year deliver a series of lectures on agriculture in his old lecture room at the usual hour, 11 o'clock daily. Professor Roberts has enjoyed splendid health while in California and looks forward with pleasure to being once more with the students at Cornell.

* * *

Professor Bailey has been abroad this summer, joining his family at Munich where they had gone late in March. The party journeyed through Switzerland, spent some time in France, and on the Channel Islands and made a considerable tour through southern and central England.

Professor Bailey studied the agricultural conditions in England, visiting the Royal Agricultural College at Cirencester, the South Eastern Agricultural College at Wye, the University College at Reading, which has a department of Agriculture, and the School of Horticulture for Women at Swanly. He also gave some attention to the general agricultural affairs of Great Britain.

In comparing European and American agricultural experimental systems Professor Bailey says that the European universities are ahead of the American universities in at least one important respect. They have a greater freedom to carry on long series of experiments for a number of years without needing to secure immediate results, i. e., the policies of the two systems are different.

He also remarks upon the fact that the European knows how to till expensive lands. A five or ten minutes' ride from any French or German city brings one right into the midst of cultivated fields. In Europe lands are tilled that in America would be considered too valuable for agricultural purposes.

In general Professor Bailey thinks that the tendency in Europe is for the original landlord system to break up and for individual ownership to come in, while in America our original

individual holdings are being amalgamated.

* * *

Professor F. H. Burnette, horticulturist at the Louisiana State University, made a short visit on the Campus last August. Professor Burnette was a Cornell student in 1890 and this summer has been spending a portion of his vacation at his home in Phelps, N. Y. He was accompanied by Mr. Cecil McCrory who is Assistant Commandant of Cadets, Louisiana State University, Baton Rouge, Louisiana.

* * *

'01, winter.—Burt Van Vleet of North Hector, N. Y., accompanied by his wife, paid a short visit to the University last month.

* * *

Professor Charles S. Plumb visited the University early in September. Professor Plumb is professor of animal industry at the Ohio State University and while in town was the guest of Professor Hunt.

* * *

'98, B. S. A.—A. R. Ward, '01, D. V. M., spent several weeks this summer visiting his parents in Ithaca. Professor Ward is veterinarian at the University of California.

* * *

Mr. Vinton A. Clark, assistant horticulturist at the Geneva Experiment Station, spent several days on the Campus the latter part of August. Mr. Clark availed himself of the University library and of Professor Bailey's private library in securing certain historical references for the extensive work on varieties of apples which Professor Beach is preparing for publication.

* * *

Captain C. L. Watrous in company with Professor Beach of the Geneva Experiment Station was in town on August 19 to see Professor Craig and visit the horticultural department. Colonel Watrous is retiring president of the American Pomological Society, and is one of the best known nurserymen in the United States.

New Campus Buildings

The University Campus presents this summer not quite such a peaceful and quiet appearance as it does otherwise during vacations.

Hardly have Sibley college and Stimson hall assumed an air of completeness, when we see the whole eastern side of the Campus torn up. The foundation walls of the Goldwin Smith Hall of Humanities are rising rapidly, as the excavating work has been finished. With the old Dairy building as its north wing the new hall will be one of the largest and most imposing on the Campus. Further east where the Rockefeller Hall of Physics is being built a lot of stone cutters are dressing the sandstone blocks for that monument to science. The earthwork there is about finished and the walls will soon rise above ground.

Yet further east we must travel to follow the expansion of the University. The large quadrangle south of the barn and poultry plant is the final selection for the New York State College of Agriculture. The plans are now being executed by the State architect and in two years we hope to have a college there which will give us rooms large enough to hold our classes as well as gather together all the agricultural students for such pleasant diversions as will help to tie them closer to each other, to the faculty, to their alma mater and to the agricultural interests of New York State.

Farm Jottings by Mr. Frazer

Six hundred hills of Early Michigan potatoes were weighed recently, and the tubers counted. Many plants yielded but one potato, while others yielded as high as seventeen. One plant yielded $\frac{1}{2}$ oz. of tuber, others $2\frac{1}{2}$ pounds or eighty times as much at the first. The importance of selection is obvious and we feel that the plant and not the tuber is the unite of selection.

Several potato plants have been found which are as yet little affected

by blight (*Phytophthora infestans*). They are being watched with interest as most of the others around them are attacked. Spraying has been omitted in order to see whether some disease-resisting potato can be found.

Apparently the most promising plat of alfalfa in the fertilizer experiment plats is, at present, the one which was manured with farm manure at the rate of twenty loads per acre, lime at the rate of 1,000 pounds per acre and soil from a good alfalfa field at the rate of 400 pounds per acre. Thus far liming has been beneficial wherever tried.

Leaf spot (*Pseudopeziza* sp.) has been very troublesome on alfalfa this year. It appears as reddish spots on the leaves in the spring and dark spots in the fall. It causes loss of leaves. The winter spore stage, which appears in the center of the dark spots, is now forming and specimens will soon be collected. Mr. Whetzel, the assistant pathologist of the Station, hopes to work out the life history of this trouble.

A bacterial rot has caused considerable loss in the turnips on the experimental plats during July. Since then it has appeared on the Yellow Aberdeen and Scotch Yellow Turnips destroying many of them. It has not yet damaged the roots of the Rutabagas or of the Rutabaga-turnip "Pioneer" which is one of Garton's new hybrids. Cultures have been prepared and inoculation experiments are now in progress, although the identity of the bacillus is not determined. This soft rot has been rather prevalent in parts of Vermont during the past season.

In July, the flea beetles (*Systema frontalis*) did considerable damage to alfalfa, Soybeans, cowpeas and the grass Tawny Foxtail. As many as thirty were seen on one plant at the same time. Spraying with arsenate of lead was tried, but apparently did not reduce the pest very much. The beetles moved on naturally to new areas in from ten to to fourteen days.

FORMER STUDENTS

'82, A. B.—Frederick D. Chester, '87, M. S., is director of the board of health laboratory at Newark, Delaware, and also mycologist of the Delaware Experiment Station. Professor Chester's recent bulletin on bacteriological analysis of soils has attracted much attention.

'01, B. S. A.—M. M. Underdown, who was in agricultural work in Brazil, has returned to the United States and last July was married to Miss Josephine Prince of Keating Summit, Pennsylvania. Miss Prince was a student in the Ithaca Conservatory of Music.

Mr. Underdown has accepted the position of agricultural manager for the Queens Water Company which furnishes a part of the Brooklyn water supply and has its wells at Far Rockaway, Long Island.

The Queens Water Company has purchased 1,100 acres of land for protecting their water rights at Far Rockaway, and intends to develop these lands for agricultural purposes. Several hundred acres are already available and more will be cleared and drained and brought under cultivation. Some of the company's land lies in the salt marsh region and has been diked and provided with flood gates which allow the natural drainage of the streams but close at the rising of the tide. Such development of agricultural lands within twenty miles of America's greatest market is a most promising enterprise. Mr. Underdown has already begun his operations at Far Rockaway.

'01, dairy.—Frank S. Wright of Windsor, N. Y., who, after his dairy course in 1901, was in charge of the Gracie Creamery at Cortland, N. Y., has now returned to accept the position of herdsman at the University.

'02, special.—Charles R. Mathews is still with the Winnetka Collie Kennels at Meadow Farm, Winnetka, Illinois.

'04, B.S.A.—Walter S. Brown has been called to the position of assist-

ant horticulturist under Professor E. P. Sandsten, Cornell Ph. D., '03. One of our editorial staff, Christian Bues, who has been travelling in Wisconsin all summer as state inspector of orchards, brings back a warm greeting from the former Cornellians at Madison.

'04, B.S.A.—Hiram E. Kinne demonstrated his keen business ability by successfully engineering our last agricultural banquet, the surplus of which he donated to the Cornell Countryman, and has now definitely established himself as a live stock commission agent with his headquarters in Ithaca, N. Y.

'04, B.S.A.—Albert R. Mann is among the highlands of the Piedmont plateau, eighteen miles from Baltimore, where he is indentifying himself with the agricultural department of Oread, the popular new school for young men and young women founded by Mr. Henry D. Perky of Worcester, Massachusetts. Mann was prominent in the different phases of our college life and his loyal spirit will long be remembered.

'04, B.S.A.—Walter Ira Thompson was taken very sick towards the close of the University term and was unable to be with his class at graduation. His diploma was sent to him at his home in Holland Patent. Thompson has had a hard summer of it, and at one time was in a very critical condition. We are now thankful to learn that his strength is slowly but surely returning.

'04, special.—Miss Mary C. Shepperson, who took the two-year course in nature-study is now in charge of nature-study work in the public schools of Athens, Georgia. Miss Shepperson was on the Countryman's first board of editors and was active and untiring in her interest for the welfare of the paper. She was one of the speakers at our last agricultural banquet, and will be remembered by all who attended the agricultural assemblies last year.

01, Special.—Mrs. Mary B. Coulston died last July in Oakland, California, while engaged in summer school work at the University of California.

Mrs. Coulston was for ten years associated with the magazine "Garden and Forest," first as pioneer writer, then as associate editor and finally as editor-in-chief. In this capacity she became well acquainted with the leading horticulturists of the country.

After "Garden and Forest" was discontinued in 1900 by its owner, Professor C. S. Sargent. Mrs. Coulston came to Cornell for a year of special study in forestry and horticulture. While here she spent considerable time in Professor Bailey's office assisting in the work on the *Cyclopedia of American Horticulture*, the third volume of which appeared in the spring of 1901.

Since that time Mrs. Coulston has been actively engaged in park improvement work in California and as the San Diego "Union" said, she was one of the brightest, noblest and best women who have ever made their home in San Diego.

'03. Special.—Eben Norton was accidentally shot this summer in Dhouda, Poona, India. He was a teacher in his father's missionary school for boys, which is an industrial, educational and religious institution in

which the attempt is made to bring the native boys to a higher plane.

Mr. Norton was a graduate of the Brockport Normal School, Brockport, N. Y., and took up special agricultural work at Cornell to fit himself to teach the natives in India more modern methods of farming. He had to work his way while in the University, but nevertheless found time to help Mrs. E. W. Beebie in her city missionary work, and also Rev. C. M. Sanford of the Free Methodist Church, of whom he became a strong friend.

Mr. Norton was very conscientious and thorough in his studies and was well prepared for work in his chosen field.

'04, B. S. A.—D. I. Hawkesworth died last July in Altoona, Pennsylvania. He was taken from the Infirmary in the hope that a change to another part of the country would do him good, but his disease, tuberculosis, had too strong a hold on him, and he was unable to shake it off. Hawkesworth was one of the few negro graduates in the University class of 1904, and was given his diploma while still in the Infirmary. He was a thorough, capable student and had already been offered a professorship of chemistry in Booker T. Washington's school at Tuskegee, Alabama. His home was in Washington, D. C.

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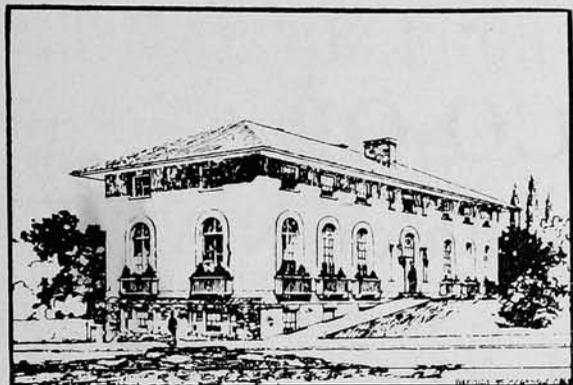
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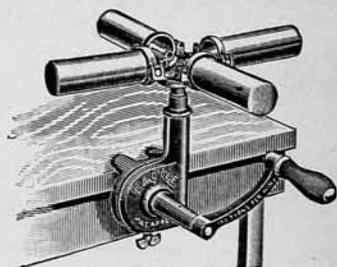
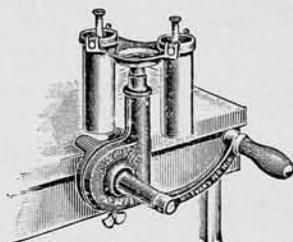
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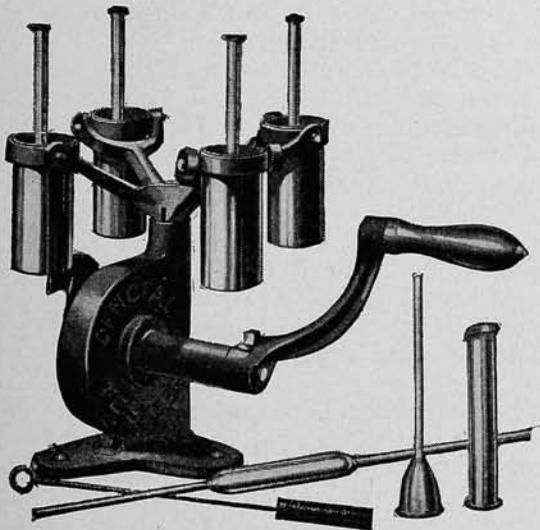
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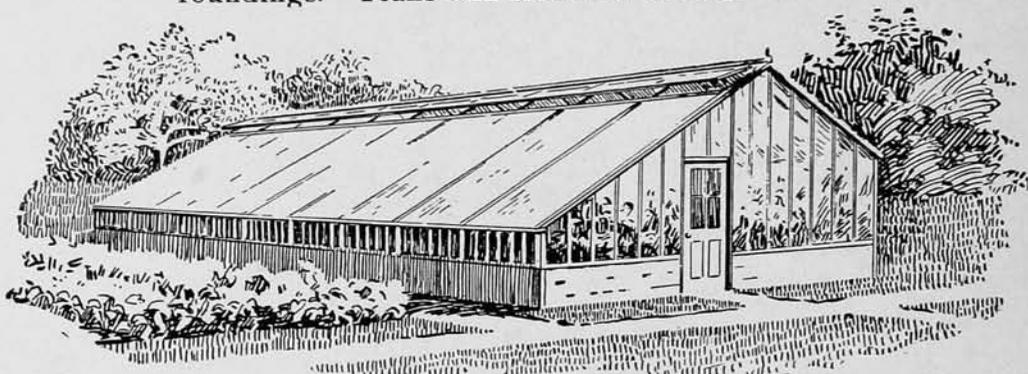
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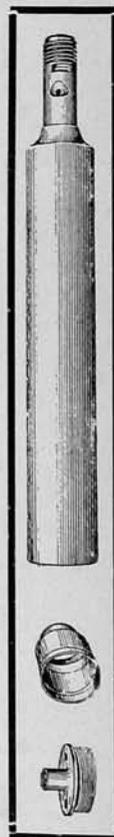
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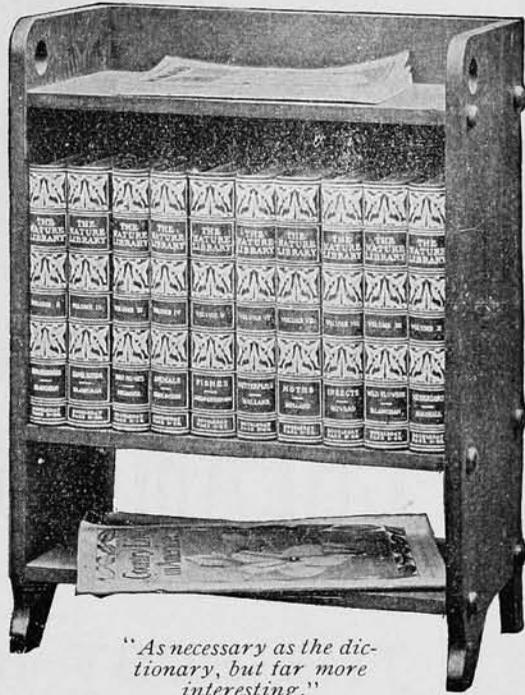
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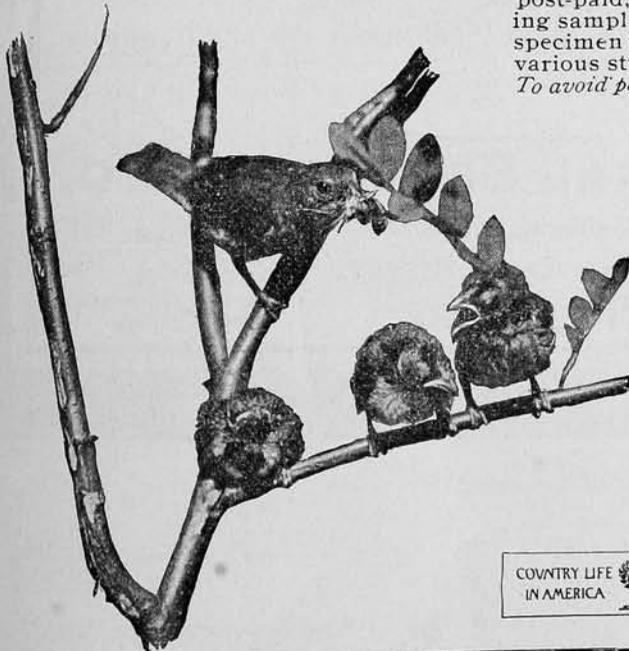
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THE CORNELL COUNTRYMAN is an Illustrated Monthly Magazine, published by students and graduates of the Cornell University College of Agriculture.

MANUSCRIPT for publication should be received by the 10th of the month preceding that in which it is to be published.

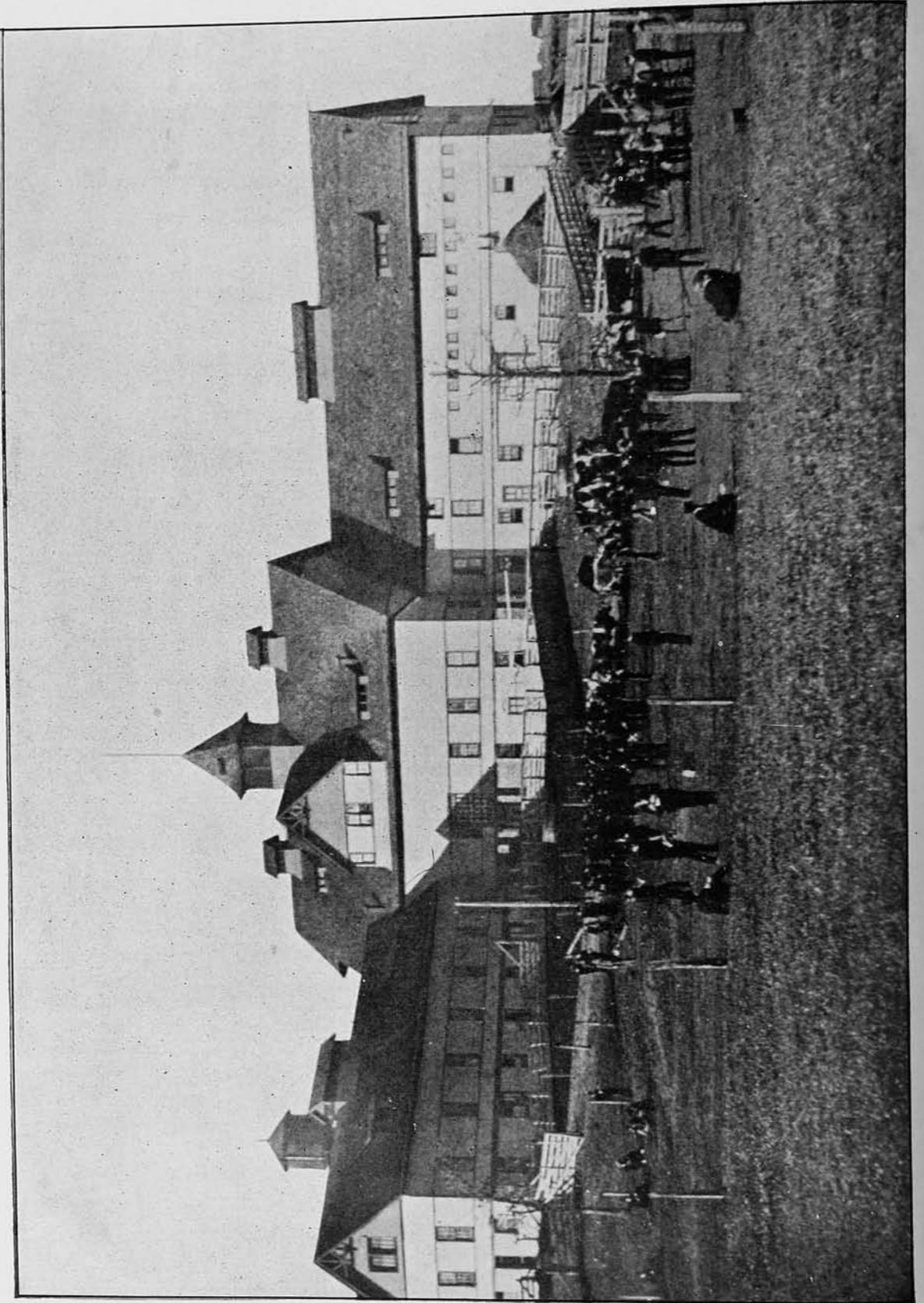
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THE CORNELL COUNTRYMAN

VOL. 2.

NOVEMBER, 1904

NO. 2

COUNTRY LIFE EDUCATION

By *W. M. Hays.*

Professor of Agriculture in the University of Minnesota

FORTY years ago, when Congress passed the Act giving grants of land to all the states of the Union, thus endowing agricultural colleges, the country was in the throes of a terrible war; and quite as much interest was attached to the clause requiring these colleges to teach military as to the general purpose of building up country life and agriculture. The military feature made possible the passage of the bill. While the military instruction given has been of great value to the country, the general results of this new education to American country life have been of far greater importance than the legislators then imagined. This nation is growing in world power more because science is building up her industries than because of her expenditures for war.

The establishment of this system of colleges has inaugurated higher education in agriculture; it has also made possible the introduction of agriculture into the common schools. Further than this, agricultural high schools of secondary grade have also been developed and are possibly better adapted to a large field than either agriculture in higher education or agriculture in primary education. All of the agricultural colleges, during the first twenty-five years of their existence, were by no means successful; and if we accept the standards set by the successes of the most useful of these institutions some of them are not even now well developed.

The introduction of agriculture into the primary schools has proved very difficult; and only recently have there been successes which have given any considerable encouragement. Agricultural high schools, such as the first one started in Minnesota, and those which

are more or less closely copied after it, as those in the Agricultural Colleges of North Dakota and Oklahoma and in the Universities of Nebraska and Maine, seem to have more nearly developed the best form of the school required to supply technical education in agriculture and home economics to those who are to live on the farm. These high schools take from the country district schools the vigorous farm boys and girls, who, upon their own volition or by the wish of their parents, have practically decided to remain in farm life; and without a long academic preparation they are at once given a short practical course. The agricultural high school is the "farmers' college," as the city high school with its general and industrial courses has become the "people's college" in the city. Just as it is not to be expected that most of the city high school students will go further to take collegiate work, most of these agricultural high school students turn to the farm without going forward with a long and expensive collegiate course. Only a part of the graduates of high schools are required in or could find room in the specialties to which collegiate courses lead, while the world is full of places for farmers, mechanics and home makers trained in well-developed technical high school courses. The course of study in an agricultural high school is about one-third academic studies, such as are given in the city high school or general academy; one-third is sciences related to agriculture; and the other third is instruction in the practical affairs of the farm and the farm home. Nearly all of the graduates of the agricultural high schools return directly to the farm; about ten per cent usually continue in

school life, and nearly all of these take the collegiate course in agriculture, with which the agricultural high school is articulated. An excellent class of students is thus supplied to the college course in agriculture because the high school studies prepare them for advanced work in agricultural colleges, and because during the high school course there is more or less of voluntary selection on the part of the faculty in singling out those students who will make professional workers when trained in the science of agriculture. The students themselves, while in the

ed the agricultural college course, there would be ample supply of men educated in technical agriculture to fill all positions as teachers, experimenters, officials of state bureaus and to occupy editorial chairs on agricultural journals. The agricultural high schools would also furnish a large number of young men and women, who, after taking an additional year or two at a normal school, would make excellent teachers for consolidated rural schools.

The consolidated rural school, supplying education to an area four to six



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agricultural high school, are also enabled by their studies to better decide whether or not they would be suited to professional agricultural work.

Ten per cent going forward to the college course would at first seem like a very small number, but these numbers are only relative. In the average western state there are from ten to fifteen thousand students in the city high schools preparing for city life. We should have several agricultural high schools in each state, each school accommodating hundreds or even thousands of students. Then, if ten per cent of these enter-

mies square, to and from which pupils are conveyed at public expense by team, promises to be the second greatest agency for educating people in agriculture and country home making. The consolidated rural school placed on ten acres of land, equipped with a four or five room building, one room of which, a "training room," is designed for instruction in agriculture and home economics; with plantations of trees, orchards of small fruit trees, gardens and field crops with cottage and barn to give the principal a home and place with means for demonstration; a principal trained in an agricul-

tural high school as well as in a normal school; and an assistant trained in home economics, would become a power in industrial education. These schools would be local clearing houses for new ideas for agricultural colleges. Here the workers from the agricultural colleges, members of farmers' institutes, and also inspectors in agricultural instruction from the offices of the county and the state superintendents of public instruction could come with lantern slides and moving pictures, and aid in the instruction of the country people. The consolidated rural high school would serve as a meeting place for institutes and for other meetings of the older people of the neighborhood. A splendid library secured with very little cost, made up largely from the publications of experiment stations and the United States Department of Agriculture, and books purchased on the subject of agriculture and home economics, would be a great help to the community, industrially, socially, and in every way. A picnic ground could ere long be provided in the grove made up of specimens of all the shade, ornamental, and forest trees.

To carry out a unified system of agricultural education, including the little rural school, which will always remain in isolated locations; the consolidated rural school, which it is hoped will become established in all well settled communities; the state agricultural high school, one of which may be required in every ten counties; and the state agricultural college, there will be needed a large number of technical teachers. While teachers will be required to teach the academic and general science subjects, there will be needed many who are specialists in instruction in agriculture and home economics. Such a system would provide a better scheme for education for country life than is now provided by the city primary schools, city high schools, and colleges and universities in preparing people for city life. Such a system would also develop technical teachers in a natural and effective manner. The country home and farm form an industrial training adjunct

to the school, for which the city has no substitute.

From this system of education would grow up many persons peculiarly qualified to edit the agricultural newspapers and magazines. The National Department of Agriculture would also have opportunity to gather from this large number of teachers, men and women peculiarly adapted to carrying forward the research work of this great and growing government bureau. Now that the state legislatures of the great agricultural states of the Middle West have begun to make large appropriations for agricultural education, we may hope for some such development as here outlined to take place. The consolidated rural schools of Ohio, Massachusetts and other states show that that class of schools may generally succeed. The success of the agricultural high school developed in connection with agricultural colleges above mentioned demonstrates that this class of institutions has a proper place between the consolidated rural school and the collegiate course. The development of college courses in agriculture over the entire country and of the graduate courses at Cornell, Wisconsin, Iowa, Minnesota, and other collegiate institutions, demonstrates that higher education in agriculture is successful. It only remains to unify a system of education for those who are to remain in country life; to prepare teachers; to develop text books and courses in laboratory instruction; and to broadly and largely finance this class of schools that we may have a country people educated in rural affairs and in home making. Technical education has long ago proved a necessity and has been so extended as to supply technical instruction to almost all who enter the professions. Now it has proved a necessity in farming and farm home making. It ought to be rapidly extended to all farmers and farm home makers. It will not cost too much. The increased production of a trained country people will many times overpay the added expense, and the better civilization will soon make the cost seem an easy burden.

A SUMMER'S EXPERIENCE IN GROWING PICKLES

By H. H. Albertson.

LAST winter the Business Men's Association of our village busied itself in persuading farmers to agree to raise two hundred acres of cucumbers the amount asked for by a pickling house to locate a plant in town. When the profit in pickles failed as an argument, the canvassers for planters said "be public spirited enough to give your support by planting as many acres as you can."

By the fifteenth of June my two and a half acres of cucumber land had been planted. During the spring prospective planters had received printed circulars from the company giving instructions in growing and handling the crop. We were advised to plant between the first and fifteenth of June. It was my ambition to plant early for my land was early and I wanted to have a long picking season before frost.

The ground selected was a mellow, rather sandy loam. Last year an attempt to grow alfalfa on this land was made, but being unsuccessful, oats were substituted. The land was plowed and harrowed early. The weeds were allowed to start before it was harrowed again, and after a final dragging the land was marked out in check rows four feet apart each way.

Having no rotted manure, and the land being fairly rich in humus, I put on a complete fertilizer, at the rate of about four hundred pounds to the acre. The nitrogen was in the form of nitrate of soda. The fertilizer was applied in the hill by one man, raked into the soil by another and the seed sown by a third man with a hand drill. This puts the plants in a straight line about a foot long. It makes nicer cultivating to plant with a hoe in a circle around the hill, but it takes longer to do it. The seed came from the pickle house and we thought it was poor. Wishing to have plenty for the beetles, however, we planted about five times more seed than we wanted

plants. Our judgment was wrong for all the seed germinated and made thrifty plants and I did not see a beetle. On account of the thick planting it took time to thin the plants to four in a hill and part of the field was never thinned.

When the striped beetle should have put in an appearance I had to be away from home so I left word to have the patch dusted with plaster. This is probably not the best preventive but it was the one most feasible for me. The vines were thus powdered early one morning by a force composed of three men and a boy, besides my mother and a housemaid, all provided with improvised baking powder can shakers. The treatment given was only a preventive which met nothing to prevent.

I did not spray the vines. We were carefully advised in print by the firm to spray with Bordeaux Mixture for the mildew, commencing after the appearance of the third leaf, or about a week after planting, and every ten days thereafter, at first using ten pounds of sulphate of copper to the barrel and increasing this amount by one pound at each spraying after the second time. The vines were almost entirely free from mildew.

Having an insufficient supply of help, the weeds got the start of us in the pickle field. We kept them down finally between the rows but hoeing and thinning in the hill took longer than we expected and we could not get over all the field. It was too expensive to hire day help to do the work. Later we laboriously pulled weeds where hoeing had not been done, except for a small strip along one side where we abandoned the vines to a struggle for existence with summer grass.

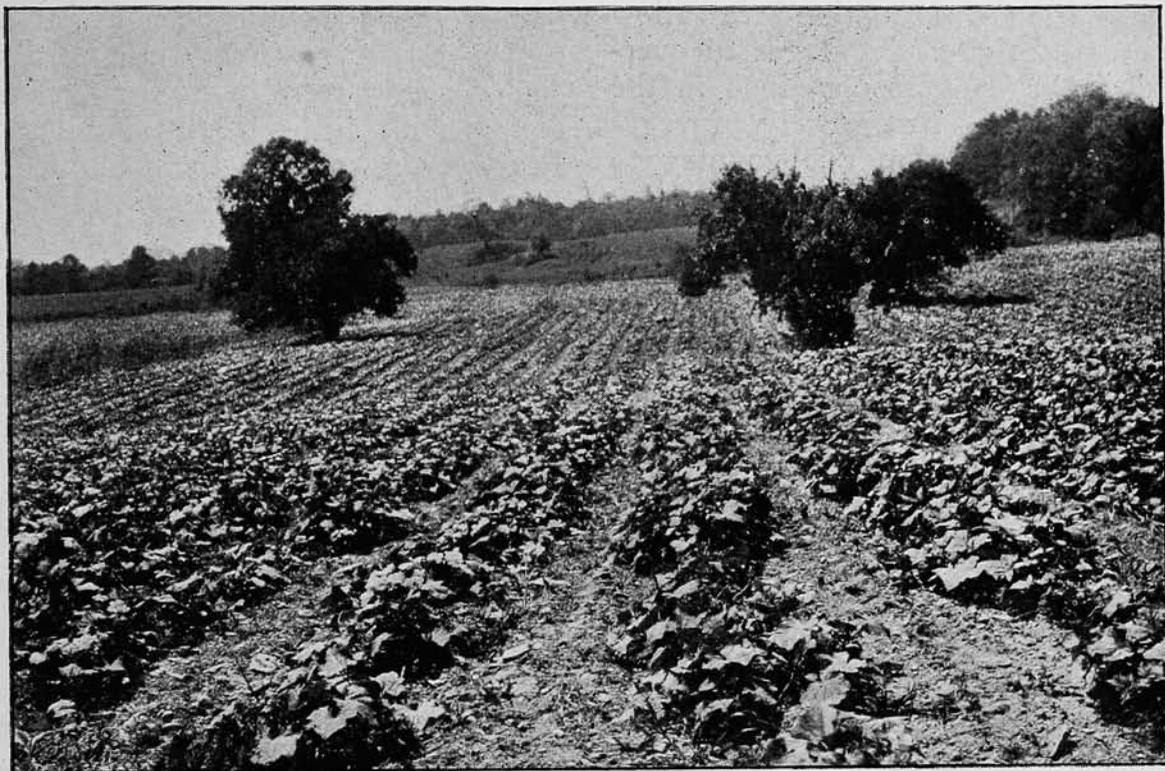
Three boys were hired to assist me pull weeds. But boys will be boys, and consequently one day during my absence two of them spent their time under a nearby apple tree. One was

immediately released and the other soon left. The third lad was older and steadier and remained for some time.

The greatest drawback to the business in our vicinity is to get pickers. I have employed three regular men most of the time since the vines began to bear and they have done a large share of the picking. I paid the pickers one dollar a day until the vines came to full bearing. For nearly two weeks the output scarcely paid for the picking. It cost about ten dollars to

ting more fruit. We paid ten cents per bushel for picking which brings the pickers from a dollar to a dollar and a half, and sometimes two dollars for ten hours' work.

The patch yielded over eighteen tons of salable cucumbers. These brought fifteen dollars a ton, or \$270 gross. Ten cents per bushel for picking is equal to four dollars per ton and adding a dollar for delivery brings the expense of picking and delivering to five dollars. This leaves a net



A FIELD OF PICKLES ON MR. ALBERTSON'S FARM

pick the first half ton for which I received seven and a half dollars.

A few warm nights made the pickles set fast and soon we were picking in earnest, getting a ton or over to a picking every three or four days. Two or three children and one or two elderly women were hired to assist in picking. Children do not pick clean enough to be very satisfactory. By the next picking the missed ones are over size and thrown out, and the strength of these vines goes to maturing the seed at the expense of set-

profit of ten dollars per ton or \$180 for the two and a half acres, from which must be deducted the cost of planting and cultivating which takes about as much work as a thoroughly cultivated cornfield that is hoed by hand.

There was about a ton and a half of unsalable cucumbers, those over size six inches in length and two in diameter. Yet in spite of this drawback a suitable soil and good weather gave me a profitable crop.

ONE OF THE DANGERS OF INTERNATIONAL EXPOSITIONS

By C. Bues, '06

THE object of the agricultural exhibits at a great international exposition is to show the advances made *everywhere* and the advances to be made *everywhere*, i. e. business opportunities for all countries. In this respect their value is enormous.

In estimating the gains to be obtained from information we allow very easily these advantages to overshadow the dangers contained in the transport of a great variety of vegetative material from one country to another. We know that hardly any plant exists which is not preyed upon by some form of insect parasite, sometimes in such hidden position as to be entirely unnoticeable. This fact has caused nearly every commonwealth of the United States to adopt laws guarding interstate commerce by demanding that every package of nursery stock be accompanied by a health certificate testifying to the bona fide clean condition of the plants. In addition some nations maintain posts of quarantine at their respective ports of entry. In spite of this fact insect pests elude our vigilance; and there is no time when the danger of undesirable immigrants is greater than when a nation acts as host to a multitude of exhibitors from all quarters of the globe, for then not only staple produce but everything that is in any way different from that in the visited country is brought to her shores. This matter was forcibly brought to my mind when I was spending a few days at the Universal Exposition at St. Louis.

Among the agricultural exhibits from German East Africa which were displayed together with the agricultural exhibits of the German government were a number of matting-baskets containing seeds from leguminous plants classed as Chiroco-beans, Mtamas, Ground-peas, etc. The baskets were covered with transparent celluloid-like covers which were, however, not tight fitting. These seeds were more or less infested with little beetles similar to Pea-weevils, some of them to such an extent that the peas appeared to be fairly alive with them. The beetles were making merry all around in the section and it would be the easiest thing in the world to carry them off on some favored American seed and to introduce them into the multitude of farmers' enemies in this country.

This is simply one illustration observed in passing. I have no doubt that the same thing occurs in many cases where scale insects, woodborers or any other insects in hiding at the time of the selection of the exposition objects, pass the quarantine and are carried thus from country to country. In many cases these insects may not necessarily be a pest in their own home, but can easily under a change of environment become such.

Certainly where expositions of such enormous magnitude as the Louisiana Purchase Exposition are undertaken and the agricultural products of so many countries brought together we should try to adopt ways and means of quarantine which will prevent these insect migrations.

URBS IN RURE

I'm glad you city-people
 Love the City as you do,
 For if you should desert it,
 You would spoil the country too.

Memnon

A REVIEW OF BULLETIN 23

By J. A. Bonsteel, '96

Professor of Soil Investigation, Detailed from U. S. Department of Agriculture

BULLETIN 23, Bureau of Soils, United States Department of Agriculture, has just been published under the title "Investigations of Soil Fertility," by Milton Whitney and F. K. Cameron.

In the introduction are several definitions which differ somewhat from any previous definitions along the same lines. Soil fertility is defined as "the inherent power of a soil to produce and support a satisfactory crop under favorable climatic conditions and suitable cultivation" thus excluding factors which do not directly pertain to the soil itself, but form a part of its surroundings of treatment. "Plant-food constituents" is a term used to express elements or compounds like K, P₂O₅ and Ca., which are sources of ash material in plants, while "plant food" is distinguished as "those constituents or combinations of various constituents which are themselves sufficient and proper food for actual support of plant life." Again the "optimum" water content of a soil is defined as "that which is most favorable to the development of a crop." An amount which is admitted must be arbitrarily determined.

The first part of the bulletin deals with the movement of water in soil, a factor long recognized as possibly affecting soil fertility. The bulletin does not consider the water capacity of soil nor the actual amount of water in a soil, two factors which influence soil fertility. (In this investigation of the movement of water the old time experiments along the line of percolation tests, and tests of the capillary rise of water in moist and dry soils have been abandoned.) The bulletin deals with the water movement in soils approaching the drought condition, a condition which is of the greatest interest in the study of critical phases in crop development. In this connection the bulletin takes up the study of evaporation from moist

soils under varying conditions, giving results not only for surface evaporation but also for evaporation within the soil itself.

The next problem considered is that of the movement of water in soils short of saturation. This investigation shows some marked variations from results of experiments based on the recognized laws of capillary distribution, and it may be confidently said that in the movement of water in soils which are below the optimum content the ordinary laws of capillarity are not followed.

Following this discussion of water movement is a discussion upon the absorption of water by various seeds in different soils under different moisture conditions. It was developed that there is no evidence that infertile soils supply less water to seed than fertile ones. Moreover there was no observable difference in the amount of moisture absorbed by seeds in soils of the same water content, whether manure had previously been added to the soil or not. During germination tests it was noticed that seeds can only draw water from a distance about 1-4 inch about the seed, possibly less. The smaller seeds can secure enough water for germination when only a single side is in contact with the soil. The larger seeds must be buried and in many cases the shape, exposing a large surface, is the principal aid in the absorption of water, and germination. The germination of a seed differs from the nourishment of a plant in that the absorbing part of the plant root is continually in motion through moist soil, a property which a seed lacks.

The remainder of the bulletin is taken up with experiments in the production of plants with culture media. Transpiration and the development of all parts of the plant were taken as measures of the success attained in growing the various specimens, thus

thrifty plants gave high transpiration figures and vice versa. In the experiments with soil extracts the new Briggs High Power Centrifugal Machine was used to secure the extracts. This machine extracts the soil solution as completely as a growing plant can do. It was found that those soils which in field conditions are recognized as infertile yielded soil extracts, which measured by transpiration and plant growth were infertile extracts, and that fertile soils yielded fertile extracts: that is, the inherent fertility or infertility of a soil is a property of the soil extract. Further experiments with artificial culture solutions were undertaken for the sake of varying the total concentration for particular plant food constituents, and the form of the compound in which these plant food constituents occurred. Chemically pure salts were used, and in order to secure a uniform concentration "the base calcium was in each case taken as a standard, and a solution made up to a strength equivalent to ten parts per million for this constituent, the other constituents being present in equivalent combining proportions." From such solutions an attempt was made to determine "if the nature of the combination of the different bases and acids entering into the solution exerted an appreciable influence upon the development and transpiration of the plant." The results while not conclusive were sufficient to indicate "that there was no material difference due to the forms of constituents used." Other experiments have indicated that a soil solution made up in this conventional way may be diluted ten times or may be concentrated ten times without producing notable difference in either the transpiration or development of the plant. It was found that a concentration of ten parts per million of calcium, that is a total salt content of one hundred seventy parts per million, gave in all cases most satisfactory results, and in all cases a concentration of one hundred seventy parts per million of total dissolved salts was

most desirable, provided that at least one part per million of each salt was present.

The next point taken up concerns the study of the organic matter in soils. The soil used in this work is naturally of a very poor nature, it being a sandy soil of yellow or gray color, except at the immediate surface where it is slightly darker. It had a content of about three per cent of organic matter, although its appearance did not suggest a content of over 0.5 per cent, or better, 1-2 of 1 per cent of organic matter. When manure was added to this soil it disappeared quickly without producing the desired effects. Two applications of 25 tons per acre, a total of 50 tons per acre, produced no marked change in color. Experiments indicate that this material oxidizes directly giving rapid decomposition with the formation of very little humus. It thus acts similarly to a dry earth closet. Humus prepared from a number of soils, when added to culture solutions, in proportions varying from one part to one hundred per million, neither increased nor diminished the transpiration from plants. Yet all the experiments conducted and much practical experience indicate that if organic matter of a soil can be converted into humus the conditions under which the conversion takes place will be those under which the soil is rendered fertile. In this connection the addition of certain green plant tissues like ground sumac leaves, ground oak leaves and ground green clover, produced a black humus body in the soil, even when stable manure was directly oxidized without the production of humus. The aqueous extract from ground sumac leaves produced the same results as the leaves themselves. The soil after treatment with green substances or pyrogalloe when planted to wheat seedlings causes a higher transpiration than it does when not so treated before planting. Thus the sanitary condition of the soil is improved by the oxidizing agents.

CORNELL EXTENSION TEACHING IN AGRICULTURE

By R. W. Curtis, '01

ONE of the features of recent educational work is the extension of the University teaching to the people. Such extension work is a result of the altruism of modern times. There is Extension Teaching in the Arts, in Literature, in the Sciences and in Agriculture. The origin of Cornell Extension Teaching in Agriculture is briefly stated as follows:

In 1893 certain Chautauqua County persons wanted experiments conducted in their vineyards. The Cornell Station could not do the work because of lack of funds so these Chautauqua County farmers began to agitate a small state appropriation. Early in 1894 their Assemblyman, Mr. S. F. Nixon, secured \$8,000 to be used by the Cornell Experiment Station in horticultural work in western New York. The state appropriation has been gradually increased, and in 1897 was made to apply to the whole state, to agriculture in general, and was given to the College of Agriculture and not to the Experiment Station. This transferal marked the growth of the movement from mere experiment to general agricultural teaching. The enterprise is now supported by an annual appropriation of \$35,000. Let us see how the College is meeting this obligation to the State.

The work is progressing along two general lines: First, meeting present needs; and secondly, reaching the rising generation. The present needs are being met in three ways: First, by scientific and co-operative experiments; secondly, by publication in attractive bulletin form; and thirdly, by personal contact. The scientific experiments are conducted at the Station but the co-operative experiments are carried on by the farmers themselves under the guidance of the station officers. These local experiments have great teaching value and are arousing much interest. Fully half the time of the extension workers, however, is taken up by answering letters, filing data, speaking at meetings and personally visiting the farmer's place.

Of all the ways in which the Extension Department is trying to meet the present needs of the farmers that of personal contact is by far the most important.

The rising generation is being reached by Reading Courses which appeal largely to the younger men and women of the farm, and by Nature Study which interests the teachers and children. The Reading Courses are treated in full in our March issue by S. W. Fletcher, supervisor of the Farmers' Reading Courses. Suffice it to say that these Courses have an enrollment of over 20,000 persons on the farm and are marked by genuine progress and enthusiasm.

That the child should be educated in terms of his own life is the keynote of Director Bailey's attitude towards Nature-Study. This the Cornell Bureau of Nature-Study is trying to do by instructing the teachers in Nature subjects and by interesting the children directly. The teachers are given a Home Nature-Study Course comprising leaflets and correspondence, receive instruction at Teacher's Institutes and Normal Schools, and finally may avail themselves of a two-year course in Nature-Study at the University. There are 2,000 teachers actively interested in this work. The children are organized into Junior Naturalist Clubs, have a Junior Naturalist Monthly, become Junior Gardeners and receive constant help and inspiration from correspondence and visits by Uncle John, Director of the Bureau of Nature-Study. 36,000 teachers and children are in close touch with this department. Probably not since the realization of the Experiment Station idea has there been such an advance in agriculture as this movement directed towards the children of the country. Altogether, the Cornell Agricultural Extension Teaching is reaching in the neighborhood of 60,000 persons. Truly, the College is responding nobly to the people's request for better agricultural education in New York State.

The Cornell Countryman

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NOVEMBER, 1904

College Registration and Work

This year the Agricultural College opens with the largest registration in its history.

There are 178 students registered for the regular and two years' special courses. Last year at this time there were only 127. This makes a gain of over 40 per cent in one year; and it is known that there are a few belated students still to enter. The entrance requirements for the College of Agriculture are above the requirements of the other technical colleges at Cornell with but one exception and are on equal footing with the requirements even of that college. As far as intellectual training is concerned the College of Agriculture stands at par with the college of Arts and Sciences.

Every one of the students represents earnest agricultural effort. The students are not in the College of Agriculture because of free tuition or because of easy entrance requirements but because they love the work.

Again, the spirit of unity which exists among the Agricultural students is very noticeable. They seem to be bound together in one purpose, with one aim and ideal. It has been said that in the College of Agriculture the

students work together better than in any other college of the University. The spirit of friendliness and fraternity is greater than in any other college. That these statements are true no one would doubt were he to attend the Agricultural Assemblies and other student organizations.

Appeal to Students

The editors of the Countryman wish to emphasize the appeal they made to the students in

the last issue.

The Countryman is the students' paper, a paper in which every student in the College of Agriculture has an interest. As such, every student should be loyal to the magazine and should show an active interest. The board of editors alone cannot keep the paper up to its high standard. It must have the co-operation of every student. The board asks you to help it make the Countryman an agent which shall bind all Cornell students together in one common interest.

The office of the Countryman is in Morrill 19. Dean Bailey has kindly given us a part of the recitation room. He has done every thing in his power to make the office cheerful and home-like. Let us keep the standard of the Countryman up to such a height that he will feel that his efforts have not been in vain.

Our office hours are Monday, Wednesday, Friday, 4:30-6; and Tuesday, Thursday, Saturday, 12-1. When we say we shall be there at that time, we mean it. We earnestly urge every student to bring in such news as may come into his possession. Even though he should have no news, we urge him to come in and talk "Countryman."

**Agriculture in
the Second-
ary Schools**

Our leading article this month strikes a key-note in agricultural education. The people of the farms are awakening to the fact that secondary schools have been neglecting an important educational factor. They are asking, and justly too, that agriculture be given its place along with the other branches of study. The city boy has the industrial schools in which he can fit himself for some profession without meeting the requirements of a college course. Agriculture is the greatest of the occupations. Should not the farmer's son also have the opportunity of fitting himself for the work of the farm without meeting the requirements of the Agricultural Colleges? Some of the colleges try to offer such opportunities. But it is impossible for them to reach the boys and girls of the whole state.

In New York State today there is but one secondary school in which a Department of Agriculture exists. Efforts are being put forth and plans laid for such instruction in several of the secondary schools. It is hoped that the people of New York will realize the importance of such training and be prompt in giving it a place in secondary education.

**Farmer's
Club Visits
Cornell**

After the loyal co-operation from the farmers' organizations of New York State in support of the Agricultural College Appropriation Bill last winter, President Schurman and Dean Bailey extended invitations to these organizations to visit the agricultural college and see for themselves the work which was being done. The Central New

York Farmer's Club was the first organization to accept this invitation and early last month it visited the college.

The faculty and students met the delegates in a mass meeting. A few words of welcome were given by President Schurman. Then Dean Bailey spoke about the work of the college, what the college stood for and what it would stand for in the future. He mentioned the extension work and the experiment station, as well as the teaching work.

Mr. Joseph E. Graham, the president of the club, a man 85 years old yet full of vigor and life, sketched, in brief, the history of the organization. He said it was the oldest organization of its kind in the state, having been formed thirty-three years ago. He mentioned the name of Horatio Seymour as being a former member.

Mr. Graham is a most effective speaker, because he has convictions and expresses them with the ardor of a young man. His contrast of the opportunities in agriculture when he was a young man and today was very spirited. At that time, the young man won local renown by his feats of strength and endurance. The man who could cut the most wood or mow the most hay was the most sought. Now, the young man who knows the most is in greatest demand.

Mr. Sanders spoke entertainingly of members of the club who had been distinguished in agriculture and politics. He mentioned the close connection existing between the agricultural college and the farmers of the state.

Mr. French, Cornell, B. S. in Agr. '91, said that the value derived from a University system was not so much

what one gained from books but the "rubbing up" of the agricultural students with the other students of the University. He said there was great advantage in having the College of Agriculture connected with a great University. Not only do the students associate with other agricultural boys but also with the students of the whole University. Thus greater benefit is derived than if the agricultural department was a college wholly by itself.

The members of the club who visited the college were:

Joseph E. Graham, President.

George Hatfield, Vice President.

George A. Sanders, of the Utica Press, Secretary.

C. G. French.

M. B. Combs.

George B. Smith.

During the day the members were taken to the site of the new Hall of Agriculture, were shown through the Dairy Building, the barns and over the farm.

The visit added strength to their conviction that a new agricultural building was necessary. They felt that their efforts last winter at Albany had not been in vain and rejoiced to know that the enterprise was being advanced with such life and energy.

Cornell Men of Experience During the year Dean Bailey receives a large number of inquiries for college educated men to fill positions of great responsibility. These positions apply to men in all branches of agricultural education; horticulturists, expert stock raisers, managers of large estates and trained poultryman. In particular, there is good demand for experienced college

bred men to act as managers of farms and estates; but it is difficult to find the men who are adapted to this work. Those in authority feel that a college education, valuable and broad as it may be, lacks certain elements of practical training which can be obtained only through years of the actual application of principles underlying agriculture which he has received during his college training. Therefore, the true agricultural training may be said to consist of two distinct periods; one the college training, the other the application thereof. No student has completed his course until he has proved his ability to make good use of the principles which he possesses. This fact is becoming more and more apparent and it finds evidence in the fact that the College of Agriculture requires the Winter-Course dairy students to take one year's actual work under college supervision before they are granted a certificate.

Possibly no such requirement may be needed before giving a diploma to a regular agricultural graduate. But from a point of view of safety to the institution whose name he carries with his degree, for the good of agriculture in general and in justice to the man whose business interests are involved, he should be willing and eager to prove himself before undertaking those larger fields of activity where failure or partial success might lead to adverse criticism both of his own ability and that of his Alma Mater.

This does not in any way lessen our high regard for the training which our young men receive at the agricultural college, but it does emphasize the fact that this education is

in a large degree preparation only for the great life work of application which is to follow and makes clear that it is possible for a young man of high ability as a student to lack those executive qualities which a successful business man must possess.

Realizing these facts it is important that the College of Agriculture keep in close touch with all of those who have gone from the University and have had the opportunity to develop those qualities which make them capable of carrying responsibility. When larger and better opportunities

offer themselves it is important to know the availability of these men. This idea should take immediate and active form with every student who reads these lines, and who has ambition and feels his ability to go a step higher. He is asked to communicate with the Director of the College of Agriculture, who is always ready to keep in touch with sons and daughters of Cornell in order that he may assist in helping them to a higher plane of usefulness. This is part of the function of the College of Agriculture.

GENERAL AGRICULTURAL NEWS

The Rhode Island College of Agriculture announces this year for the first time a four year course in highway engineering, "intended to meet a definite and growing demand for men competent to build better roads." This is doubtless the first course of the kind ever offered in an American college. During the freshman and sophomore years the work differs little from the other courses in mechanic arts in the college. At the beginning of the junior year the student is required to reach the college about two weeks in advance of the opening term in September and devote this time to actual highway surveying. Then when the college opens he receives instruction in minerology and geology, with particular emphasis on road materials. The senior year is given over largely to highway engineering proper, and includes the study of stereotomy, masonry construction, strength of materials, theory of road building, hydraulics, highway bridges and field practice.

* * *

In parts of the State, especially the northern section, there has commenced a movement to combine condensing factories, butter factories and

shipping stations for whole milk. Thus the manufacturers are able to supply any demands of the market. Most of the condensed milk from these factories, is shipped in unsealed 40 quart cans to New York city, where it is used on ocean-going vessels. In some of these factories there is a complete equipment for making milk sugar and dried casein. Thus all the by-products are utilized. The price paid to the farmer for his milk has already been materially increased in those sections where the factories have been established.

* * *

A Russian, working under the direction of the New York State Department of Agriculture, is carrying on experiments in the manufacture of Swiss cheese, at Lowville, N. Y. It is understood that he has been very successful. If cheese of an equal value to the imported article can be produced in this State, it will be of vast importance to the dairy industry of New York.

* * *

It is understood that several of the Dairy Course students have been very successful in carrying off prizes on their own make of butter and cheese, at various fairs throughout the State.

The results of an interesting experiment, covering the careful work of one year's study are contained in the first bulletin of the Agricultural Series of the Ohio State University Bulletins. The work is the graduating thesis of Mr. Modesto Quiroga ('04, B.S.A., Ohio, graduate student Cornell) and is entitled, "The Influence of Early and Late Spring Plowing upon Corn Production." The work was done on the lines of soil moisture, available nitrogen and soil temperature, and in some of its phases touches on the work of the famous Bulletin 22, Division of Soils, U. S. Department of Agriculture.

The main results obtained in this particular experiment are:

Increase of yield on early plowed land, relationship of soil moisture to yield, greater moisture capacity of early land, greater amount of nitrogen in early plowed land, lower mean soil temperature in early plowed than in late plowed land and many other interesting points.

Mr. Quiroga is interested in similar studies here at Cornell university.

* * *

Professor Wittmack, editor of "Gartenflora" and botanist of the Experiment station at Berlin, Germany, has made a second trip to America to act as judge at the Louisiana Purchase Exposition. One of the greatest advantages of international gatherings is the bringing together of men interested in kindred subjects, from all progressive nations.

* * *

Professor Rice, who last year occupied a double house with Professor Bonsteel on Oak avenue has found it more convenient for his work to move to Forest Home. Mr. and Mrs. Rice are now at home in their new quarters. They have an Ithaca phone, No. 378-a.

* * *

Uncle John, whose home is at Westfield, Chautauqua County, has had time to speak a good word at a dozen or more Grange meetings and Farmers picnics this summer.

Major Henry A. Alvord, Chief of the Dairy Division, Bureau of Animal Husbandry, United States Department of Agriculture, died in St. Louis, Missouri, October 1st. He was in that city acting as a juror at the World's Fair, and to attend the Annual meeting of the State Dairy and Food Commissioners. The cause of his death was a stroke of paralysis which he suffered when at work on the fair grounds and which ended his life three days later.

Major Alvord was long and prominently connected with agricultural advancement in this county. He was born in Greenfield, Mass., 60 years ago, graduated from Norwich (New Hampshire) College, enlisted in the Civil War before he was twenty-one years old, and served throughout the war, advancing rapidly to the rank of Major. After the war he remained in the army a few years, being assigned to service among the Indians in the Southwest. He first became connected with the Massachusetts Agricultural College as Professor of Military tactics. During that connection he developed an especial interest in agriculture. He became a Professor of Agriculture and later served as director of the private experiment station at Houghton Farms, New York, and after that was President of the Maryland Agricultural College.

When connected with different agricultural institutions, he was active in the work of the Association of American Agricultural Colleges and Experiment Stations, at one time serving as President and another time as Chairman of the Executive Committee. Through this Association he exerted a strong influence upon National Legislation referring to Agricultural Colleges and Experiment Stations.

In 1895 by appointment from Secretary Morton, Major Alvord organized the Dairy Division in the Department of Agriculture and remained at the head of that office until his death. He was a strong friend of the American farmer and dairyman and the influence of his work will long remain.

CORNELL NEWS

CAMPUS NOTES

The Home Nature-Study course is a part of Cornell's Extension Work in Agriculture for which the State appropriates \$35,000 annually. This course is one way in which the college is endeavoring to meet its obligation to the State. It is a reading course for teachers to familiarize them with Nature study subjects which can be introduced into their schools.

Last year there were twelve hundred regular students in the course who sent in answers to the questions, and who received criticisms and helpful suggestions from the Department. The June leaflet of this Course was on the clovers and discussed not only the true clovers, but the medics and the sweet clovers. The object of this was to interest both teachers and children in these very important plants, and it was one of the most successful leaflets of the whole year.

The work for the coming year in the Home Nature-Study Course will be a distinct effort to bring the study of plant and animal life into the school-room, and make this work helpful in the regular school studies. In addition to this there will be some special agricultural topic in each lesson, which will serve to interest both teachers and pupils in some phase of pure agriculture. The fall lessons deal with weeds and seed distribution, a very important subject for the agriculturist. In addition to this there is a special study of alfalfa with suggestions for introducing it. Requests have already been received at the Department from teachers for specimens of this plant.

* * *

R. A. Pearson, professor of dairy husbandry, Cornell University, Ithaca, N. Y., was in Chicago recently, interviewing friends. Mr. Pearson was on his way to St. Louis where he expected to make a study of the tests and other work in the dairy department

there; but the chief object of his visit West is to examine into plans of dairy schools for ideas to be adopted in the construction of a new dairy building at Ithaca.—Chicago Dairy Produce.

* * *

Mr. E. O. Fippin, Ohio State University '00, at present with the bureau of soils, U. S. Department of Agriculture, is now on a furlough from the Department, taking up advanced work in agronomy and soils in the College of Agriculture at Cornell.

* * *

The soils laboratory has been moved to room 24, the Sanitary and Distilling Laboratory, Morse Hall. Professor Bonsteel will have his office here for the remainder of the year. The laboratory will be equipped with additional new apparatus and advanced investigation work will be carried on throughout the year.

* * *

Woman's Work and Home Economics is a course given in the College of Agriculture by Miss Van Rensselaer and others who are specialists along different lines of home science.

* * *

The Agricultural Assembly gathered for the first time this year on Tuesday evening, Oct. 4, in the south dome of Barnes Hall. Director Bailey and Prof. Roberts spoke to a large and interested audience after which a social time was enjoyed. The attendance was about 200.

* * *

This year a definite and practical course in Outdoor Art has been inaugurated. It is a two year course intended to comprise junior and senior years in the College of Agriculture. The course is given by Prof. Bailey, Mr. Manning, Mr. Fleming and others.

Among the members of the Short Course of the winter of 1904 who are taking the special work this year are H. Jennings, who entered in the spring, R. L. Meeker, R. Van Doren and M. B. Bacon.

* * *

Sixty-one students are registered in Prof. Rice's poultry courses this year, where there are only twenty-six registered last. This is an increase of nearly 135 per cent. The motto of the Poultry Department: "I'll be bigger when I get my growth," is fast coming true.

* * *

Prof. Craig was at St. Louis during the week of Oct. 10-17, as a juror in the Palace of Horticulture. Prominent men in pomology were appointed to judge the exhibits of fruits, each one in his special line.

* * *

W. S. Thornber is back taking post-graduate work in horticulture. Mr. Thornber was here as a special student in '98-'99, and afterwards held the position of Assistant Professor of horticulture in the South Dakota Agricultural College.

* * *

The Dairy Department has started a class in dairy bacteriology this year. Three laboratory periods are held each week in the Dairy building under the direction of Dr. King of the Medical College.

* * *

A school of breeding, feeding and judging live stock and of breeding field crops, was held at St. Louis under the auspices of the American Association of Agricultural Colleges and Experiment Stations. The first session extended from Sept. 12th to Sept. 24th. The second extended from Oct. 3rd to Oct. 15th. During the second session Prof. T. L. Lyon of the Univ. of Nebraska, Cornell '91, gave two demonstrations of corn judging. Prof. T. F. Hunt was on the program for

"Modern Instruction in Animal Husbandry." Dean L. H. Bailey gave one address, "Plant Breeding in Other Countries," and another on "Natural Evolution."

* * *

Prof. Rice has recently received a letter from the University of Minnesota saying that a student from there is going to enter our special poultry course this winter. After finishing the course this student will return to Minnesota and establish a poultry department there.

* * *

The New York State Bureau of Farmers' Institutes is preparing to hold a special poultry institute at Cornell November twenty-eighth. The program is being prepared by Mr. F. E. Dawley, State Director of Farmers' Institutes. Members of our faculty, and also other men prominent in poultry husbandry, will speak. In addition the graduate students now in the poultry department will each give a five minutes' extemporaneous speech on the work they are now doing, and the results they hope to obtain. This is the first time a poultry institute has been held in this section. A large attendance, as well as great interest in the meeting is anticipated.

New Cornell Bulletins

A very careful study of the *Onion Blight* is the subject of bulletin 218, by Mr. H. H. Whetzel, our station pathologist. Mr. Whetzel gives us the result of experimental spraying, a clear scientific account of the fungus and remedial measures in the form of good field sanitation and advisable seed treatment. The whole is a decidedly valuable addition to our large list of creditable publications.

* * *

Another bulletin, No. 219, comes from the botanical department. Mr. James M. Van Hook takes up the study of *Diseases of Ginseng* very thoroughly and gives thereby to a new

and growing industry valuable assistance. We are very sorry to lose Mr. VanHook from our station staff and know that he will attain success in his new and larger position.

* * *

Bulletin 220 is the result of some experiments by Prof. H. H. Wing on the value of *Skimmed Milk for Pigs*. Professor Wing shows a gain of one pound live weight per day for three months for weanlings in cold weather. The value of skim milk for feeding purposes is shown to be 15 cents per cwt.

* * *

Professor J. L. Stone has for several years interested himself in the *Alfalfa Prospects for New York*. The results of this work are published in bulletin 221 and give a lot of valuable data which should help very much in the popularizing of this great forage crop.

FORMER STUDENTS

'00 Special.—M. D. B. Sleight is on a two hundred and eighty acre farm at Arlington, N. Y. In conjunction with general farming, he is making a specialty of vegetables—potatoes in particular. He planted an apple orchard of eleven hundred trees recently. Sleight is a member of the Agricultural Experimenters' League; he was this year assistant superintendent of the vegetable and fruit exhibit at the Dutchess County fair.

'00 Winter.—Charles H. Padgham is in charge of a creamery at North Yakima, Washington.

'01 B. S. A.—Roger M. Roberts has sold his milling business in San Francisco. He intends to go into farming.

'03 Winter.—W. G. Harkness, who is superintendent for the Delhi Co-operative Dairy Company at Delhi, N. Y., has just sent in his application for the dairy course this winter. Mr. Harkness writes that the seven weeks which he spent so pleasantly in dairy work at Cornell year before last have been of great benefit to him. He wish-

es to complete the course this winter. Mr. Nichols, his assistant in the butter room, took the dairy course at the Pennsylvania State College last winter. Mr. Harkness adds that this season has been a very busy one for the Delhi creamery. Their receipts have been as high as 85,000 pounds daily during flush times. Nearly all of their milk is made into print butter for the Philadelphia market.

'03 Special.—Francis H. Richards has accepted the position of farm superintendent for Dr. E. F. Brush at Mount Vernon, N. Y. Dr. Brush is an extensive manufacturer of koumiss, a form of fermented milk, and is being assisted in the business by Howard G. Coville, '04 B. S. A.

'04 Dairy.—R. E. Barden writes us from Fairfield, Tioga county, where he is in charge of a cheese factory.

'04 Special.—Miss Ellen M. Barker attended Briarcliff School at Briarcliff Manor in 1903, and was at Cornell during the past year as a special student in horticulture. She is now at her home in Auburn, N. Y., where she was called last spring by the serious illness of her father. Mr. Barker's condition is still very low.

'04 Special.—After a summer's experience in the peach orchards of western Michigan, Mosely Hale will spend the winter in New York city to study the market side of the fruit industry. In the spring Hale will settle in Fort Valley, Georgia, as assistant superintendent for the Hale Georgia Orchard Co. We shall all miss "Mose" and his cheery "Hello! git warm!," and wish him every success in his new venture.

'04 B. S. A.—Alfred C. Morgan of Laurel, Delaware, has accepted a position under the United States Bureau of Entomology as field expert in the Cotton Boll-Weevil investigations. This summer Mr. Morgan has been investigating government cotton fields in the vicinity of Victoria, Texas. Up until September examination was made every week, each inspector reporting upon seventy 5-acre plots. The method followed is to collect

about 150 squares (flower buds) and small bolls (young fruit) from each 5-acre plot and examine them for egg laying punctures and feeding punctures and also record the number of live weevils found. Mr. Morgan says the cotton boll-weevil is not nearing extermination, and that all the present staff and more will be needed when operations are begun next spring.

'04 Special.—Henry Truchell, who came to us last year from near Quebec, Canada, now has charge of the office work for H. H. Stephens and Son, extensive breeders of Holstein stock at Locona, Oswego Co., N. Y.

'04 Graduate.—Lewis H. Weld received his A. B. degree at the University of Rochester, his A. M. at the University of Michigan and for the past year has been doing work at Cornell in horticulture and entomology. He has just accepted a position as professor of biology in the Academy of North Western University, Evanston, Illinois.

'04 Special. —Miss Anna M. White has returned to her home at Utica, N. Y. She has always been an interested worker in farmers' meetings and is introducing many ideas in the management of the Whites' city home, and of their country place a few miles out of Utica. Miss White's brother, Mr. W. Pierrepont White, is secretary of the Good Road League of Oneida county, and is one of the most active agitators of good roads in New York State.

'04 Winter.—F. B. Sawyer is dairy and poultry manager on the Marion-Story farm at Port Chester, N. Y.

'04 Winter.—William Hoagland is on the old homestead at Marion, N. Y.

'04 Winter.—O. W. Hill of Webster materially helped the Countryman by sending us information about several of his classmates. He will be present at the next meeting of the Experimenters' League.

'04 Winter.—J. H. Reeves, Newark, N. Y., feels well repaid for his time here last winter. He also will come to the next meeting of the Experimenters' League.

'05 B. S. A.—Euclides Fagundes, who last June returned with his two brothers to his home in Brazil, has decided to remain in South America this winter on account of his father's poor health. He will assume active charge of their estates in Sao Paulo. Adalberto Fagundes, '06, D. V. M., is again back at the University.

Ex. '06.—J. S. Frazer paid the University a short visit last month. We regret to say that Frazer will not be with us this year, as he will manage the Glen Cliff Farm, Nashville, Tenn. Glen Cliff Farm comprises nine hundred acres of the finest farm land in Tennessee, and boasts a herd of two hundred and fifty cattle, headed by the famous Jersey, Rioter's Exile of S. Lambert. We are sure that all will join the "Countryman" in wishing Frazer the best of success.

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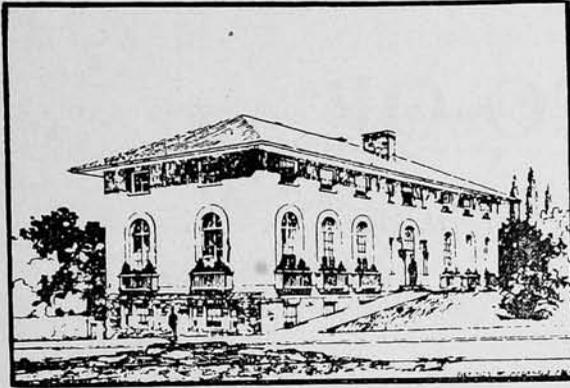
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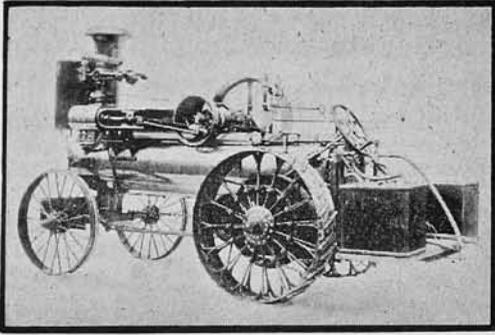
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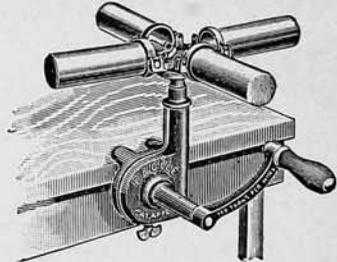
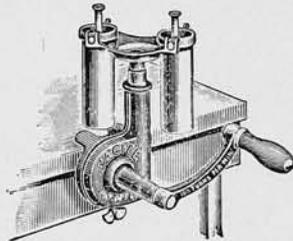
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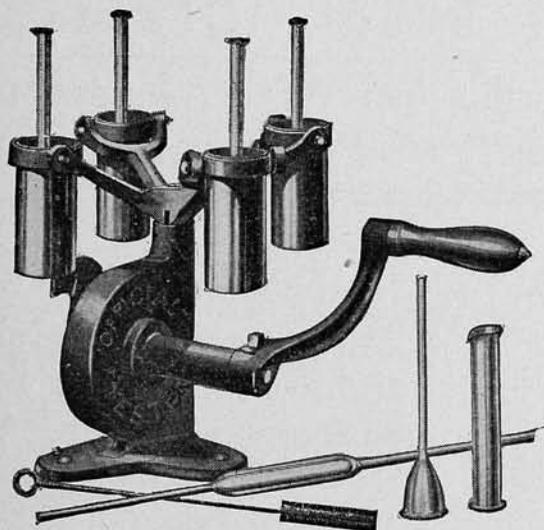
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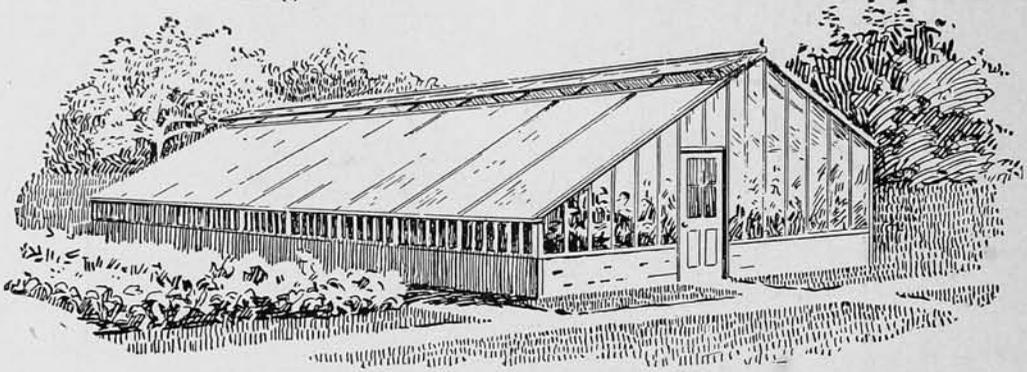
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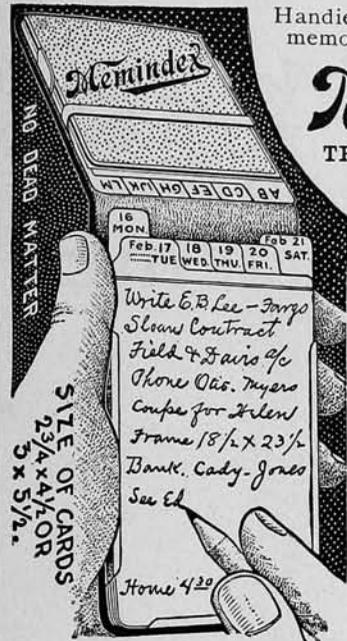
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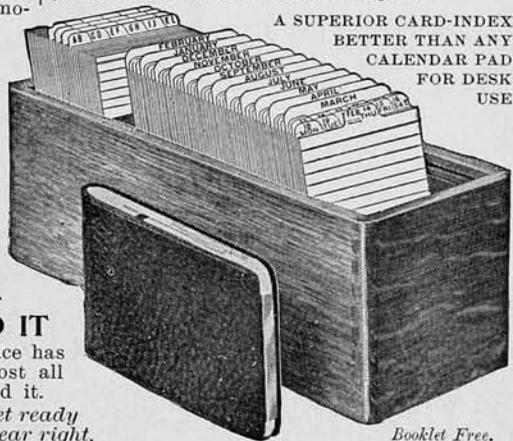
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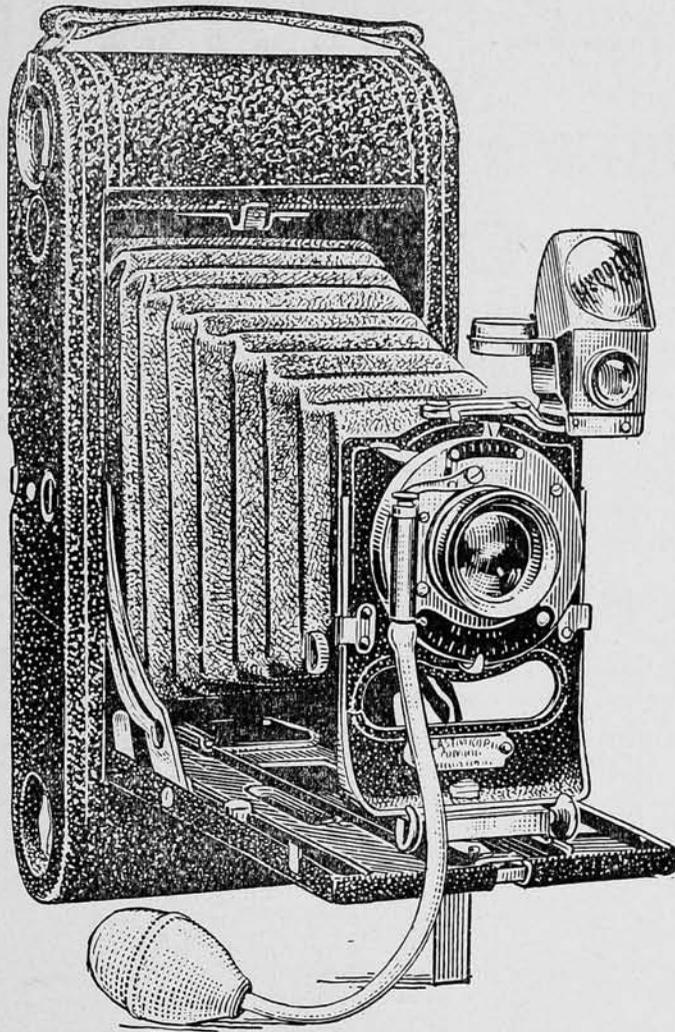
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| | Silver Medal—F. L. Odell, Greenfield, Iowa, | 98 1/4 |
| | Wis., Silver Cup—F. W. Huth, Troy Center, | 97 1/4 |
| | Ill., " " Ernest Johnson, Hebron, | 96 3/4 |
| | N. Y., " " Geo. Martin, Adams, | 96 1/2 |
| | Minn., " " W. F. Stahman, Loretta, | 96 1/3 |
| | Mich., " " F. E. Stafford, Vicksburg, | 95 1/2 |
| | Ind., " " J. M. Halderman, Plymouth, .. | 95 1/2 |
| | S. D., " " O. C. Beck, Kidder | 95 |

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|----------|---|-----|
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| REID | - | 7 |
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| JUMBO | - | 1 |
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THE CORNELL COUNTRYMAN is an Illustrated Monthly Magazine, published by students and graduates of the Cornell University College of Agriculture.

MANUSCRIPT for publication should be received by the 10th of the month preceding that in which it is to be published.

SUBSCRIPTIONS, \$1.00 per year, 10 cents per copy. At the expiration of each Subscription, notice and renewal blank will be enclosed. In order to insure renewal remittance should be made before the publication of next issue.

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A COUNTRY ROAD—BEFORE IMPROVEMENT



Courtesy of H. I. Budd, Trenton, N. J.
THE SAME—AFTER IMPROVEMENT

THE CORNELL COUNTRYMAN

VOL. 2.

DECEMBER, 1904

NO. 3

\$50,000,000 FOR ROAD WORK IN NEW YORK STATE

By W. Pierrepont White of Utica, N. Y.

*Chairman of the Executive Committee of the Supervisors' Highway Convention, Representing
350 Delegates from 58 Counties*

THE State of New York is confronted with a very serious proposition. The policy of the State for years past has been the development of through transportation by the spending of state money on the canals and the granting of franchises to steam railroads until this policy has concentrated in cities of New York and Buffalo 85 per cent of the taxable values of the state.

Canals and roads are of equal importance in developing the commercial supremacy of the state.

The one sided policy of developing through transportation, while it has made New York city the money centre of the world, has just as absolutely and literally starved the farming communities of the state by carrying past their doors the farm products of the west to feed the citizens of New York city and left the farm products of the State of New York, either undeveloped or rotting on the ground for lack of cheap transportation to our present shipping centers.

The Federal census shows that the State of New York, during the year 1890 to 1900, fell from third to fourth rank in agriculture in the Union, and that the farms, fences and buildings depreciated \$70,000,000. This shows plainly how rapidly this one sided policy of the development of through transportation has destroyed our farm values.

This same condition of shrinkage of farm values might have occurred in all the states adjoining New York, but the Federal census shows that New York and Pennsylvania were the only two states that decreased in value during this period and that Mas-

sachusetts increased 23.7 per cent. This immediately starts the inquiry why has Massachusetts, which is not an agricultural state as compared with New York State, increased its farm property \$35,000,000 in ten years, while New York State decreased its farm property \$70,000,000 in the same period. Is it because Massachusetts has improved its highways and commenced the development of a park system and made the country accessible and attractive for people to dwell in? And this condition of affairs confronts us with the following inquiries.

Which is the most important to the commercial supremacy of New York State?

The spending of \$100,000,000 on the canals to cheapen through transportation of farm products from the west;

Or the spending of \$50,000,000 on our highways to develop values in our own farm lands, and to bring our own farm products to our own markets?

The cities want canal improvements and the farm owners want road improvement and the Empire State is able to give both without a burdensome tax rate.

It is beyond the question of a doubt that street railways create values in cities, villages and in the country on account of rapid transit, and it is equally beyond question of a doubt that a system of improved highways creating rapid transit for the country would create values in the rural districts.

\$1.25 will haul a ton 5 miles on a common road.

\$1.25 will haul a ton 25 miles on a trolley road.

\$1.25 will haul a ton 250 miles on a steam road.

\$1.25 will haul a ton 1000 miles on a steamship.

Now to get at the situation desired to be reached in New York State, remember that on a well made stone road \$1.25 will haul a ton 12 to 15 miles in the United States, or for less than one half the cost of our present dirt roads. England and Wales expend annually \$20,000,000 on their highways, while France expends \$37,500,000.

There are 28,126,393 acres of land in New York State that are assessed for taxation. Should the creation of an intelligent road system and the improvement of our present highways add \$10.00 an acre to the value of this land, it would increase the State assets \$381,263, 980.

HIGBIE-ARMSTRONG BILL

The improvement of public highways under Chapter 115 of the Laws of 1898 provide that the main highways may be designated by the Board of Supervisors in each county for improvement subject to the approval of the state engineer, and that the cost of the improvement would be paid 50 per cent by the state, 35 per cent by the county and 15 per cent by the town according to the mileage built in each town.

The following table shows the progress of the work during the past six years :

| YEAR | Total State appropriations | Total Appropriations by counties | Total mileage covered by first Petition | Total mileage of roads adopted by counties | Total mileage of completed improved roads |
|------|----------------------------|----------------------------------|-----------------------------------------|--------------------------------------------|-------------------------------------------|
| 1898 | \$ 50,000 | \$ 68,872 | 505 | 21 | 0 |
| 1899 | 50,000 | 42,876 | 157 | 9 | 5 |
| 1900 | 150,000 | 431,227 | 155 | 130 | 35 |
| 1901 | 420,000 | 1,055,874 | 495 | 247 | 20 |
| 1902 | 795,000 | 1,748,115 | 1,106 | 418 | 126 |
| 1903 | 600,000 | 2,198,623 | 1,728 | 427 | 112 |
| 1904 | 1,106,507 | | | | |
| | <u>\$3,171,507</u> | <u>\$5,540,587</u> | <u>4,143</u> | <u>1,252</u> | <u>298</u> |

All of the counties of the state on the first of January, 1904, with the exception of Alleghany, Franklin, Schoharie, Schuyler, Tioga, Wayne and Wyoming, had filed petitions re-

questing road improvement under this act. Twenty-seven counties had 500 miles of highway finished or under construction at the cost of about \$4,000,000 and thirty-five counties had appropriated \$3,557,285 as their half of the cost of from 2 to 96 miles in their respective counties, and 50 counties had petitioned for the improvement of 4,143 miles of highway throughout the state.

SLOWNESS

So great is the demand and so slow the completion of the work, the state having been six years in completing 300 miles of highways and the counties having petitioned for 4,143 miles for immediate attention, that it became evident that a plan must be devised by which the situation throughout the state could be handled intelligently, and the Supervisors Highway Convention in 1903 laid out the following plan in the following language, adopting the report of its committee :

"Your committee believe that it will be advantageous to the interests of the State of New York to lay out a positive and definite line of action in regard to road improvement for this State. We believe that with such a plan outlined and brought to completion that the returns in increased values to the farm lands through accessibility and through cheapened transportation of farm products, would add largely to the value of real estate throughout the entire State.

The State of New York contains 50,000 square miles of area, and this is made accessible to its people by 74,097 miles of dirt highways, 8,114 miles of steam roads, 1,618 miles of electric trolley roads, mostly in use in the cities and about 522 miles of canal, and over this system of dirt highways, steam roads and waterways, the entire commerce of the state is carried. The steam roads and electric roads are maintained and operated by private corporations, the 522 miles of canal are maintained by the state at an expenditure of about \$2,000,000 annually, while the 74,097 miles of high-

way are practically without state maintenance and without a state policy for development and improvement.

Your committee believe that the State of New York should expend sufficient money to thoroughly construct and maintain 10 per cent of the entire highway mileage of the state, being the main market roads, which would call for the state building approximately 7,500 miles of highway, leaving the remaining 66,597 miles of dirt roads to be maintained

the Higbie-Armstrong Act of approximately \$53,000,000, an amount much less than is suggested for the improvement and enlargement of the Erie Canal.

Your committee believe that the Erie Canal has fostered the great commercial interests of the state and created immense values in the cities, and we believe that the expenditure of \$50,000,000 on the highways of the state would more than compensate the state for the expenditure



Courtesy of the Horticultural Department, Cornell University
A ROAD IN THE PROCESS OF CONSTRUCTION

by the counties in which they are situated.

Your committee believe that the 7,500 miles of state roads should be laid out so as not only bring about continuous stretches of improved way from one end of the state to the other, but to primarily bring produce from now inaccessible parts of the state to the shipping centers. Such a policy as this would call for the expenditure of probably less than \$7,000 a mile for the 7,500 miles to be improved, and would call for a total expenditure on the part of the state, counties and towns, as provided by

incurred. An increase of one dollar an acre in value for each of the 21,961,552 acres of farm lands would make an increased value on state property of \$21,961,562."

In order to carry out the plan as adopted above it was necessary to amend the Constitution of this state.

PASSAGE

This amendment must be again passed by the Legislature for 1905 and then submitted to the voters in 1906.

POSSIBILITIES

Under the foregoing Constitutional amendment it will be possible, by

the enactment of the statutes made possible thereunder, to thoroughly construct at least one mile in every ten of all the highways in every county in the state, so as to have a state system of 7,500 miles of road, so laid out by the local board of supervisors in each county as to bring about not only continuous stretches of improved highways from one end of the state to the other, but to primarily bring produce from now inaccessible parts of the state to the shipping centers. These roads can be built of gravel or macadam or any other suitable material, at an expenditure of not more than \$7,000 a mile, or a total of \$53,000,000 for the entire highway system of 7,500 miles, and the same could be paid for by the issuing of bonds under the Constitutional amendment, not in excess of \$5,000,000 of bonds in any one year, so that at the end of ten years from the beginning of the work every county in the state would be enabled if it so desired, to have one mile in every ten of all the highways built and completed within ten years from the beginning of the work; and this irrespective of the assessed valuation of the county. The roads could be paid for when the bonds were issued, 50 per cent or \$25,000,000 by the state at large, 35 per cent or \$17,500,000 by the counties receiving the roads, and 15 per cent or \$7,500,000 by the towns in which the roads are built, according to the cost of the roads in each town.

ADVANTAGES

This proposition is particularly advantageous to the counties and towns because there would be no bonding on the part of the towns and counties for the building of these roads, and they would be charged annually by the Comptroller of the state with an amount equal to 3 per cent interest and a 2 per cent sinking fund on the cost of the roads in the respective counties and towns. In other words if the road cost \$8,000 a mile the state would pay \$4,000, the county \$2,800 and the town \$1,200, and for the \$3,-

000 the entire cost of the one mile of road, state bonds would be issued payable in fifty years at 3 per cent interest and a 2 per cent sinking fund. The state would pay the first year 5 per cent. on \$4,000 or \$200, the county would receive notice from the Comptroller to increase its tax levy \$140 for this one mile of road, which is 5 per cent interest and sinking fund on 35 per cent of the total cost of \$8,000 per mile, and the Comptroller would also notify the county to collect from the town \$60, being 5 per cent interest and sinking fund on 15 per cent of the entire cost of one mile of road to the town.

MISMANAGEMENT

Those interested in the good roads work are fully aware that both under the money system and under the Higbie-Armstrong bill there will be some inefficiency of work, due to the fact that the highway commissioners and road engineers are inexperienced, and call particular attention to the fact that as a general rule and that as a general proposition there is nothing intentional on the part of the highway commissioner or the road engineer in omitting from the work of road construction and maintenance any element which will tend to make the best roadways possible; but that when the people of the State of New York as a unit are calling for a change of the road system from the conditions which have existed during the past hundred years, to having a new and better system, that they must carry in mind these facts: the total mileage of the state of New York is 74,097 miles, a distance equivalent to three times around the earth at the equator, and out of this total mileage they are separating a system of 7,500 miles of highway to be built with gravel or macadam in this state, and this system is equivalent in length and importance to the entire steam railroad mileage of the state, in which are engaged thousands of men, hundreds of sections bosses and hundreds of engineers. When we come to look at the experience of the steam roads

in building and re-building their roads as private corporations, and know that each time that they made a mistake it has cost them money, and to correct the mistake they got out and built again until we see that they passed from a 20 pound rail to a 120 pound rail, and from a three car train to a 150 car train. When these facts are before us we can understand that when we, as a state, take up the question of road improvement we will undoubtedly have mismanagement from inexperience, and we must therefore, have some leniency when errors in judgment are made, as they are simply the foundation for better work in the future.

The development of our highways is a question of the greatest commercial importance affecting the transportation of the farm products of this state, and it is of as much importance to the interests of the state of New York to spend the necessary money to develop a system of improved highways in this state as it is to spend \$101,000,000 on the Erie Canal to cheapen transportation on railroads controlled by corporations.

There is no question of doubt but that the improvement of our highways would bring to the state of New York increased farm values just the same as paving streets brings increased values to city property.

DUTY OF THE STATE

It is the duty of the state to levy its taxes and expend its revenues so as to equally develop the interests of all classes. It is a crying crime that the transportation question for the ag-

ricultural interests of the state have been neglected so many years and no effort made on the part of the state to develop them.

FUTURE

The completion in the next ten years of these plans will not only restore to the farm lands values, which in the past ten years have shrunk \$70,000,000, but will bring the State of New York up to the second place in agriculture among all the states in the Union. In addition to that it will bring to the State of New York immense numbers of summer visitors from other parts of the United States and from Europe, to enjoy our delightful mountains, our river scenery, our interior scenery and good air. With this expenditure for roads the state is on the verge of the most prosperous era that has ever come to it, and there will be an equalization between the values in the country and the city which will be simply stupendous. The total number of acres of land in the state is 32,000,000, and the increasing of the value of this property \$10 an acre would create the stupendous sum of \$320,000,000.

There is no other recognized method of equalizing the values so that the cities and country districts shall bear their proportion of taxes, except by the cities joining in the cost of the road construction and the creation in this way of immense values throughout the entire state, and in return cheapening the cost of transportation of farm products to the city consumer.

AGRICULTURAL ARGENTINA

By *M. Quiroga, Grad*

AN idea of the potentiality of Argentina is afforded in a statistical pamphlet issued by the Argentine Commission at the St. Louis World's Fair. Very valuable graphic charts are offered as illustration. They are credited to Mr. Ernesto Nelson, a friend of Cornell,

who delivered an interesting lecture on Argentina before the Lazy Club at the beginning of the present calendar year.

The land surface of Argentina is 730 million acres. Sixteen million acres are under grain, while the surface suitable for cultivation, in round

numbers, is about 250 million acres. The increase in cultivated area from 1860 to 1890, if compared with that of other agricultural countries, is remarkable.

The following comparative table gives a suggestive account of this relation:

| Countries | 1860 | 1880 | 1890 |
|---------------|------|------|------|
| Argentina | 1 | 3.5 | 16.8 |
| Australia | 1 | 3.3 | 12.2 |
| United States | 1 | 1.8 | 4.4 |
| Canada | 1 | 1.3 | 3.7 |
| Brazil | 1 | 2.0 | 3.0 |
| Algeria | 1 | 1.2 | 1.3 |
| Egypt | 1 | 1.3 | 1.5 |
| Europe | 1 | 1.16 | 1.24 |

The 7,500,000 acres which were under cultivation in 1890 have been increased to 23,500,000 in 1903.

The increase in value of agricultural products from 1887 to 1903 is great. The value of grain increased from 40 millions in 1887 to 160 millions, green crops from 35 to 100 millions, garden products from 10 to 15 millions, dairy from 20 to 25 millions, meat from 30 to 60 millions and sundries from 70 to 100 millions. The production per capita increased from \$67 in 1887 to \$94 in 1903.

The actual production of meat is 533,000 tons. This number can possibly be increased to 2,500,000 tons. The 195,000 tons of mutton production may be increased to 2,200,000 tons. The butter export of Argentina in 1895 was 1,000,000 pounds, 2,600,000 pounds in 1899, being increased in 1903 to 11,725,000 pounds.

The growth of Argentina wool export in twenty years is also immense.

In 1883 the export was 257 million pounds, 268 millions in 1893 and 457 million pounds being the report for 1903. The increase of agricultural capital in million dollars is nearly double that recorded seventeen years ago. The 555 million dollars capital recorded in land in 1887 have been increased to 1250 millions in 1903; 245 million dollars in cattle to 500 millions; and for sundries the record is increased from 85 to 300 millions dollars. The rate of increase per capita is nearly double also. In 1887 it was \$220 and \$410 in 1903.

The profits of capital invested in agriculture in Argentina are 25 per cent higher than those recorded for the United States which are 19 per cent. The profits of Australian capital invested in agriculture are 1 per cent less than those for the American capital.

The inducements to investors in agriculture in Argentina are great and promising for large as well as for small capital. Alfalfa and other grasses are grown on a large scale, practically free from expense. Grass is sown at the same time with wheat, linseed and oats. In many places the live stock is raised and fattened on irrigated alfalfa fields which on every 25 acres support for breeding purposes from 20 to 60 cows or for fattening 20 to 30 bullocks.

In general, the economical conditions of the country are not only favorable but good. The imports and exports of Argentina for 1903 amounted to \$352,000,000, an average of \$70 a head—unequaled by any other country.



REMINISCENCES OF NEW ENGLAND LIFE AND AGRICULTURE

By T. S. Gold.

Formerly Secretary of the Board of Agriculture, Conn.

THIS subject is so broad that I must confine myself to one condition or feature of Rural Life.

Since people many years ago were dependent upon wood as the only source of heat for warming houses and cooking, though there was every stage from profusion to scarcity, results were the same in general, differing only in degree. Hence this feature in the first half of the last century with its effects upon family and social life will be my subject leaving for the present the more obvious changes in all departments of husbandry, though each branch would merit our attention and prove worthy of consideration as each contributed its share to the progress of humanity. My memory covers three quarters of the last century, and I was conversant with those who were active in the previous one.

Wood was the sole article of fuel in the country. Coal was introduced into New Haven between 1830 and 1840. At that period Professor Olmsted of Yale invented his stove for burning coal, and Dr. Nott, president of Union College, invented one also. Both stoves were named after their inventors and became very popular for their special uses.

In 1816 my father was at the Yale Medical School and boarded with a respectable family in moderate circumstances. In cold weather in the morning the old gentleman would place two sticks of green wood over the andirons in the fire-place with coals from the kitchen which he would blow into a flame, and after breakfast would pull them apart and let them rest until noon when he would repeat the operation, and again at evening, when at last the sticks were allowed to burn up. This was close economy to the youth from these forest clad hills, where "a man was fam-

ous according as he lifted his axes against the thick trees."

Country houses were so constructed that the back log could be drawn in by a horse, attached to it by an iron dog (a wedge with a ring in one end for a chain) driven into the end of the log. These logs from four to eight feet long often lasted several days together with the top back log and fore sticks. The fire places were large enough to accommodate these logs, also the frying pan, the peel or long handled shovel, the stout crane with its hooks and trammels, and that household friend the "warming pan." Here too was a safe storage place for articles easily frosted, and a snug retreat for the children.

A description of the old fireplace would be incomplete without naming the old three gallon dye pot for indigo blue, used for dyeing wool for clothing, mittens and stockings. This earthen pot with its wooden cover was often used as a seat, and an occasional calamity resulted when from some cause or other it was upset, incurring not only the loss of the costly dye, but also an intolerable odor, the removal of which put to the test the draught of the big chimney. These incidents seem trivial to us but we cannot without some knowledge of them judge of the condition of life of our ancestors.

During the early part of the last century Franklin stoves were generally introduced for the sitting room, and offices, and cooking stoves for the kitchen. Various new patterns have been patented, but in general the old style ones still hold the ground in rural districts.

By the side of the great fire place was the big oven of brick and stone. According to memory and abundant tradition this could bake bread or pies, roast a pig or turkey as well or better

than any modern oven. Supplementary to this was the bake box of cast iron, nearly two feet in diameter and eight inches deep with a cast iron lid. When its contents were ready for baking it was covered up in the hot coals under the fore stick and in due time never failed to do good work, but it was a strain on the judgment of the good housewife, sometimes compelled to stand against the impatience of the children or the suppressed impatience of guests, when from necessity the meal was delayed. But it was a good worker and "peace to its names." For a competitor try roasting potatoes, white or sweet, or an egg in the hot embers in an open fire place or stove, first wrapping the egg in wet paper.

The direct rays of the sun give the most vivifying heat. The half frozen lamb or the half drowned chicken feels that reviving power. Next to this comes the radiant heat from a blazing wood fire. Even the little smoke escaping into a room from an open fire, though it is an annoyance to the neat housekeeper, is a most valuable disinfectant, and no system of ventilating a sick room is better than the simple one of an open wood fire drawing from every nook and corner all the poisonous germs, and not only removing them but most effectively destroying them.

Then the old fire-place, if it did not itself teach "manners," was a royal good place for testing them. "Don't go before the fire." "Don't stand before the fire," i. e. when others are sitting by it, taught every child in a plain way to regard the rights and comforts of others.

The one great fire that at the same time cooked the food and gathered the family around it for warmth, secured familiar social intercourse with a bond never exercised by radiators and steam pipes.

The news in the city papers that some of the schools were closed on account of the recent cold snap, and the great inconvenience to persons who select furnace heat in their dwellings

and offices as the sole source of warmth, even when there is not a strike at the coal mines, reminds us of the independence of the farmer with forest growth to supply all his wants for timber and fuel—an independence we say that more than compensates him for the lack of a furnace heater, however well it may perform its duty. What could compensate us for the loss of the companionship of an open wood fire, brought up to it as we were, with all our memories of home, parents, brothers, sisters and friends gathered about it. When the shades of evening are falling and we rest the eyes as well as the body, and watch the ascending smoke and the blaze, and later as the brands lie on the hearth and the ashes cover their glowing coals, then is a time for meditation profitable for mind and heart. This is the time for the farmer to study the burning qualities of different varieties of wood, for he can make a crackling fire that can be heard all over the house, or he can make a quiet fire that will never make a sound. He can test green wood and dry; he can build a quick fire or a slow one, or one that is long enduring, lasting even for days without replenishing. The covering up at bedtime is no task but a pleasure. The ashes are carefully distributed over the coals and burning wood at just the right time, and in the morning there is a nice bed of coals.

Then there is food for thought as an ancestral house or barn is worked up into fire wood, or, as an old apple tree or hickory that has sheltered or fed six or seven generations of our kin, lies burning on the andirons. Is not this the time for memories, reminiscences of wasted opportunities, of joys and sorrows, of thankfulness for past mercies and blessings, and for reviving faith and hope for the future?

I am reminded that an open grate for coal is a near relative, and "most as good" as an open wood fire. I have been in the habit of stopping at a somewhat old fashioned hotel in one of our cities, which has a few rooms

heated by open grates, and as the oldest guest, the landlord, at my request, allowed me the occupancy of one of those rooms. It must have been a great necessity for privacy that would have induced me to invite a friend to my room if heated by a steam pipe, but when I could offer an open grate even with coal I was gratified at the oft expressed pleasure of my guests as we sat before the fire.

We had no matches in early days, so when the fire failed to burn, the tinder box with flint and steel was

the usual resort. I carried with me to Yale in 1834 the identical tinder box that my father had used twenty five years before. There I found lucifer matches in recent use and the tinder box no longer needed was lost. It was a custom when one's hearthstone retained no spark to beg or borrow fire from some more fortunate neighbor, one of those little dependencies and obligations that served to promote harmony and good-will in a neighborhood.

DEATH OF WILLIAM D. BARNES OF MIDDLE HOPE, N. Y.

By John Craig

Professor of Horticulture in Cornell University

ON the morning of Tuesday, Oct. 18th, there passed away at the Barnes' homestead farm at Middle Hope a progressive fruit-grower, a staunch citizen and a good man. William D. Barnes was known to a number of the members of the present graduate and undergraduate classes of the College of Agriculture through his brief visit to Cornell last winter, at which time on the spur of the moment he gave an informal address on fruit-growing to the members of one of the advanced classes in horticulture.

Mr. Barnes was closely indentified with intensive horticulture for more than thirty years. His farm at Middle Hope, near Newburgh on the Hudson, stands today as one of the best illustrations of intensive cultural methods that is to be found in that region. He has been noted for many years as a specialist in grape-growing, peach-growing and general small-fruit culture. His receipts from his ninety acre farm were probably as large as those secured by any other grower working an equal extent in the Hudson River region.

He was an active member of the local horticultural society, the Western New York Horticultural Society and was one of the organizers and promoters of the Eastern New York

Horticultural Society. Governor Odell recognized his ability by appointing him as a delegate from this state to the National Farmers' Congress, and Governor Flower made him a member of the Board of Control of the New York State Agricultural Experiment Station. He was prominent as an institute speaker, and as an authority on horticultural matters was much in demand at horticultural conventions and institute gatherings.

Mr. Barnes was the descendant of a family which has been long and honorably indentified with the history of the eastern states. His immediate ancestors settled on Long Island early in the eighteenth century. He was the son of Nathaniel Barnes who came to Middle Hope in 1829. He leaves a son, Edwin W., in charge of the homestead and a grandson much interested in fruit culture and one who, if spared, will in time continue the family on the ancestral estate. Mr. Barnes was particularly interested in educational matters and it was a special delight to him at all times to help young men. His place in fruit-growing circles in the eastern part of the state cannot be filled, and his memory will be pleasant to recall in the minds of hundreds of his fruit-growing friends who have either known or heard of him at home or abroad.

The Cornell Countryman

C. S. WILSON, Editor

| | | | |
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 DECEMBER, 1904

Students Classified According to Countries

Of the 178 undergraduate students registered in the College of Agriculture at Cornell University 79 reside outside of the State of New York. Twenty-nine, or about one in six, come from foreign lands.

In addition to the Philippine and Hawaiian Islands, sixteen foreign countries are represented and twenty states and territories besides the State of New York have furnished one or more students. The following table shows the registration of the undergraduates according to different countries:

| | |
|--------------------|-----|
| New York | 99 |
| Other States | 50 |
| Argentina | 3 |
| Austria | 1 |
| Brazil | 3 |
| Bulgaria | 1 |
| Canada | 3 |
| China | 2 |
| Cuba | 1 |
| England | 2 |
| France | 1 |
| Germany | 2 |
| Hawaiian Islands | 1 |
| Japan | 1 |
| Mexico | 1 |
| Nicaragua | 1 |
| Peru | 1 |
| Philippine Islands | 2 |
| Roumania | 2 |
| Sweden | 1 |
| Total | 178 |

To the Young Men on the Farm

During the last few years I have made it my business to associate with as many Wintercourse men as possible. I think I understand fairly what they expect to find, how they obtain results beyond their expectations in some cases, how they are disappointed in others, to see however in later years that those things which appeared unnecessary to them, were really the essentials. Having gone through the same process myself, coming fresh from the farm, looking at things from a practical point of view, I want to say this:

1. No young man on the farm to-day will be able to compete successfully without the study of the principles underlying agriculture.

2. The money invested in a wintercourse in Agriculture, invested by a young man with lots of common sense, doubles itself, and far more, during the first year.

3. The various influences of study, reading, friends, teachers, men will open a new world to you.

4. While you can obtain any single one of these points by work and study at home, you cannot obtain all of them there.

5. You have to get away from home to show the stuff that you are made of, at home.

6. These points are the results of conversations with many wintercourse men who have gone back to the farm and of a scrutinizing judging of their success in practical life.

C. B.

Cornell Wintercourse In Agriculture 1905

The registration in the Wintercourse for the winter 1905 shows the same remarkable increase which manifested itself in the

entrance of regular and special students in Agriculture in the University. There have registered so far and are accepted:

| | |
|----------------------------|-----|
| Poultry Course | 11 |
| Dairy Course | 90 |
| General Agriculture Course | 34 |
| Total | 135 |

The registration of students in the General Agriculture course is usually delayed up to the last minute, and to judge by the precedent of former years we may surely expect to have here on January 5th a contingent of:

| | |
|----------------------------|-----|
| Poultry Course | 18 |
| Dairy Course | 75 |
| General Agriculture Course | 100 |
| Total | 193 |

How Winter-course Men are Reached!

The preparing of agricultural literature is one thing, the skillful distribution of it is another.

How does the extension work reach the men for the Wintercourse? Dr. Fletcher has followed a careful plan of campaign and it may be interesting to know where he finds his students. A leaflet giving a synopsis of the courses offered was prepared, entitled "Opportunities for Young Men." These leaflets were distributed as follows:

To the lecturer of every subordinate Grange with a letter;

Ten to every Farmers' Institute speaker;

To 600 rural newspapers with a press notice;

One to every student in the College of Agriculture, now enrolled;

A letter with two announcements to every former student of the College of Agriculture;

To 2000 Farmer's Reading Course readers, etc., etc.

In addition 5,000 prospectus of the College were sent to Creameries, Granges, etc.

If we have gained 40 per cent in the registration of regular and special students over last year we want a much greater increase from the farm directly. Every additional Wintercourse student in the College represents an increase in the annual value of the farm products of his state.

Agricultural Science Register

The establishment of an Agricultural Science Register is being agitated by the Office of Experiment Stations of the United States Department of Agriculture. The purpose of such a register is to gather together reliable data regarding the principal facts in the life and official work of all the men engaged in instruction and research in agriculture and the related sciences in the United States. When such data are classified and arranged in card catalogue form, they will furnish ready information concerning men who are being considered for appointment to positions in the Department, and in the agricultural schools, colleges, and stations, in the different States. It will also furnish definite information to the Department regarding men engaged in the agricultural institutions of the country who may be needed for making up articles for the Experiment Station Record, and in preparing articles for other Department publications.

Letters have already been sent out to the different agricultural institutions and experiment stations enclosing blanks asking for such data as name, age, address, education, experience, present positions, particular

qualifications along special lines, titles of all publications and names of persons for references. Dr. True realizes that the value of such a catalogue will depend almost entirely upon the extent to which those eligible to registry avail themselves of the privilege, and

therefore asks all to co-operate and furnish as complete information as possible. It is intended to ask for corrections in the register at intervals of one year, but changes will be welcome at any time.

GENERAL AGRICULTURAL NEWS

The annual meeting of the Association of American Agricultural Colleges and Experiment Stations was held at Des Moines, Iowa, November 1st to 3rd. The meeting was largely attended, nearly every state being represented. Many questions of public and educational policy came up before the Association. The full Association meets in the morning and also in the evening. In the afternoon it divides into two sections, one representing College work and the other Experiment Station work. Some of the leading subjects that were discussed were: Military Drill in the Land Grant Colleges; the relations of the Experiment Stations to the Department of Agriculture at Washington; means of extending and popularizing the work of the agricultural colleges; the relation that teaching should bear to experimenting on the part of Experiment Station officers; the teaching of agriculture in the rural schools; whether it is within the province of the "colleges" established by the Land Grant Act to teach elementary subjects as well as those subjects that are now considered to be of collegiate grade; what degrees should be given for work in the Agricultural Colleges.

Two very important matters of legislation are now before Congress, in which the Association is vitally interested. One is the Adams bill for increasing the funds available for the Experiment Stations of the different states; another is the Mondell bill to establish mining schools. The Executive Committee of the Association has these and other important matters in charge. Director L. H. Bailey was

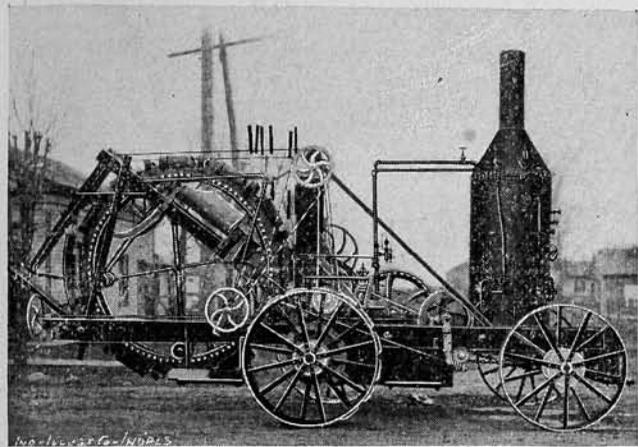
elected a member of the Executive Committee. The other members of the committee are President H. C. White, Georgia, Chairman; Director W. H. Jordan, Geneva; Director C. F. Curtiss, Iowa, and President J. L. Snyder, Michigan.

Director Bailey was made Chairman of the Committee on Graduate Study. This committee has in charge the holding of Graduate Schools of Agriculture. The first of these schools was held two years ago at the University of Ohio, largely under the influence of Professor T. F. Hunt. The committee recommended to the Association that a Graduate School be held every two years at some one of the leading agricultural colleges beginning, if possible, this coming summer, and this recommendation was adopted. The whole subject of the management of these schools was left in the hands of this committee. The committee is now issuing a statement to the agricultural colleges of the country in regard to the advisability of such schools and also in regard to the financing of them. It is felt by the Association that these schools are very important not only because they offer a means of securing additional training, but because they may also serve as gathering places for teachers and experimenters. There is now no recognized gathering place for the officers of the agricultural colleges and experiment stations. It is hoped that arrangements will be made for holding such a graduate school this coming summer. The other members of the committee of Graduate Study are Doctor A. C. True, Washington, D. C., and the Presidents of the Univers-

ities of Tennessee, Ohio, Vermont, Missouri and Nevada.

At the close of the meeting of the Association the delegates visited the agricultural college at Ames, Iowa, and were pleasantly entertained by the institution. The meeting was an earnest and enthusiastic one, and a great amount of public business was transacted.

* * *



THE BUCKEYE TRACTION DITCHER

Professors Roberts and Stone recently made a visit to the Burt Olney Canning Co. of Oneida, N. Y. They report that this company is tilling some seven or eight hundred acres of land in the vicinity of Oneida, growing peas, string beans and garden beets for the canning factory. Among the many interesting things to be seen on this farm one deserves special mention as it is probably the only one of its kind to be seen in operation in New York. Reference is made to the Buckeye Traction Ditcher which the company recently secured from The Van Buren, Heck & Marion Co., Findlay, Ohio. This machine may be crudely described as a traction engine upon which is mounted a huge buzz-saw—only the teeth of this saw are adapted to digging in the earth instead of cutting wood and are accompanied by a series of pockets or scoops that gather up the loosened earth and carrying it to the top of the wheel drop it on a short but broad endless belt that conveys it to one side and drops it at the proper distance from the ditch. This machine

digs a ditch about sixteen inches wide, and any depth not exceeding five feet. Grade stakes with "T" heads are set along the line of the drain ahead of the machine which together with a sighting rod attached to the machine enables the operator to keep the bottom of the drain at proper grade no matter what the unevenness of the surface over which the engine passes. A press shoe carrying part of the weight of the machine rests in the bottom of the finished ditch and leaves a crease along the bottom just right to receive the tile. A skilled man with ditching tools could not do so good a job of fixing the bottom. Under favorable conditions the machine is said to open 100 rods of ditch in a day of ten hours. At the time of this visit not more than 60 or 70 rods had been accomplished in a day. Stones, of course, interfere with the work though if not too large to be taken up in the scoops they will be handled all right. When a large stone is struck it must be dug out by hand. The machine promises to reduce the cost of draining on clay soils very materially.

* * *

According to the *Dairy and Produce Review*" an Ohio creamery became entangled in the meshes of the Internal Revenue law concerning adulterated butter. A consignment of 1186 pounds was seized by the revenue officers of Toledo. The charge is "moisture contents above 16 per cent." The fine imposed consisted of a penalty and a fine of 10 cents per pound. The officials of the creamery did not know that they were violating the pure food laws.

* * *

Abdel Hamid Abaza, Egyptian representative to the St. Louis Exposition, who has been making a visit to Washington, does not believe that Egypt is in any wise behind the United States in Agricultural methods. "While you clever Yankees," he said, "occupy the leading position in almost every branch of human progress, I am inclined to think that you

are not the peers of the Egyptians in that most important of all occupations—agriculture. The reason we excel you in this is that we have been at it much longer; for 7000 years tilling the soil has been the chief business of the people of Egypt, but over here farming is still in its infancy. Our dense population forces us to compel the soil to produce to its limit of capacity, while you sow the seed in many places and let the land produce whatever it will. The Egyptian farmer will get four crops in a year from the same land, against one in the United States. In the same field in our coun-

try you will see planting and harvesting going on simultaneously.—“*Country Gentleman.*”

We cannot deny that the Egyptian Commissioner is right in his statement that only the surface of agricultural possibilities has been skimmed in the United States. What does it show?

It shows that compared with all other professions Agriculture today offers the most promising field to the young man with brains, business ideas, snap, training and individual thought.

CORNELL NEWS

CAMPUS NOTES

Two bulletins will come from the Experiment Station this month on entomological problems. Bulletin 223, “The Grape-berry Moth,” by Prof. M. V. Slingerland, and Bulletin 224, by Prof. Slingerland and Fred Johnson. The latter covers:

I. Effective spraying for the Grape-root Worm.

II. A new grape enemy—the Grape Blossom-bud Gnat.

* * *

Bulletin 222 by H. H. Wing and J. A. Foord, “An attempt to increase the fat in milk by liberal feeding.” The experiment was carried on with a herd of 21 native mixed-breed cows, and extended over a period of four years. The rations fed were abundant and rather nitrogenous in character. An increase of one-fourth of one per cent. of fat in the milk (or a percentage increase of 6 per cent.) accompanied by a 50 per cent. increase in the total amount of milk and fat was secured. This increase was secured economically as far as food was concerned.

* * *

Dr. L. O. Howard, United States Entomologist from Washington, D. C., was in Ithaca for about two weeks early in November.

This year there is an innovation in the Poultry Institute. The director is to hold a special three days’ meeting at Ithaca Nov. 28, 29 and 30. The meeting is to be conducted jointly by Mr. Dawley and various departments of Cornell University. Following is the provisional program:

Regular Institute speakers, among whom will appear, Mr. T. E. Orr, Secretary of the American Poultry association; Mr. T. F. McGrew, a prominent poultry writer and judge; Mrs. George A. Monroe, and others.

Assisted by the New York State Veterinary College, Dr. V. A. Moore on “Important Diseases of Poultry;” Dr. Pierre A. Fish, on “Some Points on the Comparative Physiology of Poultry;” Prof. G. S. Hopkins, on “The Embryology of the Egg;” and Mr. W. B. Mack, on “Nature and Treatment of Roup.”

By the Department of Zoology, Mr. C. Bues, on “Poultry Parasites.”

By the Department of Poultry Husbandry, Prof. James E. Rice, on “Some Poultry Problems by Lime Light.” And by short talks from the following poultry students: Mr. J. G. Halpin, Mr. F. G. Thayer, Mr. H. F. Prince, Mr. H. Jennings, Mr. F. H. Ryan, Mr. R. C. Lawry, Mr. C. H. Chapman and Mr. C. A. Rogers.

Dean L. H. Bailey will deliver an address on "The Attitude of Agricultural Colleges and Experiment Stations toward Poultry Husbandry."

All the meetings are free and everyone interested in Poultry is welcomed.

* * *

Publicity in these columns has already been given to the co-operative effort by the American Peony Society and the Department of Horticulture leading towards a classificatory study of the peony. We are informed that the preliminary work has progressed favorably. European peony specialists have become interested and have forwarded important contributions. Thus far collections as follows have been received and planted:

Andorra Nurseries, Philadelphia, 43 varieties.

John Charlton & Sons, Rochester, N. Y., 105 varieties.

DeGraff Bros., Leyden, Hol., 131 varieties.

A. H. Fewkes, Newton Highlands, Mass., 36 varieties.

Jackson N. Perkins Co., Newark, N. J., 41 varieties.

L. van Leeuwen & Son, Sassenheim, Hol., 46 varieties.

Peterson Nursery, Chicago, Ill., 125 varieties.

J. F. Rosenfield, West Point, N. Y., 243 varieties.

W. & T. Smith Co., Geneva, N. Y., 55 varieties.

Ellwanger & Barry, Rochester, N. Y., 63 varieties.

* * *

The students of the Agricultural College have organized a football team this fall. Games have already been played between the regulars and substitutes, and between a picked team and the medical and veterinary colleges. Although defeated, the team has made a creditable showing against their heavier opponents.

* * *

The first meeting of the Poultry Assembly was held Wednesday even-

ing, Nov. 9th, C. A. Rogers in the chair. Mr. Rogers gave a short sketch of the history and object of the society after which Mr. Halpin read a poem entitled, "I love the hen." The constitution was read and a summary of last year's work given by Mr. Robitzer after which Prof. Rice addressed the meeting. After a heated discussion the following directors were elected: Halpin, Thayer, Prince, Kelly, Hungerford, Ryan and Gable.

* * *

Mr. J. S. Cates, B. Agr. '02 M. S. A. '04, from the North Carolina Agricultural and Mechanical College, is with us, and has registered as a candidate for his Ph. D. Mr. Cates takes his work in Agronomy and Animal Industry. For the past two years Mr. Cates has been with the North Carolina State Agricultural Department at Raleigh, N. C.

* * *

Mrs. Nellie Kedzie Jones of Kalamazoo, Mich., formerly teacher of Domestic Science at the Kansas Agricultural College, addressed the class in Home Economics on Nov. 4th and 7th. Her subjects were: "The Relation of Domestic Science to Education," and "The Successful Application of Principles to Housekeeping."

* * *

The university poultry flocks have been materially increased by the addition of about 500 pure-bred white leghorns, which have been raised during the summer. Among these there are some exceptionally fine individuals.

* * *

The office of the Department of Dairy Industry has been moved across the hall to the old Curing Room No. 2, while the Department of Poultry Husbandry has occupied the room vacated by Prof. Pearson. Thus both departments have more office space than before.

* * *

R. S. Northrop, Michigan '01, who came to us a little over a year ago as

instructor in horticulture from a similar position in the South Dakota Agricultural College, has accepted the professorship of horticulture and botany in the Utah Agricultural College at Ogden, Utah.

* * *

Prof. H. H. Wing, Republican, was elected Alderman in the 4th Ward of this city, Nov. 7th, by an overwhelming majority.

FORMER STUDENTS

'98, B. S. A.—D. A. Williston is a practical horticulturalist, landscape architect, and forest engineer at Tuskegee, Ala.

'00, B. S. A.—In *The House Beautiful* for November 1902 is a six page illustrated article entitled "A Den Above a Shop." The designer and owner of the apartments is G. W. Wienhoeber, a successful landscape architect at 415 Elm St., Chicago. The "Den" which is above his father's florist establishment consists of a reception room, studio and two work rooms. All are connected by wide doors and when desired may be thrown into one apartment 64 feet long. The reception room is reached by a winding staircase and an old fashioned door fitted with a Dutch lever door handle. Half of one side of this room is occupied by a large window upon which is an artistic grape vine design. Beneath is a window box full of pink begonias and yellow daisies. The walls are wainscoted to a height of eight feet over which is a dull colored border reaching to a fine beamed ceiling above. The floor is of quartered oak finished off to a light color making a pleasing contrast with the dark paneling and the cabinet chairs and with two heavy tables comprising the furniture of the room. Besides a few nicknacks the chief decorations are pictures of Oxford College and Cornell University. The other rooms differ in detail, but all possess the same spaciousness and simplicity, lending to the whole an air of great comfort and luxury.

'01, Dairy.—James B. Morris after leaving Cornell took charge of the bottling plant on the Thorndale Stock Farms at Middlebrook, N. Y. He remained here for two years and then became manager of the milk department of the Filston Dairy Co., of Baltimore. At present he is manager for the Hygeia Dairy at Mount Vernon Ave. and 27th St., Baltimore. In each change Mr. Morris has responded to an increase in salary. He attributes his success very largely to the start which he got in dairy work at Cornell.

'01, Special.—Louis Moulton is a successful dairyman running a milk route at Cuba, N. Y. We are told that he is a hustler and is giving first-class service.

'02, Winter.—N. D. Wiese, '03 Dairy, stopped a day at Ithaca. Wiese is very successfully managing the farm at the "George Junior Republic" at Freeville, N. Y., and showing his executive ability by working with a contingent of boys. He is just enjoying a well earned vacation after three year's of hard work. Mr. Wiese's youngest brother, who was with us last winter, has assisted him this last season and has charge of affairs during his brother's absence.

'02, Special.—C. C. Cole has an article entitled "An Agricultural Education," in the "Utica Semi-weekly Press" for Nov. 4, 1904. The author contends that although one may be able by general reading and farm practice to get a knowledge of how to perform farm operations, the best place to find out the reason for certain operations is at the Cornell College of Agriculture. A person who knows the reasons for farm operations, he says, will be enthusiastic for the work, and will have such a love for the chosen calling that success will be almost certain and assured. He further says that all persons who attend the agricultural courses at Cornell declare that they are greatly benefitted, and that they find farming a pleasant and profitable pursuit. Lastly he advises farmers' sons who have not decided to what profession they will devote their

attention to stick to the old farm, and if they can afford time for nothing else to take the short courses in agriculture this winter and thus take a greater part than they otherwise could in what has been the greatest occupation and must so continue to be in the future.

Ex.-'02.—Roy L. Lidgerwood entered as a special student in September, 1902, but was obliged to return home at the end of the first week. Since then he has been on his father's dairy farm at Putnam Station, N. Y.

'04, B. S. A.—Archibald Stone spent the summer on his father's farm at Binghampton, N. Y. Toward the end of September he began a milk test at Hamilton, N. Y.; at the end of a week, however, he received word to report at the Exposition at St. Louis for work in connection with the agricultural exhibits in the Educational Building, where he will remain until the end of the Exposition.

'04.—B. S. A.—During the latter part of the summer and early fall G. A. Bell acted as judge of live stock and poultry at several fairs in New York state. Later he went to St. Louis to take up the same work as Stone. Both Bell and Stone were at Des Moines, Iowa, November first, to attend the national convention of the Alpha Zeta fraternity.

'04, B. S. A.—W. F. Fletcher was in town for a few hours on November the eighth. He is working on the orchard investigations under Col. Brackett of the Division of Pomology, Bureau of Plant Industry. Fletcher reports the work as very interesting.

Ex.-'05.—Burton N. Gates is candidate for an A. B. degree next June at Clarke University, Worcester, Mass. He is specializing in biology. Last year he acted as assistant to Dr. Hodge. Gates also intends to take an advanced degree.

Ex.-'05.—Miss Lora T. Keegan has entered upon her second year of teaching at Portland Point, N. Y. As the district is a new one formed only last year, Miss Keegan has had the opportunity of building up the course

of study according to Cornell models. It goes without saying that the new district is a great success.

Ex.-'06.—Gilbert A. Flint, upon finishing his first year at the University, decided to take up practical farming immediately. He is now with his father on their four hundred acre farm at Armenia, Dutchess County, N. Y. On last election day he cast his first ballot for "Teddy."

CLASS OF 1903

Special.—John A. Clark returned to his farm at Bay View, Prince Edward Island. He was engaged in institute work last winter and has now found time for a year of work in the Ontario Agricultural College at Guelph.

B. S. A.—A. W. Cowell, Springdale, Pa., is draughtsman for J. W. Elliot, landscape architect in the German National Bank Building, Pittsburg, Pa.

B. S. A.—E. J. Glasson is on the Dicks Plantation, Diana, Fla. This plantation is situated in the Everglades. Slight elevations are drained by open ditches, the dense vegetation is cut and burned, then the sod is turned with a one horse plow. While the soil is not deep, it is very rich in humus and has a perpetual supply of moisture from beneath. The crops planted are vegetables for the early northern markets and citrus fruits.

B. S. A.—H. A. Hopper has been reappointed assistant in Dairy Husbandry at the University of Illinois. He gives instruction in the university during the early part of the year, and during the remainder of the time is traveling through the state testing herds and giving lectures at institutes. The object of this work is to encourage the farmers to adopt more modern and profitable methods of milk production, and especially to improve the sanitary conditions of the dairy. A large part of the milk produced by Illinois goes to condenseries or is pasteurized and sent to St. Louis.

Special.—J. W. Elston is a New York state milk inspector. His address is Ithaca.

B. S. A.—Geo. H. Merrill is on the old homestead at Hampton Falls, N. H.

Special.—The account of the death of Eben Norton was mentioned in our last issue.

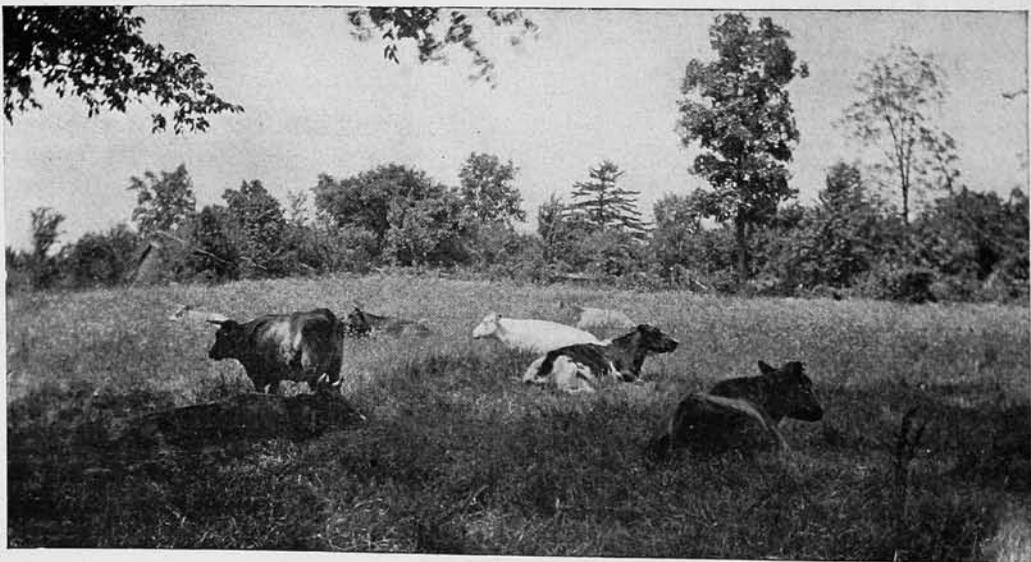
Special.—Miss Maude Palmer was married to Roy Hungerford, '99 winter course, on May 11, 1904. Mr. and Mrs. Hungerford are now living on their farm at Waterburg, Tompkins County, N. Y.

Special.—F. E. Robertson, as overseer of the Empire City Farms at Black Creek, N. Y., is "trying to master the art of pleasing both the employees and the employer." On the farm are one hundred and twenty-five highly bred race horses, fifty Shetland ponies, and a herd of twenty-five cows. Recently the proprietors have purchased McKinney, 2:11 1-4, for \$50,000. Robertson calls him "the greatest living or dead speed-producing sire that ever existed."

Ph. D.—Emil P. Sandsten is at the head of the department of Horticulture, and is also Professor of economic entomology at the University of Wisconsin. Walter Brown, Cornell B. S. A. '04, is associated with Professor Sandsten in the horticultural department.

'03, M. S. A.—John P. Stewart writes us from Normal, Illinois, where he is teaching nature-study and mathematics in the State Normal. Stewart says the *Countryman* comes like a breeze from the old campus and wishes it the highest success.

B. S. A.—George F. Warren came to us from Nebraska, where, after graduating from the university, he had gone into school work throughout the state. He was Fellow in Agriculture last year, received his master's degree in June and is now a candidate for a Ph. D. in horticulture. For the past two summers Warren has been making an orchard survey of Wayne and Orleans counties for the College of Agriculture. Over 12,000 orchards have been personally visited and a great mass of data collected. When these reports are completed some rather startling results may be expected. It is said that the place finds the man. Last year when the *Cornell Countryman* was organized G. F. Warren, editor, and Christian Bues, business manager, were ready for the opportunity. They faced the difficulties of the new enterprise and within six months time had established the paper upon a firm basis and won for it a place in the front rank of college publications. In this connection all *Countryman* readers will join us in a hearty vote of thanks to George F. Warren, first editor of the *Cornell Countryman*.



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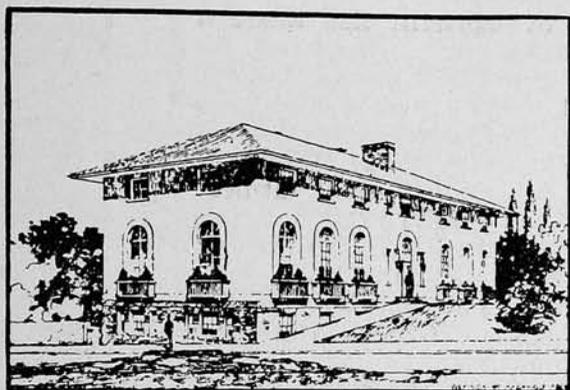
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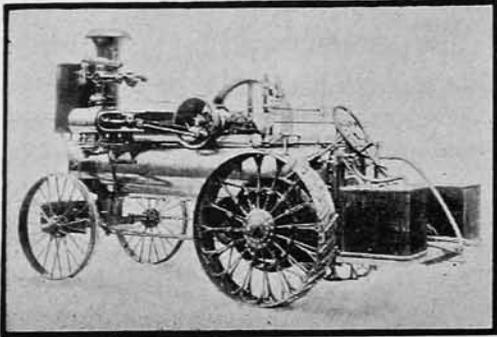
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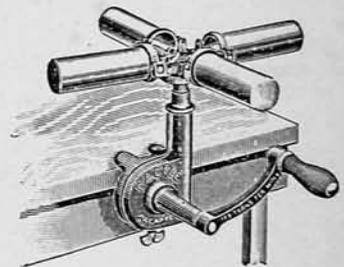
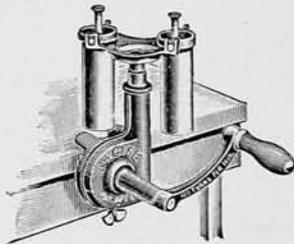
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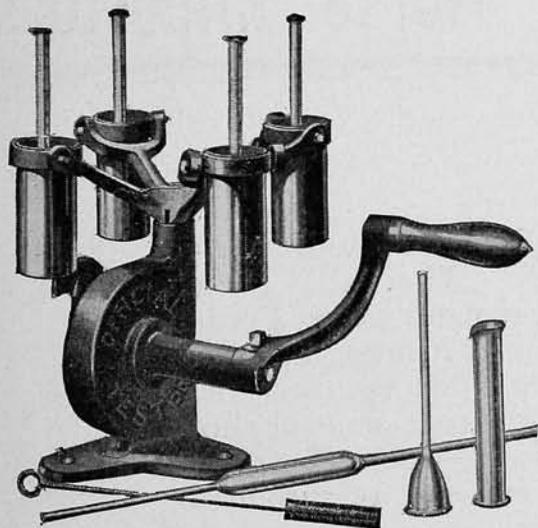
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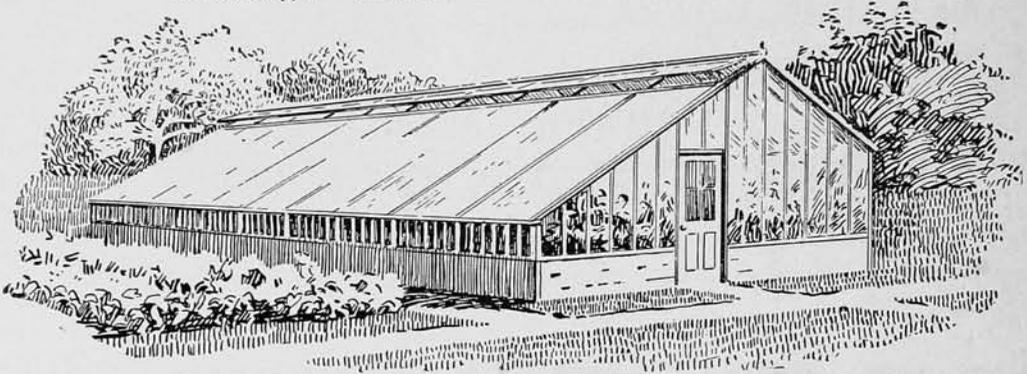
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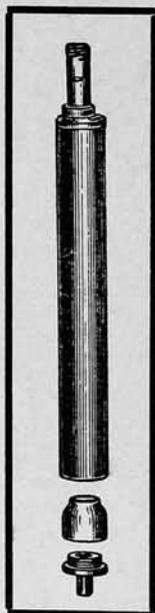
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| Total repairs | Not any |
| Total oil used | Not over 2 quarts |
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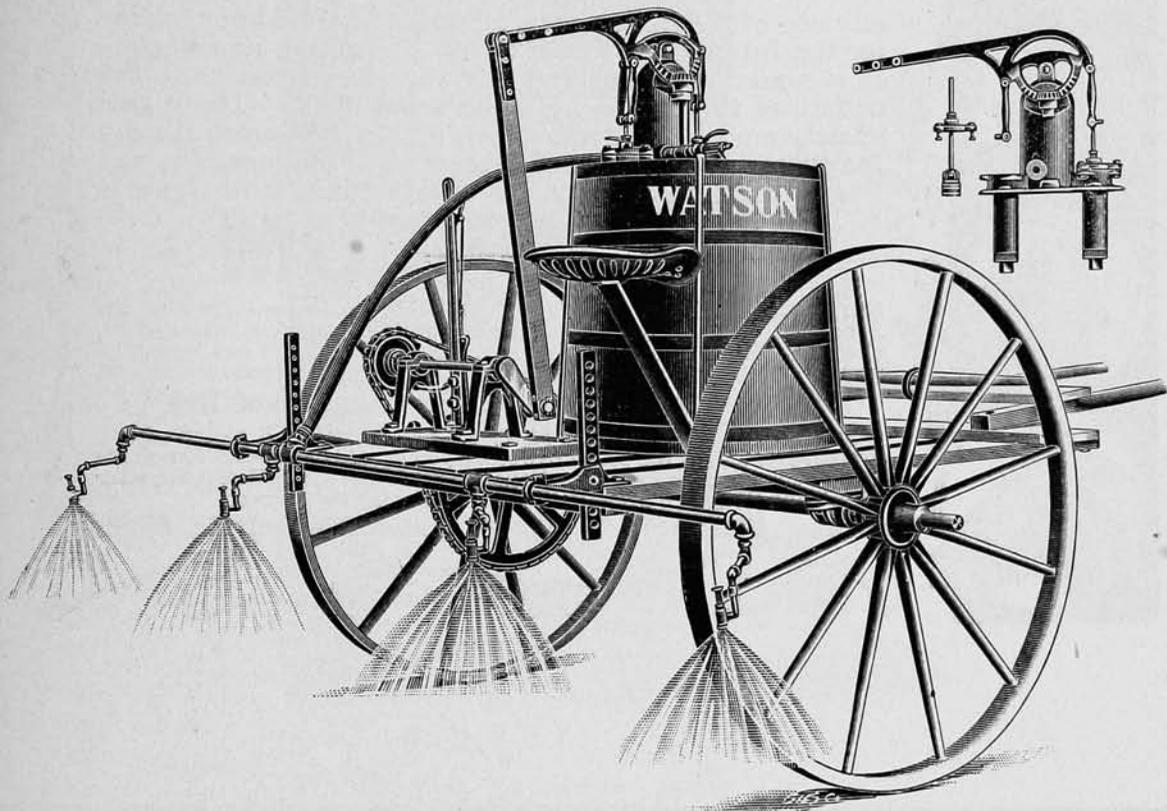
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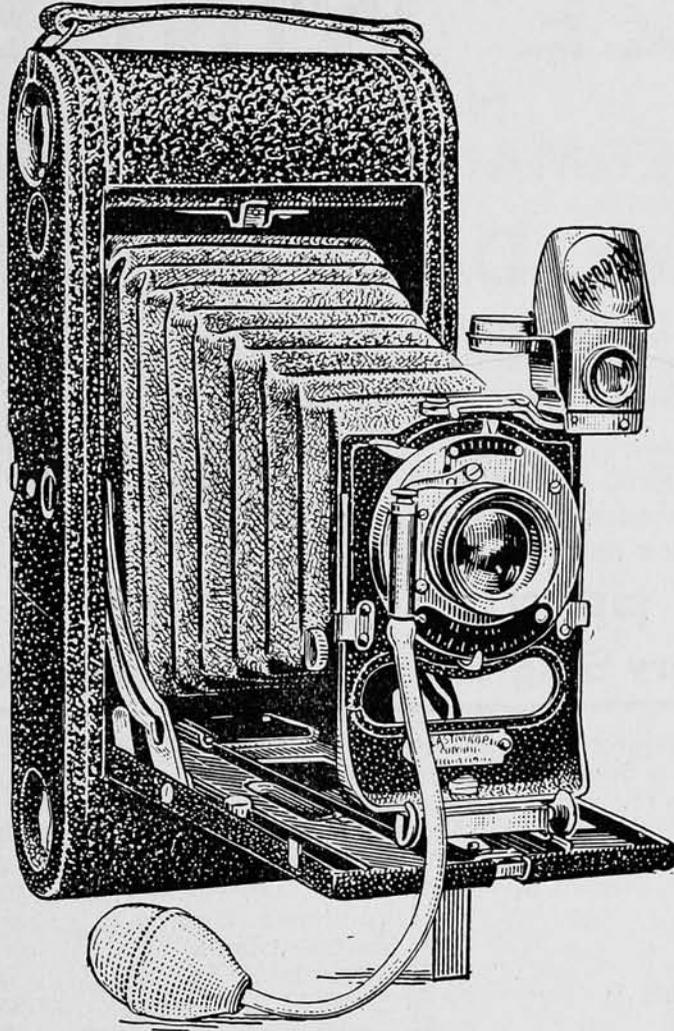
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| | Silver Medal—F. L. Odell, Greenfield, Iowa,---- | 98 1/4 |
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| | N. Y., " " Geo. Martin, Adams,----- | 96 1/2 |
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| | S. D., " " O. C. Beck, Kidder ----- | 95 |

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|----------|---|-------|
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| REID | - | 7 |
| U. S. | - | 5 |
| SHARPLES | - | 5 |
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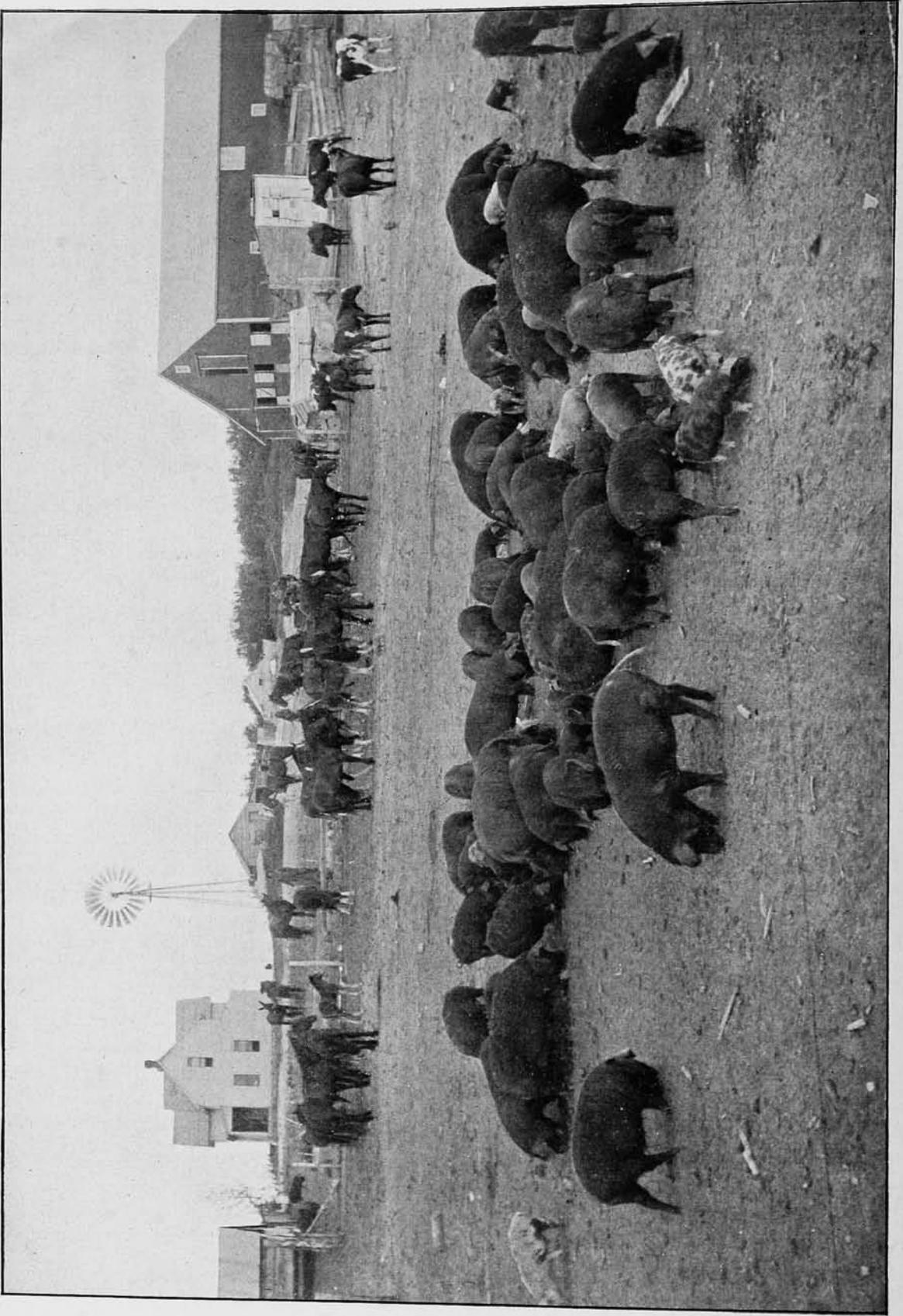
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A FARM SCENE ON THE PLAINS—Illustration by S. D. Butcher

THE CORNELL COUNTRYMAN

VOL. 2.

JANUARY, 1905

NO. 4

THE WINTER COURSES

By S. W. Fletcher

Assistant Professor in Charge of the Winter Course Students

THE Short Winter Courses in Agriculture are becoming a very important feature in agricultural education. Only a very small proportion of the thousands of ambitious young farm boys in the state of New York can take a Collegiate Course in Agriculture. They have not the time, the money, or the necessary schooling. Most of these young men do not desire to become agricultural teachers or experimenters, but do desire to become better farmers. The Winter Course appeals most strongly to these practical young farmers who desire to know more about the principles and the best practice of their business, to the end that their farming may become more profitable. Collegiate Courses in Agriculture serve a very useful and a very necessary purpose in educating those who desire to make Agriculture their *profession*, as teachers or experimenters; the Winter Courses serve an equally useful and necessary purpose in training those who wish to make agriculture their *business*, from a dollar and cent point of view. The fact that there are necessarily more of the latter than of the former is the basis for our belief that the Winter Courses are bound to grow in usefulness and in numbers until they vastly out-strip the Collegiate Courses in Agriculture, numerically at least. The time is at hand when the State should provide special equipment for the Winter Courses, if they are to be developed as they may be.

That the Winter Courses are meeting, in some measure, at least, the demand for popular and practical in-

struction in agriculture is shown by the increasing attendance. In 1903, there were one hundred and twenty-one persons enrolled in the Winter Courses; in 1904, there were one hundred thirty-six; in 1905, we expect one hundred seventy-five. This increase is not the result of any special advertising; it is the expression of a growing appreciation of the practical advantages which these courses offer as a preparation for successful work on the farm, in the creamery, or the poultry plant. It would be as easy to have a thousand farm boys here as one hundred and seventy-five if the facilities permitted, which they do not.

Further evidence of the practical value of the Winter Courses is found in the growing demand for Winter Course graduates to take responsible positions as dairymen, cattlemen, poultrymen, farm managers, etc. Most of the Winter Course students, especially in the General Agriculture Course, return to their home farms. This is certainly most desirable from every point of view. We believe that these young men will become agricultural missionaries in the communities where they live; and that they will be able to prosper financially on their own farms better than if they take salaried positions. Some of the Winter Course students, however, are obliged to work for others. Often we have not had men enough to meet the demand,—that is, men of the right kind. As a stepping-stone to increased salary and larger profits in agricultural work, we believe the Winter Courses are fulfilling their mission.

While a majority of the Winter Course students come from the farms, of late years an increasing number have come from the cities. Country life is beginning to appeal very strongly to the under-paid men in the offices and shops of the city. The current of emigration from country to city is beginning to recede. The Farmers' Reading-Course and the Winter Courses are especially adapted to meet the needs of these shop-worn city-sick men who desire a brief and practical training which will help them to succeed in farming. Undoubtedly a large proportion of our Winter Course students in the future will belong to this class.

To the Winter Course students of 1905, the College of Agriculture extends greeting. The eleven weeks will be very busy; we hope they will be equally pleasant and profitable. The facilities for instruction in the College

of Agriculture and in Cornell University are open to you as freely as to any other students. We hope you will identify yourselves with many of the various enterprises in College and University life. The Agricultural Assembly, the Winter Course Club, the Agricultural Association, the Lazy Club, the Sage Chapel services, the University lectures, the Short Course Bible Classes—these you should know about and attend whenever possible. We should be sorry to have you go away at the end of the eleven weeks, having learned something about agriculture, but not having come in touch with these influences which make for a broader outlook on life. Be one of us, not apart from us. What you get from your Course will depend very largely upon what you put into it. May your investment, and your income, be large!

AGRICULTURE ON THE PLAINS

By N. C. Dunlap

Manager of the Watson Ranch, Kearney, Neb.

TO one who does not know the plains country as it existed twenty-five years ago, it is indeed hard to convince him, that what now are fertile farms with their many buildings of all kinds and the homes of happy, prosperous people, was at that time a vast, practically uninhabited plain, save here and there along the streams, where some hardy settler had built a sod house, the home for himself and the noble woman that came with him to share his lot and to make the wilderness blossom like a rose.

At that time the country was controlled by cattle-men, who counted their herds by thousands. These cattle-men claimed the country as their own, because they were the first to use it, and with a jealous eye watched the ever persistent settler, who was willing to endure the hardships ever to be found in a new country,

that he might own the farm he farmed, plant orchards and vineyards, rest beneath the shade of his own apple tree and grape vine while he enjoyed the fruits of his labor.

There is not enough space in the *Cornell Countryman* in which to tell of the struggles between the cow-boys and the grangers. Suffice it to say that they inflicted with it all the horrors of border warfare, even burning cabins. Men and women lost their lives, others lost all they had in the world, and lived for revenge slow but sure. Some took advantage of the unsettled condition of things to amass large fortunes. Men, who at that time knew not their wealth and spent money like a prince, are now "dead broke." While others, who were as free from financial cares then as a new born babe, are now independently rich. The ever persistent settler still continued to come, to plow and is still

plowing, while within the borders of the fair state of Nebraska, free range is a thing of long ago.

The level plains country is now the granary, the garden of our union. To all the markets of the world, we send our beef, pork and mutton, our rye, wheat, barley, oats and corn. We raise chicory to make coffee and make sugar to sweeten it. We have more sunshiny days than France or southern Italy. We are a healthy, happy, contented and prosperous people.

On the level plains, the roads follow the section lines, and each section is

many trees in groves or shelter belts, many of them large enough for saw logs, and all planted by the hands of the early settlers. Although they are for the most part cottonwood and will soon be gone, they will give place to trees of greater value such as the ash, oak, walnut, elm and maple. We should not condemn the early settlers for planting so largely of cottonwood, although experience has proved that trees of more valuable timber will grow as well. They did the best they could under the circumstances in which they were placed; and if you



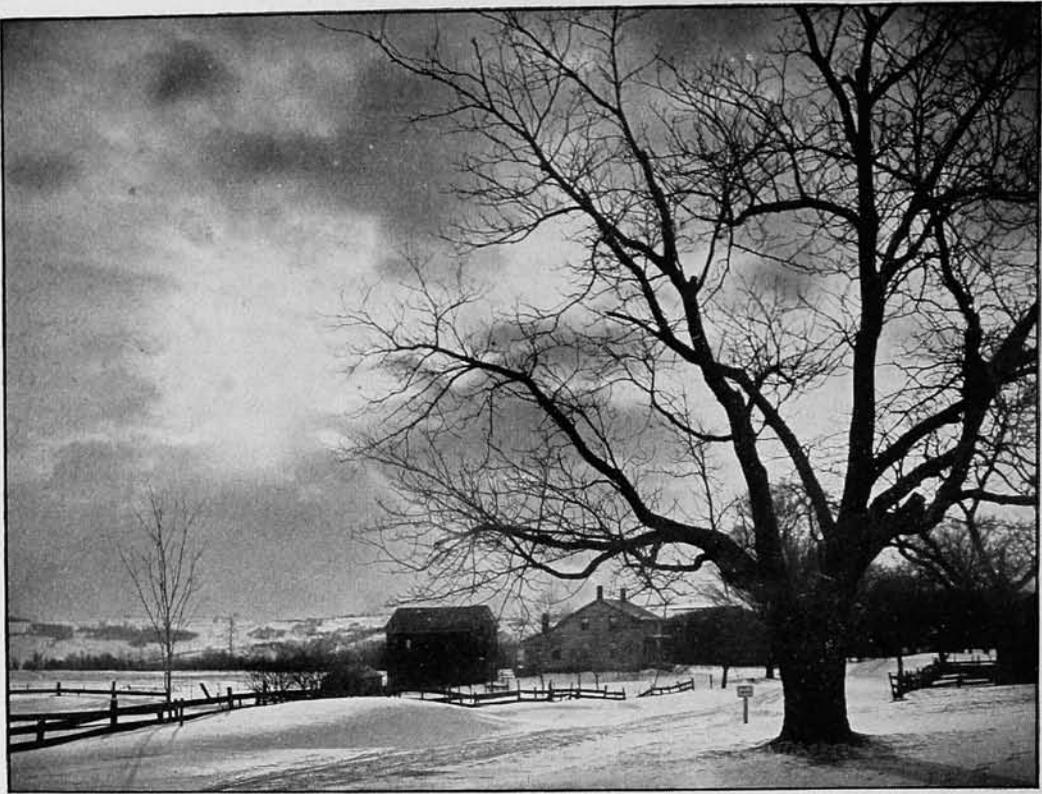
PICKING CHERRIES ON MR. WATSON'S RANCH—*Illustration by S. D. Butcher*

usually cut into four farms of 160 acres each; and as there are no stumps or stones in the way, it makes plowing the easiest work on the farm. The girls are often glad to drive three horses hitched to a sulky, to plow back and forth across the level field, while their father or brother does other things that always must be done on a farm.

As we have but little natural timber, we had to plant wood lots and care for them until they were large enough to take care of themselves. Along the road sides and over the farms are

and I will do as well, future generations will or should rise up and call us blessed.

We have no mines of coal or metal; we have no forests of valuable timber; we have no factories worthy of the name except a few for sugar, which reduce to pure white sugar the millions of tons of beets grown on our farms. The wealth of the plains country lies alone in the fertility of its soils, the honesty, industry and integrity of its people.



"THE FULL MOON WAS ONLY DISTINGUISHABLE AS A PALE, ILLUMINATED FIELD IN THE MISTY SKY" *Photo by Verne Morgan*

THE WAY OF A MAN WITH A HORSE

By Anna Botsford Comstock

AS the polite hotel clerk tucked the robes around me in the little cutter, he said to my driver, "Ray has already been driven today." "Yes," was the laconic answer, and I looked with interest at the horse which seemed to be a personality to the hotel clerk, and I wondered if perchance this suave remembering of the names of traveling men extended also to horses.

Ray was a tall, ranging horse perspiring so that steam from his body was perceptible in the cold night air. At a word from the driver he started off at a long, swinging pace that brought us flying over the smooth road to the rhythmic jingle of the bells. Though it was moonlight I could not see my companion's face. A cap pulled low over his brow, a great coat with upturned collar hid all except the profile of a thin, straight nose, and lips that despite the veiling of a slight mustache gave me the impression of firmness. When I asked for a team for this sixteen mile night-drive the clerk had said, "We will give you a swift horse and a good driver," and there was something in the silhouette

of that mouth that made me say to myself contentedly "good driver."

The clouds that had sifted snow over western New York all day still obscured the heavens and the full moon was only distinguishable as a pale, illuminated field in the misty sky. We were soon speeding up the valley of the Cohocton; noble hills, many of them wood covered, rose high on either side of us, and made our horizon a long vista of undulating lines. The road at first was smooth and the sleighing superb. Ray was making no effort apparently, and yet we seemed flying past the bare shade-trees that margined the road. My driver was silent save only when in an even smooth voice he spoke to Ray; but I had not been with him in the cutter five minutes before I felt there was a perfect understanding between horse and man. I made several commonplace remarks, which were received by my companion in silence or answered in monosyllables. Finally I said, "This seems a remarkable horse to belong to a livery stable."

"Yes," he answered.

"It soon ruins a good horse to put him in a livery stable," ventured I, thinking of the hard driving.

"Yes, being driven by so many who differ in ways, and so many who know nothing about a horse, makes them wild," he said grudgingly.

"A horse is so nervous," I remarked sympathetically.

"Yes, and it gets on his nerves when one fellow jerks him, and another drives loose, and neither one of them knows his name; and when a thing gets on a horse's nerves it uses him up worse than hard driving."

Bravo! thought I when at last this long sentence was achieved.

"It is the voice instead of the whip which you use," I continued craftily, for I love to hear horsemen talk of horses.

"The whip may teach a horse to obey the voice, but the voice and the hand control the well broken horse," he explained. "It drives this horse crazy to touch him with a whip." I had noticed that we had no whip in sight. The horse's head towered up in front of us between the hills, and I said admiringly, "How high he holds his head, is he checked?"

"He never had a check on in his life," was the answer. The pride in that high uplifted head ought to have told me that, even in the dark. No horse's head was ever lifted like that by rein; check-rein pride is spurious always, and easily detected.

At our left was the stream which flowed along silently under its bonds of ice; the alders and willows made a black fringe along its banks and revealed its course against the whiteness of the night. At our left on the floor of the narrow valley were here and there farm houses nestled below the groups of honey locusts which lifted their pod-laden branches against the misty sky. Suddenly, almost without warning, we swept across a railroad track, the shoe of the cutter striking the rail sharply, the unexpected noise sending Ray forward in a great leap, but the second leap was checked almost in midair by a word from the man. Then we sped on across a bridge,

one of those iron bridges which seemed that night like a great black spider-web spun across the river, and soon we came to a road where for several miles the snow-drifts meant all that they may mean in a country road in midwinter. There was but a single track, and meeting teams here meant a hazard of fortunes. My driver was alert; there was a tenseness in his attitude that I could feel rather than see. A coming vehicle was noted from afar, and a possible place for passing was found and Ray was guided, notwithstanding his indignant protest, over into the soft snow and was bade to be still until the peril neared and passed us by. There were deeply worn places in the road down which Ray plunged and we after him just as he struggled up the other side. Would we perchance strike his heels in one of these plunges? If so heaven help us when the reaction came, and his iron-bound hoof struck us. But, no! The horse's master saw each hole before he reached it, and his low musical voice seemed always like oil upon the waves of equine turbulence. Once Ray plunged out of the road and exasperated at his insecure footing leaped wildly. Then my driver uttered a sharp "whoa" the only time the voice was sharp and the only time the word "whoa" was uttered during the night. When the horse heard it he stopped as still as if he had been frozen.

"That was wonderful," said I, and the genuine admiration in my voice seemed to touch my companion and he answered:

"He was the hardest horse to break that I ever had any experience with. To begin with I was sick, and he was allowed by an incompetent man to run away two or three times while he was being broken; and a horse never forgets an experience like that. Ray has never run away with me, but it took me many months to teach him that 'whoa' meant stop—stop right then and there, but he has learned his lesson."

"Did you ever experience a run-away?" I asked.

"No, I have been tipped over a good many times, but a horse never got away from me yet. It is the man more than the horse that causes a runaway. Once I drove for Mayor Pingree in Detroit for two years. He had a thousand dollar span which had torn things all to pieces, wrecked carriages and harnesses and ran away at every possible chance; when I went there the mayor would not ride behind the horses. The first day after I went there I got rid of the men around the barn and shut the doors and began getting acquainted. I fed the horses and harnessed them, and then unharnessed them, and that same afternoon I drove them. They wanted to go and I let them go for a time, and then I made them stop. In a day or two I had them perfectly steady, but the mayor would not ride with me; his daughter had more confidence, and went with me several times, and when the mayor saw that I had no trouble he got over being afraid. Those horses not only did not run away from me, but they never even tried to get away from me. He must have been a poor sort of a man who let them go first."

"Horses know a great deal," said I tentatively.

"They know a great deal but they are too nervous to make use of their knowledge when they need it most. It is the horse's feelings that I rely on. He always has the use of his feelings and the quick use of them too."

His words gave me food for thought and I remained silent while I seemed flying onward with a horse named Ray and a man who was nameless. Not again did the nameless speak for miles, and then I saw for the first and last time a glimmer of humor in him. We passed through a little town and as I needed to leave a message at a certain house, my driver inquired of a man on the street the situation of the residence. The man came over near the cutter and peered at us, and stood there smoking and looking first at us and then at the sky and finally said, "I am a stranger here too and I don't know the place." As we passed on a

chuckle of appreciation came from the nameless and he said, "He seemed to think if he took a few more pulls at his pipe and looked at the sky a little while longer he could think out where the man lived."

Beyond this town the roads grew trackless and sometimes Ray broke through to the depth of his knees, and then the struggle for mastery of the nerve spasm by the man almost as if it were his own nerves he were controlling, became a most interesting study to me. The fright and anger of the high spirited horse disappeared like mist before the sun, as the soft, even tones of his master reached his ears; those ears standing erect and alert on that high head made him seem as if he were a creature of the wilds, ever listening for the stealthy footstep of a creeping foe. Then we reached good roads again and we went like the wind between the great hills that seemed like knees bended in worship along a sacred river; and I was suddenly reminded of a drive which I had taken one moonlight night just a year before, between the blossoming prune orchards and high mountains of the Santa Clara valley of California. Was it telepathy that made my companion take the initiative in making the next remark:

"These hills seem high, but they are small compared with the mountains that hold in Los Angeles where I was six years ago now."

Well, why not! a man who is thus a master of a horse should go the length and breadth of the land and meet his peers—those other men who drive six and eight horses up and down impossible mountain roads of the Coast Range and Sierras. These masters of horses—I know them when I meet them—a caste by themselves; born never made; sometimes found in the narrow valleys of the rural districts and sometimes finished in the equestrian schools of Europe. Sometimes an Arab, sometimes a Cossack, sometimes an American of the plains—but there is always in them a deep understanding, and an inner strength

which conquers the horse—that being which feels but does not think. I said a little of this and the nameless answered:

“Yes, a true horseman is born, not made, although after he is born he has a lot to learn. A man to be a good horseman should have a heart and sense. He can manage a horse with sense alone and without heart. I have seen plenty of such, but they are not the best; while a man without sense and plenty of heart makes a mighty poor horseman; you need both, and the horse needs both in his driver.”

As we swung into the town of my destination Ray's gait was as strong

and as free and as untired as when we started. I left the noble horse and his master regretfully. I asked about the latter afterwards, and they told me he was a colored man. I had not seen his face fairly and I smiled as I said to myself, “Why of course he might have been black or blue or scarlet or orange, his color was not of the slightest consequence.” For I had recognized in him the strength, the power and the subtle understanding that makes the man master of the horse and which has made man the master of the horse since chariots were driven in the amphitheatres of Greece or Alexander mastered Bucephalus.

PROBLEMS IN AGRICULTURE

Report on a Lecture Delivered at Cornell University

By Mr. H. E. Cook of Denmark, N. Y.

Chairman of the New York State Agricultural Educational Committee

Reported by Scott H. Perky, '06, and D. M. Williams, '08

WE have to face in this state the fact of western competition with our crops and eastern industrial competition for our labor. Our lands recovering but slowly from the low values and the stigma of several decades are still in a sad state of unproductiveness.

The cultivated farms are too large for cultivation and the land is not put to use as it could be. The reforestation of the lands with Black Spruce was recommended,—the trees to be treated as a farm crop. Are there not thousands of acres in the state that could be reforested and thus yield a profit? One lumberman has done so on a considerable scale and reports that during the last twenty years, the profit from this land was more than from cows kept on the same area, and this is very likely the solution of the problem of what to do with the unused land.

Another problem confronting the farmer is the type of cow to select. The cost should be gauged by the efficiency of the animal. The functions

of the animal are derived from inheritance but care and environment will greatly modify these. So inheritance is the base of selection. Raising beef cattle will never be profitable in New York state as fat is the result of corn practically and New York is not a corn state, and it would not be profitable when corn has to be brought from the west. Milk pays better than beef and the nearness to market makes milk a better specialty. Some have the idea that by crossing a beef bull with a dairy cow we should get a general purpose animal but these animals are not in existence and such a cross would tend to lower the standard of the herd. In selecting animals there are two essentials:

- 1.—A clear conception of what you want to do.
- 2.—A good animal to do what you want.

The matter of crop selling was discussed to the effect that the farmer must not attempt to establish arbitrary prices through organization. He must educate the demand, and organ-

ize only for facilitating and cheapening the marketing of his products. The farmers' undue suspicion of middle-men is caused by ignorance of markets. Crop selling does not go by law or custom. Farmers are constantly complaining that they do not get enough for their product; thus those in the country selling milk for two cents a quart complain because those nearer the city receive eight cents a quart. They do not look at the added labor and expense. The market price depends on the quality of the product not on the cost of production, for the value is the only fact recognized by the market. The thing to do is to make the value of your product a little better than that of any one else so the demand for it will be greater. The cornerers of the market do not control the price but the consumer, the laboring man. The man who can produce a product at the cheapest price will make the market price of that product every time. No organization will have a sufficient influence to make a constant market price if that price is higher than the lowest price at which the same product may be offered.

Mr. Cook sees knotty problems in the way of agricultural education. He questions the ability of the four years' course in agricultural colleges to make farmers. Indeed, he seems to question the practicability of educated

men as farmers. Such become easily discouraged, and if all their science witnesses but the failure of a crop, whereas the German immigrant farmer plods on not disconcerted, they are inclined to desert an occupation that seems, after all, to depend very largely on the sweat of the brow. Of course, much depends on the character of the men seeking education. Often, perhaps, they are of the "third generation," who are seeking easy berths and who, with many others, will falter when they come up against the practical operations and economies of farm life.

The winter course, at least, is to be commended unhesitatingly. The inspiring instruction of a few weeks and then the long application during most of the year of knowledge gained seem well adapted to the making of good farmers.

At any rate, there should be more teaching of the economic side of farming. We take it that Mr. Cook believes that lecture and practicum should deal as much as possible with the actualities of farm management, or more broadly, of farm life. This need, Mr. Cook thinks, our professors realize, and he observes a right tendency, because he sees in our faculty a group of earnest, far-seeing and reasonably conservative men.

CO-OPERATION IN AGRICULTURE

By Chas. Aronovici, '05.

THE work of the agricultural experimenter is on the way of solid organization. Means of production are continually being improved, possibility of better yields, in quantity and quality found. Agriculture as a whole is moving fast towards a new era, when farming will be an efficient and stable industry, with strong control over natural factors.

But as we advance in the knowledge of things, we find that another problem demanding solution comes before us—the problem of men.

In speaking of European agriculture, Prof. Bailey said, "European farming tends towards individual ownership, whereas, American farming tends towards syndicate ownership." This tendency is recognized especially in well developed agricultural regions, and bears a strong relation to the development of means of transportation.

The reason for such tendency is very evident especially when we see the great development of labor saving machinery, which makes farming a

business manageable by modern industrial methods, leaving the small farmer incapable of securing the cheap means of production, and consequently unable to compete with the syndicates. Sooner or later such conditions will make farming on a small scale impossible; and will transform the farming class of to-day into inhabitants of the city slums, or make them homeless, wandering proletarians with little love for their profession and antagonistic to the land owning class. The manufacturing industries have given us a good example of the struggle resulting from such conditions; and with the state of affairs toward which we are now moving, it will not be long before the labor problem will disturb the agricultural production of the country.

So far as I can see, there is only one remedy for such conditions and that is co-operation—co-operation in all lines of farm activity, co-operation for consumption and production; market-

ing co-operation; co-operative societies for the transformation of farm products into marketing commodities; in a word, co-operation in every line that can be profitably and intelligently handled by rural associations.

Some may say that under the present conditions, the United States agricultural products show very good results, and statistical figures are encouraging, but we must not forget that the amount of production is not the only criterion by which social conditions should be measured. The way in which wealth is produced and the conditions under which the individual producer works is of the greatest value from a physical, intellectual, moral and political standpoint. There is a most urgent need for a movement to reach the farmer of to-day and bring him a message that will improve his economic condition, thereby making him a better farmer, a better man and a better unit of the great social body of which he is an integral part.

POINTS OF INTEREST FROM THE INSTITUTES

Reported from the "Normal Institute" and from the "Poultry Institute" held at Cornell University, November 25-30th

By Rosa Ostertag

"The year's developments in investigations regarding human and bovine tuberculosis." By Dr. V. A. Moore of the New York State Veterinary College.

The investigations during the year have, in so far as they have been reported, confirmed the results already in hand. Some very important work in immunizing cattle against the disease has been reported in progress by Dr. Leonard Pearson of Pennsylvania. The most important report of the year was that of the Royal commission appointed in 1901. This commission reports that they have not been able to find any difference between the human and bovine tubercle bacilli.

During the year there has been more activity in testing cattle in the

state than heretofore. The results have been that in the herds tested the percentage of reacting animals is much greater than was expected. In some herds that were thought to be but slightly infected as many as 95 per cent have been found to be diseased. This is very important as it points to the spreading of this veritable plague rather than its retrenchment.

Our attention has been called repeatedly to many disharmonies in the State in reference to the existence of bovine tuberculosis and the tuberculin test. They have appeared in the form of personal interviews, and letters from cattle owners themselves and in statements in the Agricultural press. They show most emphatically that the teaching of some persons concerning the nature of the tubercu-

losis has been contrary to the demonstrated facts long since published by scores of investigators concerning this disease and which are no longer in the field of doubt. Such denial of scientific truth, as it is now known, has placed a great stumbling block in the way of the cattle owners who are anxious to eliminate the disease from their herds. It is causing the disease to continue to spread and eventually to react seriously upon the cattle owners whom we are trying to aid.

The elimination of the disease: The very nature of tuberculosis and our definite method of finding the infected animals are a guarantee that by the use of proper methods this disease may be minimized if not entirely eliminated from the state. To accomplish this end it appears that several things must be done and that there must be harmony and co-operation. The things that seem to be immediately indicated are:

1. The education of the cattle owners to the true nature of tuberculosis, means whereby it can be detected and the methods for disposing of and utilizing the inspected animals.

2. Active and efficient efforts on the part of the state to prevent tuberculous cattle coming from without into and infecting the dairies of the state.

3. Legislation that will make it legal for the owners of reacting animals to use them for breeding purposes according to Bang's method, for beef, if on slaughter they are in condition that would pass the Federal meat inspection. This will give to the small owner the same privileges to recover the meat value of his animals that are enjoyed by the owners of large packing houses who buy their animals without tests.

*Findings in the Orchard Survey
Work in Wayne and Orleans
Counties.*

Professor Craig spoke of the geological features and soil conditions of these two great New York apple-

counties and described the conduct of the survey.

Mr. George F. Warren, who executed the survey, gave thereafter facts and figures regarding the work. The practical results of the investigation, based upon a multitude of figures and illustrations gave a clear idea of the substantial value of this new feature of propoganda and its great possibilities. We will see Mr. Warren's reports in print very soon. They will form a valuable handbook of up-to-date apple culture.

Mrs. Mollie MacClaghry Allen on "Poultry Keeping for Women" spoke of this subject as one of the most delightful and profitable hobbies. There is a fascination about it that grows upon one who truly loves animals as he becomes better and better acquainted with the flocks and the individuals composing them. For there is individuality among fowls as strongly marked as in people and the characteristics of different breeds appear as fully developed as those of different races of the human family. It, however, is also a good opportunity for the housewife to increase her pin money by putting in her spare time.

Mr. Orr on the Construction of Economic Poultry Houses.

The most economical house to build, according to Mr. Orr's figures is one 12 feet square which must be low. The rear post is 4 1-2 feet high, the front post 5 1-2 feet, while the posts supporting the entrance door to the house are 6 1-2 feet and the door 2 1-2 feet wide. The dropping board is 2 1-2 feet from the top. The sills should run lengthwise. No heavy timber is necessary. The plate sills are 4x6 but it is not necessary to use as heavy lumber as that. The studs are put up 2 1-2 feet apart and the top plate perhaps is 2x4 laid lengthwise. the uprights of the posts are 2x4 studs. The rafters are 2x4. This house will not cost over \$1 per hen and to keep it repair for ten years will cost

\$1.00. The investment per hen therefore, is ten cents a year for the original cost of the house and only one cent a year for the repairs.

Prof. James E. Rice on "Some poultry problems by lime light."

This discussion was illustrated with lantern views, drawings and charts describing the forms which students were required to use in running incubators, tracing the egg through its various stages, so as to have an accurate record of the kind of eggs, what hens they came from, the number of the pen, and with this information trying to solve some of the laws governing the mortality of chickens. Probably the most important problem confronting the poultryman is how to get fertility in eggs, and by the use of this record sheet the experimenter will be able to get some light on the problem. At each successive test of the eggs in the incubator a record is made of the infertile eggs and dead germs, the eggs having been previously marked with the date they were laid, the number of the pen and the number of the egg, so that it is possible to trace them back to any hen that has been producing infertile eggs.

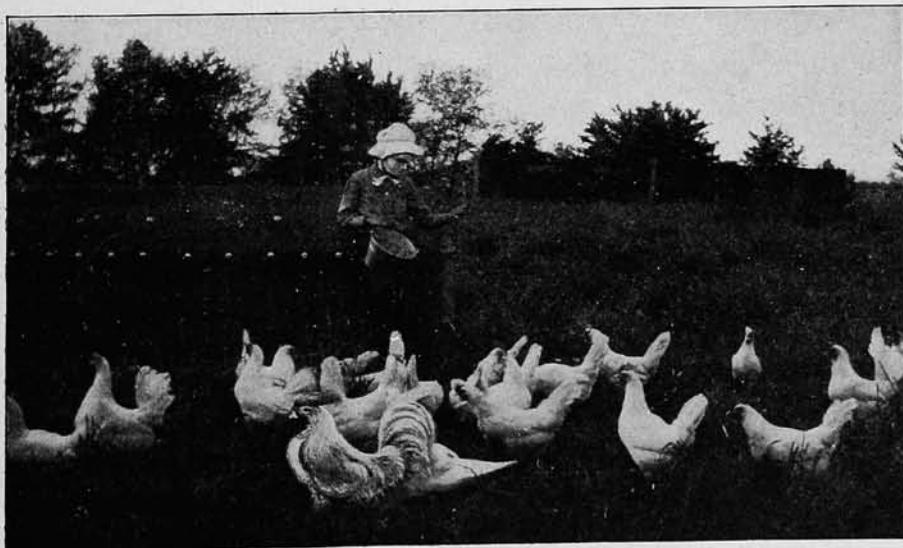
Recent Investigations Regarding the nature and cause of "Roup" in chickens, by W. B. Mack.

Economically, roup is one of the

most important poultry diseases and it is most interesting scientifically. It is widely distributed throughout Europe, the United States and Canada. It is characterized by inflammation of the mucous membranes of the head, which exhibit various forms of exudates. Formerly it was believed to be identical with human diphtheria and was first studied from the standpoint of human sanitation, but it has been proved conclusively that the cause is not identical with that of human diphtheria.

Roup has the character of a specific infectious disease. Bacteria appear to be concerned in producing the tissue changes, but no single micro-organism has yet been identified as the cause. Unhygienic surroundings are probably a contributing cause but it is doubtful if this constitutes the essential cause as is popularly believed.

The best treatment at present known is the application of a disinfectant solution to the mucous surfaces affected. A one per cent solution of carbolic acid or a two per cent solution of potassium permanganate is the most satisfactory and may be most easily applied by dipping the head of the bird in the liquid. Tincture of iodine may be applied to the exudates in the mouth. Soft, easily digested, nourishing food with plenty of fresh water should be given, together with good care. Tonics administered by the mouth may be of some value, but slaughter is justified in severe or advanced cases.



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JANUARY, 1904

Country Versus City Universities

At a meeting of the Assembly last month Director Bailey spoke upon the subject, "Country versus City Universities." His address was suggested by a recent speech of President Butler of Columbia University whose views were strongly in favor of the city universities. At a meeting of the Quill Club, Manhattan Hotel, New York, President Butler said:

"There are no limitations to the growth of modern cities, except physical ones, and I believe that within the lifetime of some of those present, New York city will have a population of 10,000,000. There can be no university in the modern sense save in a great city. I do not know what will become of those noble and self-sacrificing institutions in the smaller towns, but I do know that the city universities will develop along special lines because of their special environment and I know that their development will be the best. The scholar filled with the impulse of service is going to seek his home in the dark gray city, and seek to make it less dark and less gray."

Professor Matthews speaking in the same meeting was of the conclusion "that the greatest university of the future would be found in the greatest center of population. The man who first conceived the idea of the subway and the man who finished it were both men whose training was begun at Columbia."

Director Bailey said that this argument had been partly answered in an address by President Schurman on "A Generation of Cornell." President Schurman said:

"Cornell University, like Oxford and Cambridge, is a rural institution, situated happily in a scene of romantic loveliness, whose charm enters into the soul of the student, furnishing him with those ineffaceable images of beauty which form no inconsiderable portion of a truly liberal education. Not the noise and glare and rush of inane city streets, but the majestic calm and beauty of the face of nature is the proper place for the spiritual nurture of young men and maidens during the few short years devoted to the higher education. And fortunately there is no branch of learning or science, no sort of liberal culture, no species of professional training which cannot be more advantageously pursued in the country than in the city. It is not surprising, therefore, that Mr. Rashdall closed his great work on the History of Universities with the doubt 'whether the highest university ideal cannot be realized with the fullest perfection even in a single modern city of the largest type.'"

Continuing, Director Bailey said: "A university does not consist essentially of collections and libraries, but rather of the men in the university. A

self-sustaining country cannot have over one-half of its population concentrated in the cities. The other half must be represented in the rural universities. These universities will prosper most which best serve the interests of their constituents, and the country university can attain this end by bringing their students close to the great teacher, Nature, and thus make truer and deeper men and women of them.

"In view of our university extension movements, the time is coming when the university will reach out and touch every side of life, every enterprise and occupation, and we shall come to consider that it is better to have ten books in one hundred houses than one thousand books in one house."

Artificial Inoculation of the Soil

The success that has attended the efforts of the Bureau of Plant Industry of the Department of Agriculture to discover practical and easy methods for securing inoculation of the soil by means of the artificial culture of bacteria peculiar to leguminous plants has attracted wide attention. Numerous popular articles have appeared in various magazines and newspapers that either misrepresented the facts as stated in the publications of the department or have stated those facts in such obscure terms that they have been erroneously misinterpreted by the reading public. The evidence of such erroneous misinterpretation rests in the large number of letters received by the College of Agriculture asking how to proceed to secure the re-

markable results in increasing the productivity of barren soils or crops of grain or grasses.

It seems that a few words explaining the actual possibilities of this method of treating soils and its limitations are called for. Some of these letters imply that the articles in question teach that the fertility of the soil may be greatly and immediately increased simply by means of inoculating with cultures of certain bacteria. The facts are that the bacteria under discussion have no direct influence upon the yield of the crops other than legumes, and furthermore, that artificially inoculating a soil would have little or no influence in increasing the yield of legumes on such soils unless such crops were meagre because of the absence of these bacteria in that soil.

It must be borne in mind that inoculation is only one of the several factors that contribute to the yield of leguminous crops. A suitable degree of moisture, a fair abundance of the mineral elements of fertility, and favorable physical conditions of the soil are all potent factors in determining the yield and these factors are not influenced in any degree by inoculation whether natural or artificial. In other words inoculation is only one of several essential conditions for the successful growing of legumes on any soil. And bringing about this one condition by artificial means will not secure the other favorable conditions if they are lacking, and they are not likely to be lacking in soils where previously such crops have been successfully grown.

Again, many of these correspondents have the idea that the artificial inoculation of soils by these bacteria

is going to directly increase the yields of grasses and grains. This is an erroneous conception. However, the yields of grasses and grains may be increased indirectly if crops of leguminous plants are successfully grown by means of the inoculation and these crops devoted to the improvement of the soil. Under these circumstances the leguminous crop gathers considerable nitrogen from the atmosphere and stores it in its own structure. When, therefore, its roots, stems, or leaves decay in or on the soil this nitrogen becomes available for succeeding non-leguminous crops.

Whether or not the leguminous crop is able to secure some nitrogen which

it can hand over to other plants growing along with it is an open question. Some observations of cereal crops growing among legumes point toward the conclusion that there is such help.

In regard to the supply of mineral elements of fertility to grass and cereal crops following legumes it is well understood that the latter owing to their extensive root development feed to a much greater depth in the soil and gather minerals lying beyond the reach of the former and make them available. In this way only may it be truthfully said that artificial inoculation of the soil may increase the yield of grasses and cereals.

GENERAL AGRICULTURAL NEWS

Statistics show us that for every dollar paid in poor-rates to the city, the beneficiaries receive about 50 cents of actual aid. Contribute the same to the *Vacant Lots Association* and the beneficiaries will have, by the addition of their own labor, eight dollars worth of produce. When this important fact is realized by the people, more will be done for the people. The ill-health of now confined city children will be improved by fresh air and exercise; restless, clumsy little hands will become skilled in manual labor; the evils of street running will be abated and there will be established a foundation of practical agricultural knowledge that will widen the sympathies while increasing the capital of all members of the association.

Two years ago a school garden was started in the most congested district of Philadelphia. Even eight months ago, this square was a barren, stony piece of ground. In May the children began work in earnest. By two intersecting paths they divided the garden into four quarters. Planting began

the first of June. Attention was given to the work after school hours. During vacation the mornings were used. All the manuring, planting, hoeing, raking, watering and transplanting was done by the children under the direction of two teachers and a supervisor.

As an indirect result of this work there was an increased interest in Language Work in the grades, and the healthful, joyous, outdoor employment brought the children into sympathy with their immediate environment.

Who shall say their suggestions of country life may not eventually turn their steps from the overcrowded manufacturing cities to the more health-giving agricultural pursuits of the country?

* * *

Dr. Robert Ostertag of the faculty of the veterinary high school at Berlin, and the highest authority on meat inspection in Germany, was recently in the United States to study the status of veterinary medicine and animal industry here. While many of the American schools were considered by

him defective in their courses of study specially two were referred to as furnishing high grade and satisfactory instruction in all respects, Cornell and Pennsylvania. The animal husbandry course at Ames, Iowa, pleased Dr. Ostertag so well, that he intends to advocate a similar course at the veterinary high school at Berlin.

* * *

The State of Iowa is taking a step in advance of its neighbors. During the last two years five county experiment stations have been established at the county poor farms to solve the local problems. The state experiment station is directly identified with the movement and the farmers of the sections are benefitted by these demonstration experiments.

* * *

The Cotton Boll Weevil has entered Louisiana on its onward march and the difficulties of controlling it are continually increasing. However, considering the energetic, tireless and systematic campaign which the U. S. Division of Entomology is waging against it, we do not despair yet.

* * *

Professor Slingerland's Bulletin 223 "The Grape-Berry Moth" has come from the press and offers some interesting suggestions on "how to make a good Bulletin."

The economic features of the insect and its work are carefully described in popular terms and exceedingly well and accurately illustrated by fine photographs. Purely scientific facts are printed as footnotes or in small type. We owe our co-workers in other experiment stations, who give us the benefit of their results, the data which have been laboriously collected. Historical facts and a lot of original investigation are printed in small type also. The practical man on the farm can immediately pick out the important facts which interest him, without having to waste his time on minor details; and yet a lot of scientific data are contained in those 18 pages. It is one of those bulletins which are made to live in scientific literature.

* * *

The appointment of Willet M. Hays to the position of Assistant Secretary of Agriculture was made by the President last month. When appointed, Mr. Hays was Professor of Agriculture in the University of Minnesota. Professor Hays is deeply interested in agricultural education and we are glad to state that the leading article in the November *Countryman* was from his pen. The *Countryman* heartily congratulates Professor Hays on his new appointment.

CORNELL NEWS

CAMPUS NOTES

The Junior Naturalist work under the direction of Miss McCloskey has continued in the public schools of Ithaca throughout the fall and winter. Each of last year's student-teachers has taken entire charge of the Nature work in one school or set of rooms. The new practice teachers, registered last fall, have given lessons on plant and animal life, every Friday afternoon in the Central School. This work is always followed by a teachers'

meeting in which the lessons are freely discussed.

* * *

The Dairy Department has just received a Stewart centrifugal machine for determining the number of pus cells in milk. A glass tube full of milk is placed in the machine and whirled rapidly until the pus cells and foreign matter have been forced to one end of the tube where they can be removed and counted under the microscope.

The Department of Animal Husbandry has lately received a 9 months' old, thoroughbred Polled Angus bull from the Pennsylvania State College. This bull was received in exchange for a thoroughbred Holstein bull calf which was raised on the University farm.

* * *

The Farmers' Wives' Reading Course connected with the Extension Department of Cornell University is sending to its readers bulletins upon home topics. The course is free to those residing in New York State. There are three series with five bulletins in each series. The 1st is "The Farm Home and Garden;" 2nd, "The Farm Family;" 3rd, "Food and Sanitation."

* * *

The Poultry Institute meetings held here on Nov. 28, 29 and 30, proved to be very profitable to both visitors and students. All lectures and work in Poultry Husbandry were omitted during the sessions, so that the students might attend the meetings. The last meeting on Wednesday evening was particularly unique, as several of the advanced students in Poultry Husbandry gave short talks dealing with special investigation work. The program as published in the December COUNTRYMAN was carried out, except Tuesday evening's session, which was omitted.

* * *

The Minnesota Agricultural College plans to send one of their young men here to take the Short Winter Poultry Course for the purpose of preparing him to take charge of the Poultry Department of their institution.

* * *

Professor Bailey will deliver a series of four lectures at the Colonial Theatre, Boston, beginning Jan. 7th, 1905. The lectures will be under the auspices of the Educational Commit-

tee of the 20th Century Club, and will be on the following topics: "The Development and Meaning of the Outlook of Nature;" "The Attitude to the Country as Distinguished from the City;" "The Attitude Towards Education," and "The Evolution Point of View."

* * *

Prof. Wing and seven members of the class in Animal Husbandry recently made a five days' trip to Chicago. They visited the International Live Stock Exposition, the Union Stock Yards and Schwartzschild & Sulzburger's packing establishment. The trip proved to be interesting and profitable.

* * *

Among the awards given by the Louisiana Purchase Exposition, is one to the Botanical Department of Cornell University. The award was for a piece of apparatus for photographing fungi. The machine was perfected by Prof. Atkinson.

* * *

The following Cornell men attended the N. Y. State Dairymen's Convention at Herkimer, Dec. 13-15: R. A. Pearson, professor of dairying; W. E. Griffith, instructor in butter-making; W. W. Hall, instructor in cheese-making; Jared Van Wagenen, '91 B. S. A treasurer of N. Y. S. Dairymen's Asso.; Robert McAdam, '95 D., secretary of the Asso.; W. E. Patrick, '95 S.; H. E. Hinne, '04 B. S. A.; W. T. Thomson, '04 B. S. A.; G. A. Bell, '04 B. S. A.; F. Kiniry, '04 D.; Clyde and Lewis St. John, '94 S.; F. H. Bilderbeck, '94 D.; P. Langwill, '94 D.; A. D. Senn, '04 D.; H. J. Senn, '04 D.; E. J. Preston, '73; C. S. Smith, '01 D.; H. C. Eibert, '97 D.; A. C. Brown, '98 D.; A. N. Weber, '00 D.; P. F. Ramseyer, '02 D.; W. H. Darrow, '04 D.; H. L. Carr, '95 W.; E. S. Haver, '02 D.; W. E. Scarrett, '95 D.; C. N. Carpenter, '03 D.; E. D. Gillette, '01 D.; W. G. Harkness, '03 D.; also Prof. V. A. Moore of the Veterinary College.

Professor Thomas F. Hunt's new book, "The Cereals in America," is now out from the publishers.

* * *

Prof. and Mrs. Comstock are to spend six weeks in the South, as Prof. Comstock's vacation comes from Thanksgiving to Feb. 1st. The work in invertebrate zoology closed at Thanksgiving and the class is now studying vertebrate zoology under Dr. Wilder.

FORMER STUDENTS

'94, Special.—Clyde L. St. John entered as a regular student in 1892. The following summer his plans were changed by his father's failing health and after a year of special work he returned to Canajoharie, married Miss Benton and took up the care of the homestead. Four years later, wishing to go more into dairying he secured a position with the Fairfield Dairy of Montclair, N. J. This company was the first to produce certified milk in America. Mr. St. John remained three years with the Fairfield Dairy and then moved to Canajoharie, bought a farm a short distance from the railroad and began producing and shipping "certified" milk to Schenectady and Albany. Mr. St. John says the business is growing about as rapidly as he cares to see it. He has recently enjoyed a visit from Professor Pearson and is now writing us about the "Countryman."

'02, Dairy.—Alfred Leith, in partnership with his brother, purchased a farm at Pleasant Valley, Dutchess County, N. Y. The farm is managed for the purpose of catering to boarders from the city during the summer months—for which the location is well adapted, owing to the scenery and to the proximity to New York. The business has been found profitable, although they are handicapped by having to improve a worn-out soil. To his classmates Leith writes: "I sincerely wish them one and all the utmost success."

'02, Dairy.—Floyd J. Fay, in the summer of 1902, worked in a large cheese factory at West Winfield, Ohio. He spent the following summer in the creamery at Dunkirk, Ohio. That fall he accepted his present position in a creamery and pasteurizing plant in Toledo. Mr. Fay may return to Cornell for more dairy work in the winter of 1906.

'02, Winter.—Irwin Langworthy is engaged in general agriculture on the home farm at South Brookfield, N. Y. Langworthy is carrying on several experiments; he is especially interested in trying to raise legumes for the purpose of supplying protein for stock-food. Soy beans were tried this last season; the beans made good growth, but failed to mature. A three-acre field of alfalfa sown last spring looked thrifty at the end of the season, giving promise of a good crop next year.

'02, Dairy.—E. F. Hovey filled two different creamery positions in New York state, before returning to his home-land in April, 1903, to accept the position of butter-maker for the Fitch Bay Creamery Co., at Fitch Bay, Quebec. The butter made at this creamery, as well as at other creameries of that region, is principally exported to England. The butter is wrapped in paraffin, and packed in boxes lined with parchment paper. Very little milk is brought to the creamery as the farmers separate the cream themselves.

'02, Dairy.—J. Milton Risley, after leaving Cornell, took charge of a creamery in northern New York, but resigned at the end of eleven weeks to become dairyman on the Ellerslie Stock Farm at Rhinecliff, N. Y., of which Hon. Levi P. Morton is proprietor. The dairy herd consists of one hundred and twenty head, of which number a large proportion of the cows are thorough-bred Gurnseys. The barn and dairy house are well equipped and managed for the purpose of producing sanitary milk.

The milk is shipped, partly in cans and partly in bottles, to Smith's Farm Dairy, in New York City; from there it goes to supply Dennett's restaurants in New York and Brooklyn.

'02, Dairy.—J. D. Santamore purchased the West Belmont Creamery immediately after returning home from Ithaca, and has operated the creamery ever since. His address is R. F. D., No. 4, Malone, N. Y.

'03, Dairy.—Samuel C. Cooper is now with the Harbinson Creamery Co., which has a shipping station at Ulster, Pa. Cooper has been married since leaving Cornell.

'03, Winter.—W. G. Harkness informed us that we made a mistake about him in the November issue. He is the buttermaker, not the superintendent, of the Delhi Creamery, as we stated.

'04, Winter.—Horace L. Way is engaged in practical farm work at Fairville, Pa.

'04, Winter.—Fred Foster Gardner is on the well-known farm of Prof. J. W. Sanborn at Pittsfield, N. H.,—which was the subject of an article by Director Bailey in the September, 1904, issue of the Country Life. Mr. Gardner is pleasantly situated up in the New Hampshire hills. He has charge of an important branch of the farm operations,—the sale of agricultural chemicals.

'04, Winter.—C. E. Halloway is butter-maker on a large farm at Burlington, Vt.

'04, Winter.—A belated report came to this office, stating that Ralph Bell of Ceres, N. Y., was married soon after returning home from Cornell.

'04, Dairy.—After completing the work in the dairy course, Geo. M. Whyte accepted a position with the Standard Butter Company of Owego. He was obliged to resign this position on account of the sickness of his mother. Later he took charge of the creamery at Newark Valley. Next spring he will enter the creamery in his own town, Moravia.

'04, B. S. A.—Albert R. Mann writes us from the Farm School, a private school for boys at Thompson's Island, Boston, Mass., where he is located temporarily as assistant superintendent. He says that student labor is a success on Thompson's Island. There are 100 sturdy lads who do all the work,—cook, serve, clean up, wash, iron, mend, scrub; do a great deal of printing for Boston firms; get out a monthly paper; have a government with all officials, a band, a football and other athletic teams; do the farming; run the steamers, launches, etc.; do the carpentering, blacksmithing, painting, and in fact almost every thing needful. Mann's letter is full of his characteristic spirit and loyalty for Cornell. He says that every time the Countryman comes he feels like sitting down and writing a letter to all his friends back at the college.

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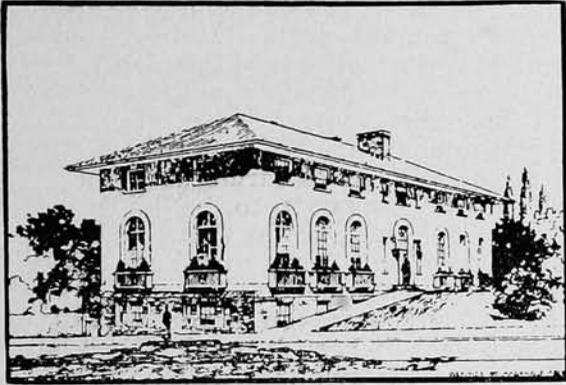
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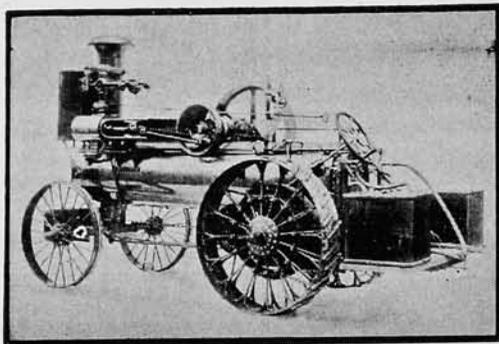
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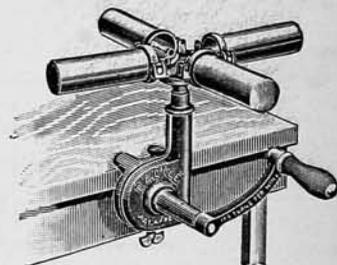
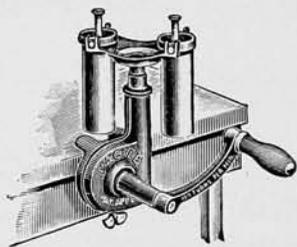
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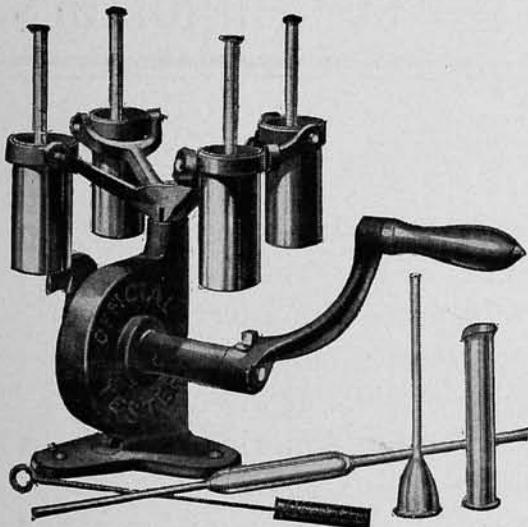
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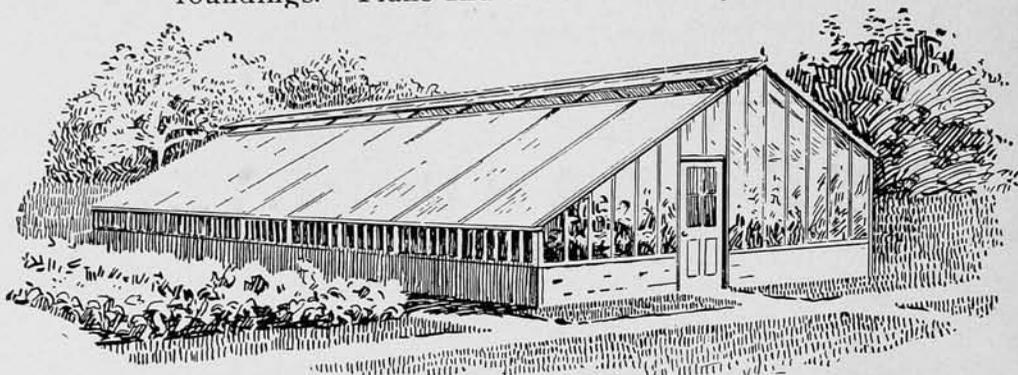
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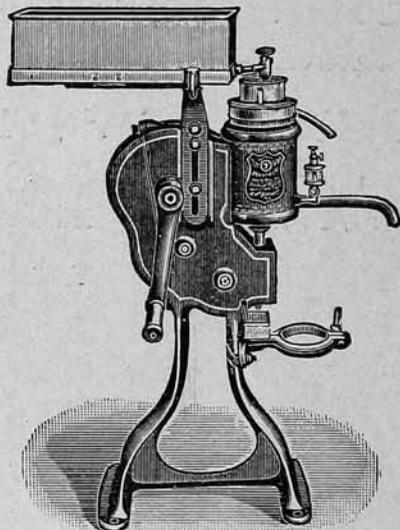
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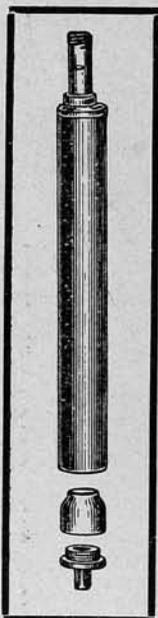
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| Machine under test | No. 9 Tubular |
| Capacity | 900 lbs. per hour |
| Hours in operation | 750 |
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| Total time oiling | Not over three minutes |
| Total repairs | Not any |
| Total oil used | Not over 2 quarts |
| Revolutions of crank | 1,972,575 |
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In the last number of this paper announcement is made of the butter awards at the National Buttermakers' Convention. These were independent, of course, of the regular exhibits of the Exposition.

Announcement is now also made of the higher prize butter awards in judging the many exhibits of butter by the Exposition proper, which show a similar clean sweep for De Laval users.

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The Grand Prize (very highest award) has been granted to J. C. JOSLIN, Winsted, Minn., with an average score of 96.75.

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MANUSCRIPT for publication should be received by the 10th of the month preceding that in which it is to be published.

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COURTESY OF HORTICULTURAL DEPARTMENT, CORNELL UNIV.
A FIELD OF COTTON—One of the Three American Plants that have made History

THE CORNELL COUNTRYMAN

VOL. 2.

FEBRUARY, 1905

NO. 5

THREE AMERICAN PLANTS THAT HAVE MADE HISTORY—MAIZE, TOBACCO AND COTTON

By Charles Wm. Burkett

Professor of Agriculture, North Carolina A. and M. College



COURTESY OF HORTICULTURAL DEPARTMENT, CORNELL UNIV.

A FIELD OF MAIZE

THE social and historical life of our country is usually associated with the lives of men and women who have occupied important places. The school teacher ordinarily, lays no stress on geographical and agricultural distribution, so our boys and girls usually grow to maturity with the idea that men and women are wholly responsible for any achievements that we have made, or any history that has been given to the world. Yet, there are three agricultural plants that have

made more history and have had more to do with the development and progress of this country than hundreds of men, to whom thousands of pages of history have been given.

Maize, or Indian Corn, was to the Red men and to the colonists what manna was to the children of Israel. Population with the Red man fluctuated in proportion to the extent and carefulness of tillage and cultivation of the corn plant. The Indian did not live by the chase alone. Hand in hand with the chase went the culture of

corn. Where this was done carefully, scientifically, if we may use that term, the Indian prospered. Associated with density of Indian population and tribal strength is the growing of this one single American plant, that led to a system of organized labor and the higher development in the arts as characterized in the confederacies of Mexico and Central America and all the Pueblo Indians of the Southwest.

Equally important was the corn plant to the early colonists. May we not say with perfect truth that the Plymouth settlement owed its permanence to this agricultural

plant? They landed four days before Christmas, and there can be no reasonable doubt that the corn plant they found, was their salvation. It would be more romantic from the standpoint of history to give this credit to some man or woman, but the cold prosaic facts show conclusively that the safety of this people rested with the food they had to eat. The production of Indian corn in the United States has increased in the last fifty years from something over five hundred million to over two billion bushels, of which quantity about ten per cent is used for human food, or



COURTESY OF U. S. DEPARTMENT OF AGRICULTURE

A FIELD OF TOBACCO

about half as much as the estimated consumption of wheat in this country.

The cotton plant has made history in a different way. It has clothed much of the world instead of feeding it. While it was known to the civilized world, prior to the discovery of America, it has had its greatest development in this country. The rapid growth of our section of this country is due to the cotton plant. So important was the industry, that never before in the history of the civilized world, or in any age of its history, did man attain a higher development, or

society a happier civilization, than in the slave-holding states before the war. No man ever surpassed the old time Southern gentleman, in purity of his private life, in refined and generous hospitality, in chivalric courage, in romantic gallantry, and in moral grandeur of character. Nor did any woman ever surpass the Southern woman in queenly dignity, and stateliness of bearing and accomplishment, in dash and grace, and suavity of manners, as developed by the social conditions centering around the cotton plantations in the early half of the nineteenth century.

One hundred and ten years ago 2,000,000 pounds of cotton were produced in America. Then Whitney came with his cotton gin. His coming was of more importance than the whole of the British army in 1812, or the actions of all the congresses during the early years of our natural history. Seven years after the invention of the cotton gin the production of cotton increased from two million to forty million pounds. One hundred years later 4,000,000,000 pounds were produced in a single year in this country. One writer speaks as follows: "The importance of cotton in our foreign trade relations can be appreciated from the simple statement that from September 1, 1875, to August 30, 1895, our exports of this staple were valued at \$4,200,000,000, while the total export of wheat and flour combined for the same period were \$2,610,000,000, showing a difference of \$1,600,000,000 in favor of cotton."

Professor Hunt suggests: "How much less clothing do you suppose we would wear if we were compelled to substitute linen for cotton cloth?"

And Lord Macaulay is reported as saying: "What Peter the Great did to make Russia dominant, Eli Whitney's invention of the cotton gin has more than equalled in its relation to the progress and power of the United States."

Going now to a less important crop, so far as territorial growth is concerned, we find the tobacco plant early prominent in the history of our country. It has been most peculiarly connected with the social and industrial development because it was the most valuable resource, which the native plants of America offered to the

new settlers. The importance of this plant is seen in the following selected words of Professor Shaler: "Tobacco has been in the possession of native Indian tribes from remote antiquity, as is shown by the fact that pipes are found in very ancient graves and tumuli. When the country was first settled by the Europeans, this narcotic seems to have been in use in their ceremonies by all tribes which dwelt in regions where the plant could be grown. The habit of smoking was quickly adopted in Europe, and spread with singular rapidity to many parts of Asia. No other conquest has ever been so rapidly effected as that made by tobacco. Within a century from the time of its advent in the Old World it spread beyond the limits of European speech; it went, indeed, farther and faster than any faith has ever extended."

The tobacco plant was money to the early settlers; its growth and culture occasioned the importation of slaves. Its history after the time the white man found it reads like a romance, and its importance is second to no movement, or man this country has seen.

These three plants have made history then; they are deserving more attention from a historic standpoint than they have ever been given.

Let Capt. John Smith and Pocahontas and others like them receive less attention in our school histories, and more time and attention be given to the real facts and conditions that have made our history, and our boys and girls will be more truly educated and the history of our achievements more closely related to facts.

APPLE CULTURE

By Edwin C. Powell

Editor of Farm and Home

IN the growing tendencies toward specialties in farming and in business, no branch of agriculture offers greater inducements and hope of pecuniary reward for north-

ern conditions than apple culture on a commercial scale. The well-worn statement that the apple is the king of fruits means that more apples are consumed in one way or another by

more people on more days in the year than any other fruit. Through good times and bad times the apple holds its own. It has come to be a necessity to millions of people and enters into their daily diet in many forms. Because of this wide and universal consumption, which is increasing year by year, there is certainty of a continued good demand at satisfactory prices for the fruit.

The rapid increase and spread of fungus and insect pests is taking the productions of good apples out of the hands of the average farmer, who cannot or will not give his trees the necessary care and attention. The perfection of spraying appliances and the investigations of entomologists, biologists, and practical fruit growers has made it possible to keep ahead of these pests, so that fine fruit can be produced in a commercial way at a low cost.

Apple culture is not such a complex business that only a few persons of extra skill and large capital can indulge in it, yet it calls for a greater exercise of knowledge and skill than possessed, or at least practiced, by the average farmer, and in return it offers larger rewards. The time has long passed when a man could set out some trees in holes dug in the ground and return in a few years to harvest a crop of fine apples. In contemplating apple culture, either as a business or as a side issue to general or other special lines of farming, several essentials are needed to ensure success. First, must be a love and adaptability to the business; second, a suitable location as regards nearness to shipping points, and suitable character of the land; third, the selection of trees for the future orchard, their planting and after care. Each man must decide for himself whether he possesses the first qualification, and if he decides in the affirmative, either make the most of his present location, or seek a new one, which will be well adapted to the purpose.

The rapid extension of apple culture in the past quarter century or more has been made possible by the

cheapness and ease with which young trees could be obtained. The nursery business has doubled and then doubled again, and the aim has been to produce and sell a large number of trees at a low price. The trees have been propagated and grown at the lowest possible cost with the idea of getting a large, finely shaped tree at time of selling. Beyond this the average nurseryman has given little or no thought. Scions for propagation have been taken from young trees in the nursery rows and this continued for several generations has led to the production of trees whose chief end is making wood growth. The result of this is seen in thousands of trees which are rank growers, tardy in coming into bearing, and when they do bear produce only a small quantity of fruit.

The nurserymen are not entirely to blame for this condition of affairs. The demand from planters has been for low priced trees and the nurserymen have sought merely to supply this without taking any other responsibility on their shoulders. Anyone who contemplates setting an orchard, either of 10 trees or 10,000, and wishes the maximum return from the same, must begin at the beginning, which is the selection of scions from which the young trees are to be propagated. He must even go further than this, and get the best stocks on which to work these scions. Many, but not all, farmers and fruit growers are so situated that they can propagate their own trees better than they can buy them. Grant that the nurseryman, through his greater skill, can produce cheaper trees, I doubt if he can produce better ones.

It is hardly necessary to enter into a discussion of plant breeding, and it is almost needless to say that apple or other fruit trees are as susceptible to breeding and improvement through selection as are cows or pigs, or any kind of live stock. This being the case, which it seems to me is not open to argument, it behooves the tree planter to select his scions from trees which possess the greatest number of

desirable characteristics, among which are early, annual and prolific bearing of high quality fruit, and a healthy and vigorous growth. A slight investigation of the individual trees which make up an orchard will show wonderful differences in this respect.

There are two ways open to the tree planter in securing his trees—he may grow them himself, or co-operate with some reliable nurseryman to produce them for him. Each plan has its advantages, and each grower must decide for himself which plan to follow. A grower who contemplates setting only a small orchard and who wishes to get his trees with the least trouble and expense and yet secure the best quality, would probably get better results by co-operating with a good nurseryman. Make your contract with the nurseryman that you will furnish him the scions and that from these he will propagate and deliver to you at a specified time a given number of trees of a stated size, headed at a given height. Be sure to specify just what you want. If you want the trees headed at three, four or five feet be particular to state it. A grower who contemplates setting a thousand or more trees can probably save something by raising them. Two methods of propagation are at hand—root grafting or budding. Well grown American seedlings can be purchased at a low price, or a grower, if he chooses, can select seed from thrifty, hardy trees and plant them, but unless one has a soil particularly adapted to this purpose the result in growing the seedling stock may be disappointing. If root grafting is practiced the work can be done during the winter when one is supposed to have most leisure in farm work and when duties are less pressing. The budding must be done in the late summer when other work is sometimes rushing and competent help difficult to secure.

Too great care cannot be given to the selection of scions. The good as well as the bad faults of the parent tree are reproduced in the young trees. Cultivation and location, how-

ever, have considerable to do with modifying these tendencies. First of all the parent tree must be healthy and a good grower. Otherwise it cannot produce large crops of good fruit through many seasons. In addition to a good constitution the tree must produce fruit of the highest type. There is a wonderful difference in trees in this respect, and it is more noticeable in some varieties than in others. Take Baldwins, for instance, one tree in the orchard may give a high colored, hard, firm apple, the next tree to it a large soft-grained fruit, lacking in keeping qualities as well as color. The parent tree should also not only be a prolific bearer, but yield a good crop each year. We have too many trees that bear only every other year. It is the moderate yearly bearing trees which will produce the best fruit and the most of it during a series of years. Feeding and culture will do much, however, to intensify the yearly bearing capacity. I have seen such highly profitable results from the selection of scions for propagating young trees that I want to impress upon my readers the importance of it. I have in mind a certain Sutton Beauty tree which came into bearing three years from the time it was planted and has produced a good crop of fruit every year since. It bore one year earlier than any Sutton tree in the orchard, two years earlier than most of them, and from three to four years sooner than some of them. Many scions have been taken from this tree and over 90 per cent of the trees propagated from it which have come into bearing, have shown these same characteristics of early and annual production.

The apple is adapted to a wide range of soils and location. In selecting location of the future orchard chose high, moderately rich and well drained land which is fairly smooth, level and can be easily cultivated. While there are many profitable orchards on fields too rocky or too steep for cultivation, I think it unwise to set a new orchard on such land. Cherries often do well

on such fields. The trees must be cultivated for the first half dozen years at least. Possibly 2 per cent or 3 per cent of orchard sites are on such land that the trees will give profitable returns if the land is seeded down to grass after the trees come into bearing. The vast majority of growers can get the most profitable returns from orchards which are cultivated on land that produces nothing but apple trees. As spraying has come to be a necessity the advantage of level land for an orchard site is apparent.

Land for apple trees should be in good heart and preferably cultivated for a year or two previous to setting. The distance apart, for setting the trees, should be governed entirely by the purpose for which the orchard is grown. If you are setting an orchard for your children, plant the trees 35 to 40 feet apart each way; if you are growing it for quick returns, plant the trees 16 to 20 feet apart each way. In the northeastern states, where trees make relatively slow growth, are from 6 to 10 years in reaching bearing age and live for a century, a different system of planting should be followed than in the west and southwest, where trees reach bearing age in two to four years and die of old age before twenty-five.

It is possible and profitable in this section to secure a combination of early bearing and long lived orchards. For this purpose I should plant a permanent orchard, in which the trees are to stand from 30 to 40 feet apart each way, the distance depending on the variety, some wanting more space than others. I would plant these permanent trees of those varieties which are notable for long life and continued heavy bearing, such, for instance, as Baldwin, Northern Spy, Roxbury Russet and Rhode Island Greening. Between these plant a row of trees each way of varieties which come into bearing early and which can be removed when the permanent trees need the room. This will mean that the trees stand from 15 to 20 feet apart each way, which will be ample

for 10 to 15 years. If a man has not the courage to cut out an apple tree when it is beginning to crowd two others which are more valuable he should not set his trees so close, and if he cannot set his trees so close he should not attempt apple culture as a business. Close planting will give the maximum returns from a piece of land in a minimum of time.

Clean culture is demanded from the start. This does not mean keeping the ground bare of all other crops. Grain should never be grown in a fruit orchard of any kind, except as a cover crop for winter protection to turn under in the spring. Potatoes make an ideal crop to grow in a young orchard. For profitable returns they require high fertilization and frequent cultivation early in the season, which is most favorable to the trees. They are harvested in time to sow a cover crop of rye, oats or vetches, which will afford winter protection to the ground and make enough growth to hold snow. Squashes also make a good orchard crop.

Low headed trees are desirable in many ways. They can be sprayed much easier and the expense of picking, as well as pruning, is lessened. As the tree grows older it is unnecessary to plow or harrow close to the trunk and a strip several feet in width may be left. The feeding roots are out beyond and but little grass or weeds will grow in this strip if uncultivated. Because of this fact, and further that orchard tools as now made will work successfully several feet at one side of the horse, cultivation under low headed trees is easy.

In my own orchard I have set largely two-year-old Northern Spy trees, then top budded or grafted. This gives a tree with a very healthy, hardy body and makes possible the growing of some varieties which produce fine fruit, that are rather weak growers. The question of varieties must be left to each grower. A study of market centers reveals the fact that commercial varieties are few. As a general rule the most profit can be made from

those varieties most in demand. Eastern markets know the Baldwin, Greening, Northern Spy, Spitzenburg, Russet, King, Gravenstein, Wagner, Wealthy and a few others and will take them in almost unlimited quantities. There is a demand at high prices for a limited

quantity of a few choice table sorts from fruit stands, hotels and fancy grocers. A safe rule to follow is to plant such varieties as do best in your location, the fruit of which is of good size, color and quality. A good apple will bring a good price anywhere at any time no matter what its name.

ENLARGING OUR SPHERE OF INFLUENCE

By Scott H. Perky, '06

I should like to outline the history of a movement attempted two years ago by the Alpha Zeta Fraternity of Cornell, as it may be of interest to the students here, especially at this beginning of a new era of aims and developments in the College of Agriculture. The movement failed, but its failure was due to the depressing epidemic that visited Ithaca in the spring, and not, we believe, to any sufficient indifference on the part of the members.

Early in the winter the idea grew with certain of the members that nothing would do so much to insure the Fraternal spirit and strengthen the Chapter as some kind of effort that would engage all its members in the improvement of self through aiding some cause. The matter was brought up and a paper presented by one of the members, whose argument in brief was substantially as follows:

Our Fraternity is technical, and should be in some measure a working Fraternity. Some work should be chosen into which every man would put some thought and effort. We should practice a kind of economy in the choice of this work, the principles of which economy of choice would seem to include the largest results for the least effort and for the highest satisfaction, and the most influential work in respect to our Fraternity and probably to our college.

The nature of the work proposed seem to meet the requirements. We

were to make ourselves acquainted with rural communities and conditions within a radius of several miles of Ithaca; to meet the farmers individually and collectively—visiting them in their homes where welcome, and joining in and holding meetings; to work through farmers' organizations whenever permitted. Our objects were to become acquainted with farming men, and to make a study of rural conditions; to exchange opinions with the farmers, with a view to enriching our knowledge and, in some measure, theirs; to acquaint the farmers with the work at Cornell—a matter in which they are strangely uninformed—to the end of encouraging a better feeling and honest inquiry regarding the College of Agriculture; to better, to whatever extent we may be able, through influence, social, educational, and sympathetic, the rural conditions within our field. All this was expected to greatly enrich our Fraternity life.

There was no dissenting voice to this proposal. Indeed, the Chapter took it up with enthusiasm, and resolutions were passed, committees formed, and the machinery was started wherewith to put it into effect.

The initiatory attempt was made shortly after the Christmas holidays at a farmers' club meeting in a town several miles from Ithaca. Three of the members were delegated. They were made very welcome. Short talks were given by them, and they

answered several questions about farm operations. We thought this a good beginning.

Our next attempt, which was to be made at the George Junior Republic, was prepared for with considerable interest. It was planned that four or five of our number should give short talks on interesting topics, one of which was to be illustrated by lantern views. The day before we were to go, however, Mr. George was telegraphed that we could not be with him, as three of the speakers were sick. The typhoid epidemic was then at its height. Conditions were so depressing, that the work had to be suspended. No effort has yet been made to repeat the experiment this year, although the wish that it might be done is strong with several. The experiment was too brief and incomplete to fetch any results.

It was intended that this work should extend beyond the Chapter and become in time a work engaging as many students in the College as could be enlisted. Indeed, for the George Junior Republic excursion, one of the speakers procured was outside the Fraternity. The Chapter was merely starting a work that it hoped would spread to all colleges of agriculture.

A year or two will pass, perhaps, before a similar work will be started. But whenever or wherever it will be, it can only claim success where a former attempt, here recorded, failed. The work will be generous but practical, for the more the college youth instill the spirit of hope and of progress where it is too easy to find none, the surer and sooner will the farming country assume the right proportion and arrive at a substantial prosperity.

MEETING OF THE SOCIETY FOR HORTICULTURAL SCIENCE

By John Craig

Professor of Horticulture, Cornell University

IT may be well for the benefit of those who are not familiar with this new society and its workings to say that it was organized in Boston in September, 1903; that during convocation week of the same year in St. Louis it met with the American Association for the Advancement of Science; and that its second formal annual meeting took place with the A. A. A. S. in Philadelphia at the University of Pennsylvania, Dec. 27 and 28, 1904.

The society stands for the advancement of the scientific side of horticulture; for the promotion of horticultural research. At the organization of the society, Professor L. H. Bailey consented to take the presidency, and, much to the gratification of the membership, he has continued to serve as chief executive.

The attendance at the Philadelphia meeting was excellent, considering the large number of counter-attractions. The papers lived up to the tenets of the society—they were brief, pithy and suggestive.

The president presented an illuminating and inspiring address on "What is the future for Horticultural Science?" It is hoped that this address will shortly appear in print. Even an abstract would be most inadequate. The speaker pointed out that it was difficult to say where horticulture began and where botany left off. He showed the composite character and great scope included in this broad field of study, the gradual growth of the pedagogics of horticulture and the great opportunities for the student who has the point of view and knowledge of a horticulturist

combined with the training of a plant physiologist.

The address was listened to with much satisfaction by the members of the Society for the Promotion of Agricultural Knowledge as well as the members of the Society for Horticultural Science.

Among the papers presented were two, by L. C. Corbett, of the United States Experimental Farm at Arlington, and W. W. Tracy, of the Seed Division of the U. S. Department of Agriculture. These bore upon the necessity and value of co-ordinated variety tests in vegetable studies. The writers also pointed out that commercial descriptions were of little or no value in distinguishing varieties. They were indefinite, vague and of practically no assistance in determining questions of nomenclature and classification. They urged the necessity of making type descriptions of varieties when first introduced. Carrying out this idea, a committee of the society was appointed to consider the question of standardizing descriptive horticultural methods. The committee was also asked to report upon the matter of a registration bureau where type descriptions of new varieties might be filed when the variety was introduced.

Papers upon various phases of the important cover-crop question were presented by U. P. Hedrick, of Michigan, and W. T. Macoun, of Ottawa. The gist of Mr. Hedrick's paper was that our knowledge of the inter-relations of plants was yet too limited to enable us to dogmatize on what plants were best for this kind or that kind of fruit crop. Mr. Macoun recommended the English horse bean for orchard cover-crop purposes. While it yielded less of nitrogen than vetch and clover, it had proved vigorous, was a good snow collector and could be readily plowed under in the spring.

A paper by C. P. Close, of the Delaware Experiment Station, showed that it was possible for plants to de-

velop chlorophyll under the exclusive influence of the Cooper-Hewitt mercury vapor electric light. His experiments did not compare this illuminant with others such as arc or incandescent lights, but simply demonstrated the point already mentioned. While the formation of chlorophyll was normal, the development of the plant was very abnormal. Lettuce plants became very much drawn and even took on a twining habit. Radishes failed to bottom and were very much attenuated. Owing to the small cost of this light as compared with arc or incandescent, there may be a future for it in the winter forcing of plants.

P. J. Parrott, of the New York Experiment Station, showed that better results in the use of lime and sulphur as an insecticide and fungicide were obtained by making one application of this mixture during the dormant period and following it with two applications of Bordeaux mixture at proper intervals than by using Bordeaux mixture throughout. This is an important observation. The value of lime and sulphur as an insecticide has been demonstrated, but it had not yet been shown that its efficiency was increased by supplementing it with Bordeaux mixture.

N. E. Hansen, of the South Dakota Experiment Station, described a number of experiments which he had under way for the purpose of developing a race of fruits capable of withstanding the vicissitudes of northwestern winters and summers. Extensive breeding experiments with sand cherries and plums resulted in many thousands of seedlings being produced which are now undergoing the process of selection. Mr. Hansen has succeeded in making a number of curious combinations, such as the peach and sand cherry; the sand cherry and nectarine; the sand cherry and *Prunus Simoni*. We may look for some freak fruits from these unions.

The progress of horticulture in foreign countries was outlined respect-

ively by S. Frazer for Great Britain and Ireland, and W. T. Macoun for Canada and the British provinces.

Other papers presented were, "An Experiment on the Selection of Seed Potatoes" by H. J. Eustace, N. Y. Experiment Station; "The Value of an Orchard Survey" and "Some Interrogation Points" by J. Craig, Cornell University, and "Mendellism as Exemplified by Carnation Crosses" by J. B. Norton, U. S. Department of Agriculture.

There were some changes in the officers' list. V. A. Clark, Arizona Experiment Station, becomes secretary, and U. P. Hedrick, Michigan Agricultural College, assistant secretary. W. R. Lazenby, Ohio, W. M. Munson, Maine, and John Craig, New York, won places upon the executive.

There is no doubt that this society has a place and a mission. Its membership and meetings are marked by earnestness and enthusiasm.

FARM LABOR THE WORLD OVER*

THE editors of the *Cornell Countryman* have tried repeatedly to obtain articles on the farm labor question. It seems to be an impossibility to get coherent discussions of the subject. To encourage further investigation of this, the most pressing topic of today, we shall bring in these columns incoherent labor notes from the various fields of agricultural activity for a comparative study of the essential points.

England.

As an illustration of the wagescale existing for farm help in England may serve a few quotations from the *Mark Lane Express*, London, on the Martinmas Hirings.

"A number of second Martinmas hirings were held November 21-28, and in the majority the wages, as at the first hirings, were lower than last year, and as a rule the supply was more than demanded." Here are the details of one of the chief hiring fairs:

Darlington.

"The November hirings at Darlington on Monday brought a good number of both male and female servants. Rates of wages for female servants were maintained, but there was a downward tendency for men and lads, the latter being plentiful. First class

managing men and foremen got from £26 to £30 for the year; good ploughmen £18 to £21; secondary lads, £14 to £16; and younger boys, £8 to £12 each. Females for dairying and farm work, £18 to £21; cooks, £19 to £22; secondary servants for domestic or farm £12 to £15; younger girls, £7 to £10." The first hiring fairs occur in England at the Whitsuntide. In some cases the wages at the second hirings were £2 or £3 less than at the first hiring.

British East Africa.

The value of human labor varies considerably in the different parts of the territory. The Kavirondo labor is paid with 1 1-4 pence per day. In the agricultural districts of Kikuyu and Masailand the price is 5s. 4d. to 6s. 10d. per month; in the coast districts, however, it is 9s. 4d. per month. As the main business at present lies at the coast we must accept the wages there as representative. These are about 1-2 the wages of an Egyptian laborer just as it actually costs for farmwork done one-half of the Egyptian price for value received.—Facts taken from "*Der Tropenpflanzer*."

Philippine Islands.

From an article by Alleyne Ireland in the "Outlook" a few statements re-

* Send contributions for this department to C. B. es.

garding the labor conditions in the Philippine Islands are interesting.

"The war, with its aftermath of ladronism, has thrown much land out of cultivation; plagues of locusts, and rinderpest among the cattle, have inflicted severe losses upon the agriculturalists; but the most serious direct blow to industry has been the absorption of all the better labor supply of the islands by the government service.

"The high rate of wages offered by the army and by various government undertakings has drained the country districts of that small proportion of the population which can by any stretch of the imagination be called hardworking, and there remains for

the use of employers outside the towns a force of laborers not only inefficient in quality but hopelessly insufficient in quantity."

Not entering into the pros and cons of imported Chinese labor Mr. Ireland states as his opinion that "the only possible road to economic salvation for the Philippine Islands lies in that direction, and that, so far from the introduction of Chinese labor inflicting an injury upon the Filipinos, there can be no doubt that it would result, as it has done elsewhere, in material improvement in the lot of the natives, through the general increase of business due to the presence of a hardworking and peaceable population of laboring men."

THE COMING POULTRY SHOW

By J. G. Halpin, '06

LAST year the students in Poultry Husbandry held a Poultry Show. The fact that this show was a success is readily seen by the interest that outsiders, as well as the poultry students, are taking in the coming show which will occur on the 13th, 14th and 15th of February. Mr. McGrew will be in town and deliver poultry lectures just previous to the show. Then Mr. Orr will be here to judge the show. Other noted poultry men will probably also be in attendance.

Last year the entire show, with the exception of the incubator display, was held in the judging pavilion. This year a three-story building has been added to the department and supplies a long felt want, affording room for a much more extensive display of poultry and implements connected with poultry husbandry.

In the cellar of this new building will be found a display of incubators. Many of the best makes of machines are already in the incubator cellar and we hope that several others will be added and in operation in time for the show. Here is a chance for the man or woman, who does not know what

kind of a machine to buy or is not satisfied with the machine that he or she is using to see the different makes of machines in operation side by side, thus offering a much better opportunity to select one than if he visited several incubator factories in succession.

In another part of this cellar will be found the egg room which doubtless will interest many poultrymen. Next to this is an egg testing room which is being fitted up in the most modern style. A display of bone cutters and other machinery will be found also in this cellar.

The first floor will be of no less interest it is hoped. The poultry department already owns one of the best collections of eggs in the United States. These will be properly arranged and labeled, affording an excellent opportunity to compare the typical eggs of all of the breeds that are raised to any extent in this country.

In the same room will be found a display of poultry books and magazines. The association will receive subscriptions for any of these magazines and sell the books at the lowest pos-

sible figure. But few people realize the rapid stride that has been made in the last few years along the line of poultry literature. We hope that the visitors to the show will note the large number of well written magazines and subscribe for some of them. An increase in the interest taken in poultry literature is a good thing and if the association can help this along we feel that we have accomplished some good.

On the same floor will be found a very choice collection of poultry pests such as the weasel, fox, skunk, hawk, crow, etc. Enlarged drawings of insect enemies will be displayed on the walls. Also plans of poultry houses, trap nests, and various other devices will be found. Various kinds of feeds will also be displayed. A large number of prepared foods, grits, etc., are on the market, these will all be labeled, affording a good opportunity for the novice at least to see what these are.

Finally a section of this floor will be given up to a display of bantams. An effort is being made to reach as many as possible of the nearby breeders of choice bantams and it is hoped that we may secure one of the finest displays of these interesting little birds that has ever been seen in this section. Belgian hares and pigeons will also be included in this display. Squab raisers in this section are earnestly invited to correspond with the association if they have any birds that

they could spare for the show.

All of the larger fowls will be found in the judging pavillion. The department already owns representatives of fourteen breeds of chickens and four breeds of ducks. Several other breeds will be shown including representatives from some of the prize winning flocks of E. G. Wyck-off.

Each student in Poultry Husbandry will draw a slip telling him to go to a certain pen and select fowls to enter the competition. He is then required to judge the entire show. Thus, each student receives practice in selecting, fitting and judging fowls the same as is done in actual practice. The entire show will then be judged by Mr. T. E. Orr, secretary of the American Poultry Association, thus furnishing the best kind of a check on the student's ability as a judge. Students passing more than 90 per cent in judging will receive a certificate of proficiency in judging. It is also hoped that some kind of a prize will be awarded to the student who shows the greatest proficiency. Students and others not actually taking poultry are requested to take part in the contest but are debarred from receiving any other reward than honorable mention.

The show will soon be here and the hearty co-operation of all is earnestly requested to help us to make the show a great success. Come and bring your friends and any choice poultry that you wish to exhibit.



The Cornell Countryman

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FEBRUARY, 1905

The Practical Value of Bul- letins 22, 23

There has been a storm. It was caused by an anti-chemical view of the fertility of the land. Since the days of von Liebig the fertility of the land has been measured through a hydrochloric acid bottle. The fury of the storm seems to be due to the meeting of several storm centers, most important of which has been Bulletin 22 of the Bureau of Soils. There were others. Now that the troubled waters have become somewhat calm, and the boatmen are putting for harbor at all possible speed, it may be worth while to take an inventory, and see what remains that is sound and usable. The wreckage has not been nearly so great as seemed possible when the storm was at its height.

The seeker after the truth may hold fast to the following propositions. (1) That the percentage of water soluble salts in the soil is associated with the rate of yield in enough instances to suggest cause and effect.

(2) The percentage of water soluble salts of "plant food" can be modified by a proper soil management which includes tillage, the adding of stable manure and chemical fertilizers.

(3) In order to be effective the

water soluble salts must be in the right place, that is, where the roots are, not concentrated near the surface. Concentration near the surface can in some measure be prevented by tillage, so that there are at least two reasons for tillage, namely, to modify the water-plant at any moment of time.

(4) In many instances, more perhaps than has been popularly supposed, soils having equal quantities of water soluble salts yield very different quantities of the same crop. In other words, the limiting factor in plant production has been shown to be in these cases due to some other factor than "plant food." In some cases the yield seems to be related to the amount of water available to the plant,—not necessarily the per cent of water in the soil. In other cases, it has not yet been shown that the limiting factor is.

(5) A fact of considerable significance brought out in the discussion (a piece of driftwood washed ashore) is that the humus in the soil does not depend alone upon the amount of organic matter applied, but upon the rate of decay. The management of the soil should be such, therefore, as to modify the rate of decay to the needs of the soil. Unfortunately, suggestions of practical value in thus managing the soil have not yet been made.

(6) The old mathematical notion of the exhaustion of the soil, the idea that there are a certain number of pounds of plant food in the soil, that a given number of crops would exhaust this plant food, and then crops could not longer be raised, has been relegated to the rubbish heap. Twenty years ago the dismal theory was taught that the soil was

made fertile through ages of accumulation of nitrates washed from the atmosphere and stored in the humus of the soil. It would only be a few years until all this nitrogen, thus accumulated plus that accumulated in a few nitrate deposits would be exhausted, and then the human race would silently disappear off the face of the earth, although bathed in an atmosphere of plenty. Fortunately for mankind, nature is not ordered in accordance with the limited intelligence of its members. All history and all science, when properly interpreted, give no warrant for the belief that the human race is to starve to death through the exhaustion of the soil. Both equally emphasize the fact that the crop producing power of the soil may be temporarily and quickly injured through improper management.

(7) From all this discussion the thoughtful farmer will see no less importance to the careful preservation of farm manure or the judicious application of commercial fertilizers, but he will perceive the importance of not limiting their effectiveness from lack of proper drainage, improper or insufficient tillage, or from the lack or injudicious rotation of crops.

New York State Roads

"The Legislature at its coming session will be asked to make an appropriation of \$4,000,000 for the immediate improvement of highways in this State under the Higbie-Armstrong act, and again to enact the bill which will authorize a \$50,000,000 bond issue for the carrying out of an extensive plan of highway construction devised by State Engineer and Surveyor Bond one year ago. This program

was outlined by the executive committee of the annual Good Roads Convention of delegates representing the various boards of supervisors of the State to be held at Albany January 24 and 25. This executive committee represents 350 delegates from 57 counties of the State, which are interested in road improvement, and it is the duty of the committee to prepare recommendations for legislative enactment.—*Rural New Yorker*.

We refer our readers to our December issue regarding the plans for this work, where Mr. White develops the \$50,000,000 proposition.

A New Horti- culture Paper

As various papers on Horticulture from time to time become extinct, others spring into existence to correspond. Only within a few months one of the oldest and what was formerly known as one of the standard garden magazines, "American Gardening," has entirely dropped out of existence. Then on the other hand, for instance, "Country Life in America," of only a few years duration, has become one of the most popular and widely spread of the many publications on Horticulture, Landscape Gardening and allied subjects. The new magazine "Horticulture," which has just recently appeared, promises to be a very valuable paper as it is to be especially devoted to the commercial side of Horticulture but will also treat thoroughly on Landscape Gardening and kindred subjects. The editor and manager, Mr. Wm. J. Stewart, of Boston, Mass., is, and has been for years, the Secretary of the Society of American Florists and it is quite evident that the paper will become quite widely spread and well patronized through this established foundation of advertisement.

The paper gives many good articles by eminent horticultural writers; also collections of short articles from various parts of the country on outdoor art and craft; the wholesale cut flower market reports; directory and news of clubs and societies; the market gardener, and many other minor things of interest to the Horticulturist and Floriculturist.

GENERAL AGRICULTURAL NEWS

Preaching the Gospel of Good Seed Corn.

culture? The West does. The above poster announces the "Seed Corn Special" taking Professor Thomas L. Lyon, Cornell '91, of the University of Nebraska through the state lecturing on Corn Raising. The train consists of two parlor cars and two lecture coaches seating one hundred persons each, in which lectures are given simultaneously. The Burlington R. R. furnishes the train. These revival meetings in agriculture were inaugurated by Professor Holden in Iowa last year.

* * *

Recently the Italian Commercial agent at Washington asked the Italian Immigration Commission for the formation of colonization societies to check the accumulation of Italians in the cities and cause them to acquire agricultural lands. Former Italian Ambassador to the United States Baron Flava dwells upon the results which have followed such attempts up to this time, in an article in "Nuovo Antologia," Rome. The practical results drawn out of this discussion are that, while Irish, German, Scandinavian and Swiss emigrants will avail themselves of the opportunity to take up the claims, the Italians, as a rule, will not. The Italians are "birds of passage" in America. Their yearning for their homeland is such, that they surely want to return. The Italian peasants are not willing in most cases to acquire land by their labor but desire cash payment. Baron Flava speaks of individual colonization attempts as the colony at Vineland, N. J., and at Asbi, Cal., both of which did not in any way reach the end they started out for. In a recently opened colony at Lodi, Cal., the peasants reserved the privilege for themselves to seek work elsewhere during the six months when the vineyards did not require their presence absolutely. It is the opinion of the former ambassador that such societies will hardly succeed in this country under present conditions. He considers Brazil and

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| DECEMBER 14 | DECEMBER 15 | DECEMBER 16 |
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| 7:00 a.m. - 8:00 a.m. - 9:00 a.m. - 10:00 a.m. - 11:00 a.m. - 12:00 m. - 1:00 p.m. - 2:00 p.m. - 3:00 p.m. - 4:00 p.m. - 5:00 p.m. - 6:00 p.m. - 7:00 p.m. - 8:00 p.m. - 9:00 p.m. - 10:00 p.m. - 11:00 p.m. - 12:00 a.m. - | 7:00 a.m. - 8:00 a.m. - 9:00 a.m. - 10:00 a.m. - 11:00 a.m. - 12:00 m. - 1:00 p.m. - 2:00 p.m. - 3:00 p.m. - 4:00 p.m. - 5:00 p.m. - 6:00 p.m. - 7:00 p.m. - 8:00 p.m. - 9:00 p.m. - 10:00 p.m. - 11:00 p.m. - 12:00 a.m. - | 7:00 a.m. - 8:00 a.m. - 9:00 a.m. - 10:00 a.m. - 11:00 a.m. - 12:00 m. - 1:00 p.m. - 2:00 p.m. - 3:00 p.m. - 4:00 p.m. - 5:00 p.m. - 6:00 p.m. - 7:00 p.m. - 8:00 p.m. - 9:00 p.m. - 10:00 p.m. - 11:00 p.m. - 12:00 a.m. - |

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Argentine with their Latin population and conditions in many ways similar to those in Italy, better adapted for such purpose.*

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The Belgian physician Dr. Samarini and the electrician Guarin have found a way to sterilize milk by electricity. The final results are: Milk under the influence of an electric current will become completely bacteria free: (1) when the current is an alternating current to prevent electrolytic decomposition of the milk; (2) when the strength of the current is sufficient to insure the killing of all bacteria; (3) when the potential is sufficient to overcome the resistance of the milk. The process is said to be simple and may be applied wherever electricity is available.—*Deutsche Landwirtschaftliche Presse*.

* * *

At a meeting of the Board of Directors of the Louisiana State University and of the Agricultural and Mechanical College, held November

5, the resignation of Prof. W. C. Stubbs as director of the State Experiment Station was accepted, and Prof. W. R. Dodson, present director of the local station, was appointed to fill the vacancy.—*The Demeter*.

* * *

The United States Department of Agriculture, according to the *Experiment Station Record*, placed the contract for the new laboratory building of the department at Washington with a New York firm upon the bid of \$1,171,000. Out of the balance of the \$1,500,000 appropriation probably a powerhouse and the mechanical equipment could be provided. According to the contract the building must be finished in the spring of 1907.

* * *

In 1897, when the Rural Free Delivery of mails began, \$40,000 were appropriated. During the last year nearly \$13,000,000 have been expended. October 1st, 1904, 27,135 routes were in existence, and these were added to at the rate of about 800 per month.

CORNELL NEWS

CAMPUS NOTES

Mr. M. J. Iorns is conducting an interesting experiment to ascertain the effect of acetylene light upon plant growth. The machinery and appliances, even to the calcium carbide, are furnished free by the various manufacturers and dealers. The work so far has progressed very favorably.

* * *

Prof. Craig gave an address before the Ohio Board of Agriculture on Jan. 12th, and another before the Students Experimental League of the University of Ohio, on Jan. 13th. He also, on Feb. 3d., addressed the Massachusetts

Society in Boston, on the subject of "The Historical Development of Horticulture in New England."

* * *

Prof. Pearson has written two bulletins for the Farmers' Reading Course. They are:

Bull. 21.—Care of milk.

Bull. 22.—Composition of milk.

* * *

The Assembly held Jan. 10th at Barnes Hall, combined its usual exercises with a reception for the Short Course students. Dean Bailey and Professors Roberts, Rice, Pearson and Fletcher spoke, after which the meeting resolved itself into a social gathering.

*We shall have in a later issue a discussion of the condition of Italian farm labor in Brazil.

FORMER STUDENTS

'01 Winter.—Harry B. Winters is conducting the Winters Farm at Smithboro, N. Y. The Winters Farm consists of 775 acres and is managed



HARRY B. WINTERS, '01

with three main objects in view; namely, the production of seed oats, Holstein cattle and clean milk. Mr. Winters is much interested in the improvement of seed oats by selection and so far his efforts have been very successful.

The farm is in the highest state of cultivation and all the buildings and equipments are of the best. The herd consists of 90 head of cattle, 75 of which are thoroughbreds and of the best strains in the country. The dairy is a model one, furnished with all the latest machinery and producing a pure, sanitary milk. One of the noticeable features about the farm is the order and system with which everything is done. The success attained at the Winters Farm not only demonstrates that a farm conducted upon scientific principles can be made to pay, but it also shows that scientific agriculture is the most profitable kind of agriculture.

Mr. Winters is president of the Agricultural Experimenters' League of New York State, the members of which are conducting experiments with farm crops, fertilizers, tillage, and feeding, dairy and horticultural subjects in various parts of the state. The league was organized by the Cornell winter course students of 1903 for the purpose of conducting these experiments on the home farm with the guidance and co-operation of the teaching staff of the College of Agriculture. Many such experiments are being carried on at the Winters Farm. Mr. Winters is an enthusiastic Cornellian and urges every Cornell student to keep in close touch with his Alma Mater.

'77 B. S. A.—F. M. Pennock has been appointed Director of Agriculture in the University of Porto Rico, at Rio Piedras. He is in charge of the University Farm comprising one hundred and thirty acres which is at present chiefly devoted to pineapple growing and grazing. An orange grove is being planted. Six thousand dollars have been made available for the establishment of an agricultural school upon this farm, which will be conducted on extremely practical lines. An important object of this school will be to prepare young men by a large amount of field work to be farm superintendents and foremen of fruit properties.

'94 Special.—Wm. H. Morgan is at Westmont, N. J., where he has a farm of thirty acres, twenty-seven of which are devoted to orchard and nursery crops. Cherries have proved to be one of the most profitable crops on his farm; Camden, Philadelphia and nearby towns being excellent markets. Since 1900 he has maintained a small nursery in connection with fruit-growing, making a specialty of California privet hedging and ornamental plants.

'97 B. S. A.—Mr. Wm. C. Bell with his wife who was formerly Miss Lena Heller of this city recently spent a week in Ithaca visiting city and university friends.

In July 1897 Mr. Bell with his wife

left Ithaca to take up practical work with others in a district in Portuguese West Africa under the auspices of the Phil-African Liberators League. The main object of this work was to establish a colony for the protection of liberated slaves and other natives who were imposed upon by the unscrupulous white trader. All inhabitants of the colony should be taught the broad principles of Christianity not alone by direct teaching, preaching and evangelization but also by honest and well directed productive industry and direct contact with practical Christian lives. For various reasons, however, the work of the League did not prosper, and while some members of the band returned to their homes in America Mr. and Mrs. Bell remained in the territory, working under the auspices of the American Board of Foreign Missions. While their work has been mainly along lines of Christian teaching, preaching and evangelizing, yet Mr. Bell has made many useful and practical applications of his knowledge and training in agriculture by introducing and propagating wheat, corn, strawberries and some vegetables and also by improving the poultry which he found there.

Mr. and Mrs. Bell have returned to the former's home in Lockport, for a year's needed rest and recuperation.

'01 Ph. D.—W. M. Munson, professor of horticulture in the College of Agriculture at Orono, Maine, is the author of an interesting and very readable bulletin, "Horticulture at University of Maine." This is not a scientific report, but rather an essay on horticulture in the state. He presents to the reader the conditions throughout the state, pointing out the opportunities for fruit-growing near

the thriving manufacturing towns and numerous summer resorts. An attractive field is also open to the landscape gardener and florist, as most of the cut flowers sold in Maine at present are grown in Boston. Prof. Munson then appeals to the young men and women of the farms, who intend to become horticulturalists, to take up, if possible, the four year course in horticulture at the state university as a preparation. While four years seem a long time, yet, "if rightly used these years may give information and training which it would require a longer time and many reverses to secure from practical experience." He lays stress on the training and broadening of the mind attained in the study not only of horticulture, but also of the sciences on which it is grounded; and such training is as valuable to the man as a farmer as though he had chosen any other vocation. Professor Munson hopes that the day is not far distant when agriculture may be taught in the rural high schools, for the benefit of those who cannot possibly take a four-year college course. He maintains that by the proper educational methods, as well as by more attractive home surroundings, the prejudice that many country children have against the farm may be changed to a love of nature and an enthusiasm for the farm home and its surroundings.

'02 Winter.—Walter S. Dickinson, together with his father and younger brother, have three farms at Groton, N. Y. On account of the press of work Dickinson was unable to attend the class re-union held at the State Fair in Syracuse. From the tone of his letter, however, it is evident that the pleasant recollections of his winter at Cornell are still fresh in mind.

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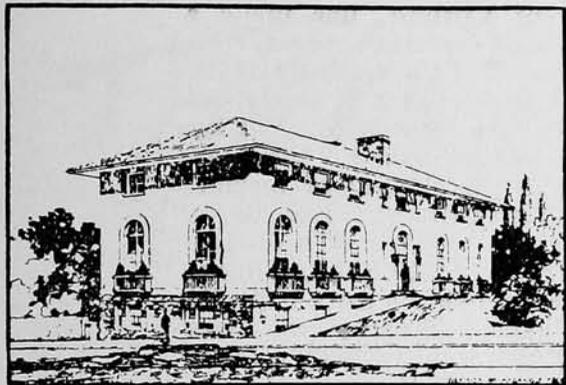
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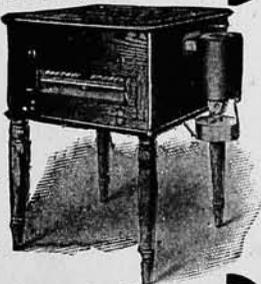
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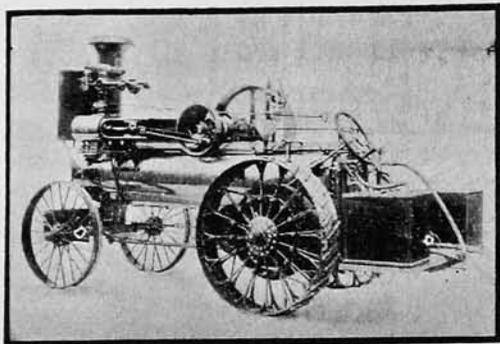
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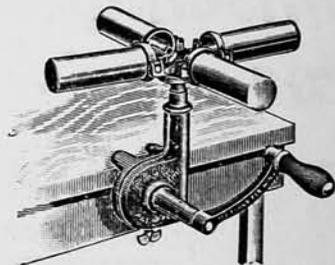
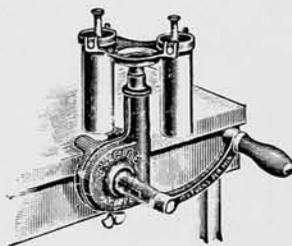


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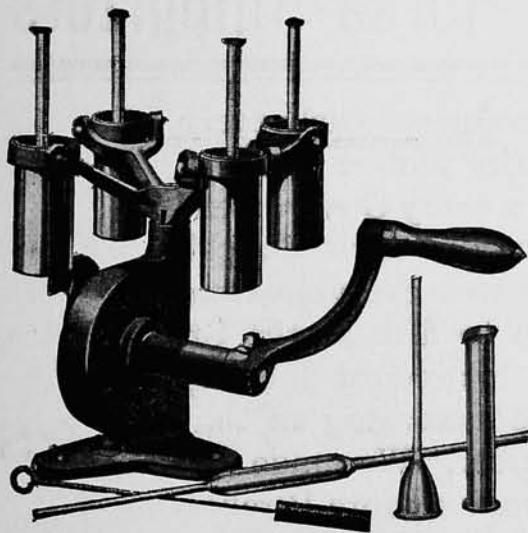
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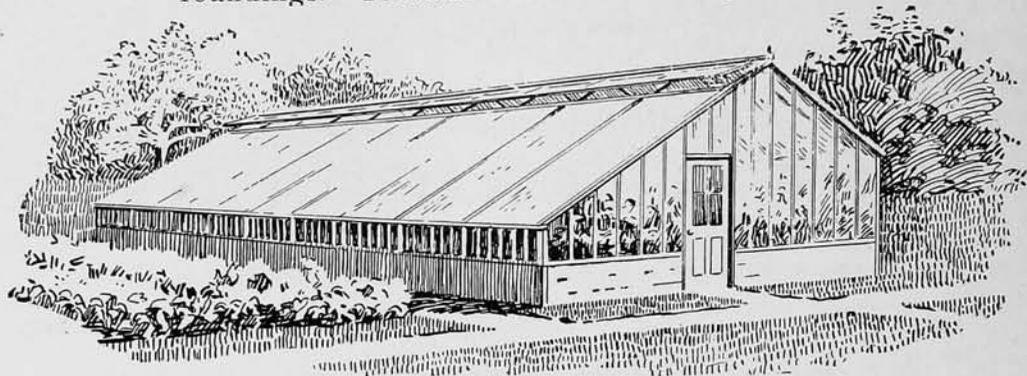
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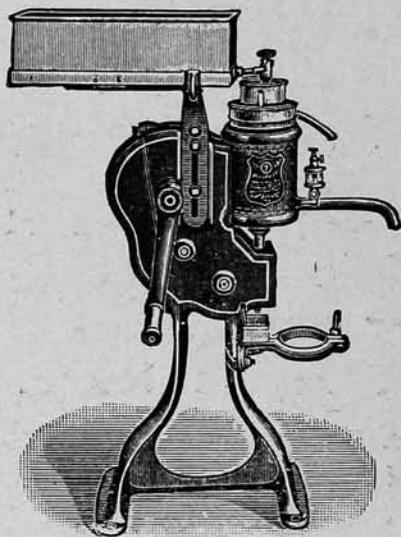
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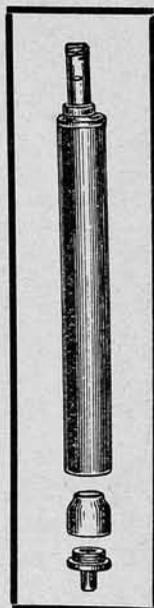
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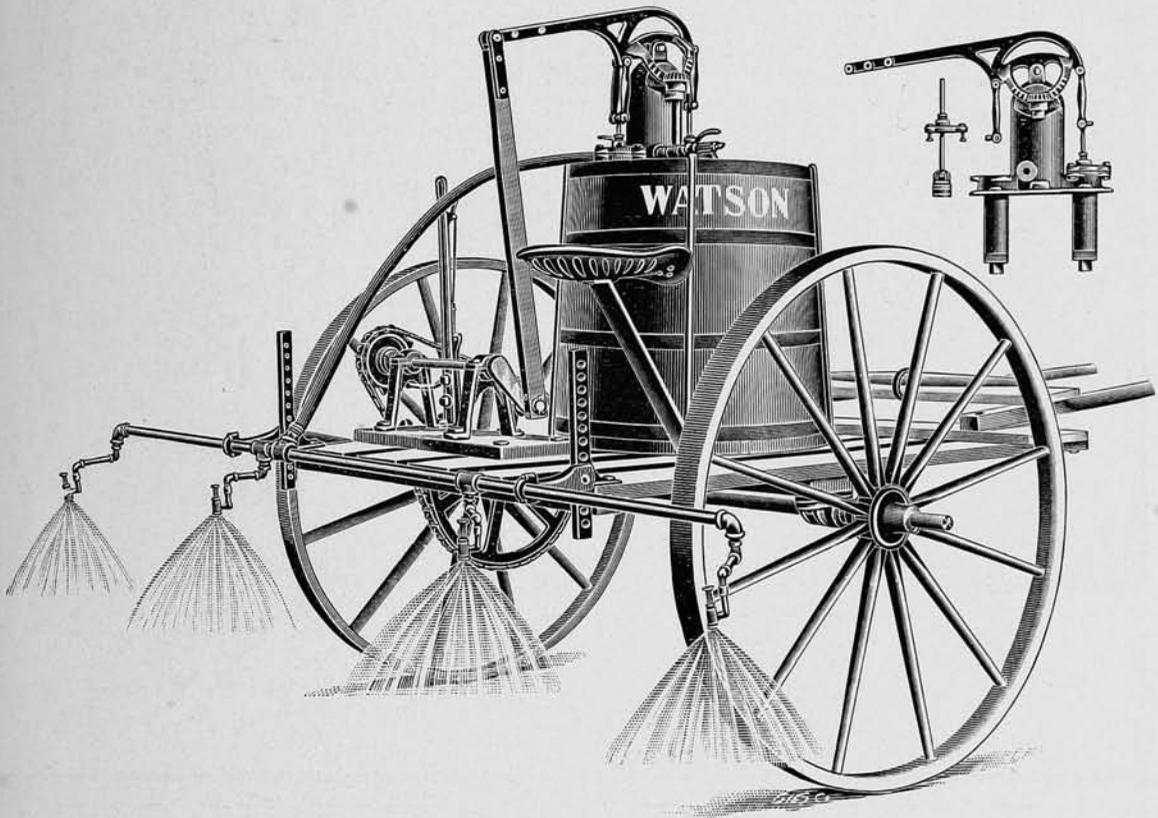
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ASK FOR GENERAL CATALOGUE

Prize Butter Awards ST. LOUIS EXPOSITION

Another De Laval Sweep

In the last number of this paper announcement is made of the butter awards at the National Buttermakers' Convention. These were independent, of course, of the regular exhibits of the Exposition.

Announcement is now also made of the higher prize butter awards in judging the many exhibits of butter by the Exposition proper, which show a similar clean sweep for De Laval users.

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GOLD MEDAL AWARDS

In addition to the Grand Prize five Gold Medal awards have been made, as follows:

| | |
|---------------------------------------|-------|
| L. S. EDWARDS, Lamont, Iowa..... | 96.62 |
| W. B. JOHNSON, Arlington, Iowa..... | 96.35 |
| M. SONDERGAARD, Hutchinson, Minn..... | 96.25 |
| L. S. TAYLOR, Glenville, Minn..... | 96.25 |
| S. W. LAIRD, Walker, Iowa..... | 96.06 |

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THE CORNELL COUNTRYMAN is an Illustrated Monthly Magazine, published by students and graduates of the Cornell University College of Agriculture.

MANUSCRIPT for publication should be received by the 10th of the month preceding that in which it is to be published.

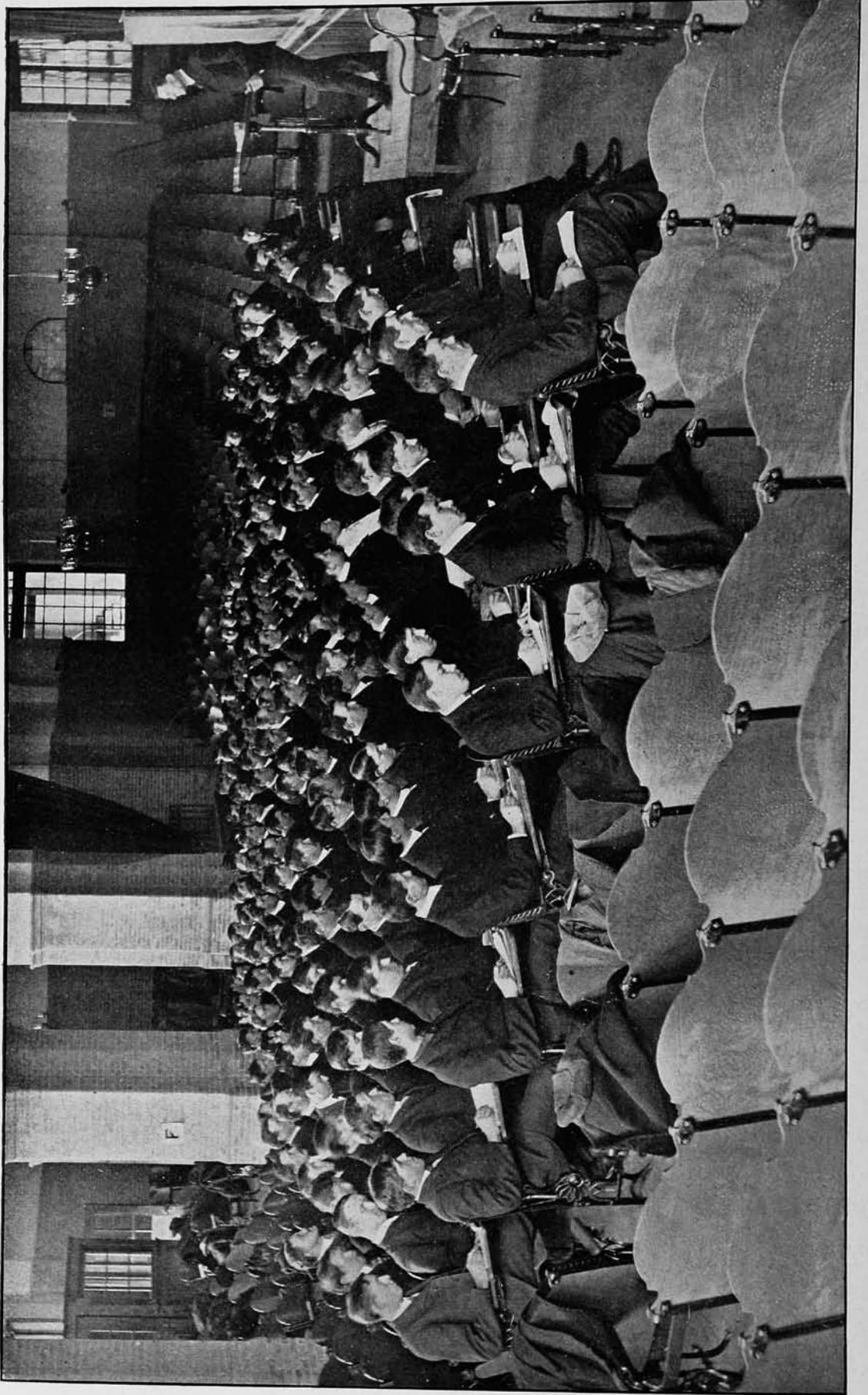
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MR. TRUEMAN LECTURING TO THE SHORT COURSE STUDENTS IN AGRICULTURE

THE CORNELL COUNTRYMAN

VOL. 2.

MARCH, 1905

NO. 6

SOME SOCIAL QUESTIONS CONCERNING NEW YORK STATE AGRICULTURE

By Jared Van Wagenen, Jr., '91.

THE sweeping social and economic changes of the last generation, have brought to the rural sections of New York State some new and pressing social problems. It is an unfortunate fact that while the progress of the world on the whole means an uplift of the race toward better social and moral life, toward easier conditions of living and a higher standard of comfort, toward a general realization of the popular dictum that these times are the best times in our race history, yet the fact remains—one of those hard, disagreeable facts in the evolutionary travail of the world, that certain isolated rural communities have largely failed to profit by this uplift—yes, have actually suffered because of the changes which accompanied it.

These reflections are from one who is an enthusiastic advocate of the advantages of rural life—whose family for generations has lived by the soil and who could wish no happier lot for his children and who believes that the conditions of which we shall speak have come about only because men have insisted in judging life by false standards and have failed to seek for those things which are best worth having.

A reading of those pages of the U. S. Census reports which have to do with New York State, reveals some facts that are at the very least curious and interesting. We shall easily see that beginning many years ago and at an accelerated rate during the last twenty years, the rural communities of New York State have suffered a

serious decline in population and land values and that these surface and relatively important changes resulted in a deterioration in social and religious life.

Our Empire State is in herself a magnificent commonwealth, with a life more complex and more luxurious than exists anywhere else in the world. Measured in terms of finance, of population, of trade and commerce, of education, of charity, she has literally no equal. She is a state to be proud of. She is in many respects the epitome of progress, and yet, there are so many lives in the State that stand untouched by all this rushing advance—sometimes it almost seems, the less able because of it.

Naturally the most apparent surface facts are those relating to the decline in population in nearly all those counties which have not within their borders rapidly growing towns and cities. Note some such facts as these: that in 1900 (the last census) there were 25 counties in the state that had less population than in 1870, thirty years before; that 18 of these counties had less population than 1860, forty years earlier, and that four of these counties, Chenango, Otsego, Schoharie and Tompkins, had less than in 1830, the most surprising instance being Otsego because the thriving little city of Oneonta has wholly grown up since that date. There is no county of the state where this tendency has been so marked as in Schoharie. In 1830 its population was 27,902. Thirty years later it had risen to 34,460 but in 1900 had fallen to 26,854—a gross shrinkage of

7,615 or 22.9 per cent. Its percent-decline during the ten year period from 1890-1900 was 7.9 per cent., and this has occurred despite the fact that Cobleskill, a village of 2350 inhabitants was a hamlet in 1860. Between 1890 and 1900, every township in the county declined in population, except Cobleskill, which increased 430, a gain accounted for entirely by an influx of stone cutters and Italian quarry laborers.

We are considering New York State because it is close at hand and Schoharie County, especially, because it is more marked in its decadence than any other county of the state. But far more extreme cases could be found in the New England States. There is one county in Massachusetts that has less population than in 1790—the first census—and there are plenty of the hill towns which have probably less people than at the signing of the Declaration of Independence. The vast mass of figures buried in the volumes of the census reports reveals only a part of the truth, because there are very few counties within the state but have some towns or cities which are making substantial growth, so that a county census, so far as the farm districts are concerned, does not show the real extent of the loss. It must be remembered that the decline in population has been drawn almost wholly from the farm communities and that the villages have generally had no share in it. To carefully analyze the question would require an examination of the state almost by school districts.

Coincident with the loss in population, there has been a very severe shrinkage in land values, the extent of which is not readily determined, being almost wholly a matter of averaging individual judgments. It seems to the writer after talking with assessors and representative farmers in various portions of the state, that this shrinkage is certainly not less than 50 per cent. during the last 35 years, the decline being greatest since the early eighties. It is not difficult to locate

special cases where the fall in value has been very much greater than this, and on the other hand, there are certain favored localities, notably the very desirable lands of western New York close to the trunk lines of railways where land values are high—perhaps not greatly less than in the palmy days about 1870. It is worthy of note that the old eastern county of Delaware, one of the mountainous counties of the state, with no large towns and soil of very moderate fertility has never shown a decline of population at the ten year census periods, doubtless due to the fact that she has developed a very highly specialized dairy industry. At the same time, land values in Delaware County, despite the fact that it is largely made up of narrow villages between rugged hills, have held up remarkably well. It is only one more example of the truth that where the dairy cow goes, she carries a blessing.

The decline in land values is the most apparent but by no means the most important factor in the rural problem. Land prices indicate only what men are willing to pay, not what land is intrinsically worth. The two standards may be very different. The real question for the rural sociologist to answer is this: What has been the effect of these changes upon the social, intellectual and moral life of the farm? Emphatically it is not a question that can be measured in terms of dollars. To a state as wealthy as New York, with resources and accomplishments as vast, it is a little thing that many millions of dollars should disappear from the assessors' rolls or that some tens of thousands of people should change their place of habitation, but it is of supreme moment if these changes effect unfavorably the life of her humblest citizen. On the surface of it, we need not greatly concern ourselves about declining agricultural population and diminishing farm values. But from these foregoing conditions, there have originated a train of consequences which cannot but be of grave import.

It is not a question of physical well being. In common with the rest of the world, the conditions of life on the farm are being made easier and the hardships of life are being ameliorated. The standard of living is rising and the hours of labor have felt the influence of the city and with the years are growing shorter. The traditional summer hours of labor "from sun to sun" are becoming uncommon. In these respects, upon the farm, there is distinct social progress. The only debatable point is if it has been as rapid as in the city. The unfortunate and irrational tendency of the farmer who has made a little money to straight way sell or rent his farm and "retire" to rather inglorious obscurity in the village, takes from the rural community those who might and ought to be the leaders in thought, and deprives the farms of any reserve financial strength. Yet on the whole, the farm mortgage is a steadily diminishing factor and an increasing number of farmers are coming into the creditor class. Still, emigration has left its trail. One institution which has suffered severely is the district school. Partly because of a less number of families in the country, partly because of a declining birth-rate, a great many country schools have found it hard to maintain even a nominal existence. If this shall tend (as it evidently does) toward the centralized school, the result may be most beneficial. Still, the old time district school at its best was a fountain of truth, and we may well question if its passing is wholly good.

But the institution which has suffered most is the country churches, beacons of inspiration and light which a more numerous generation planted all over the farm country of our State and from which for long years, men, often untrained and unpolished—sometimes happily men of rare ability doing it as a labor of love—have been proclaiming that there were some things in life wonderfully well worth having that could not be expressed by the dollar sign. The country churches—so many thousands of them

scattered all over our old eastern states, crowning wind-swept hill tops or sheltered in sleepy valleys, with their old cemeteries around them where for generations the farmer-folk have come to lay away their dead; these churches are the visible heads of the best social, intellectual and moral life of the community. It needs no enthusiastic sectarian to realize their priceless value and the importance of their work and yet they have suffered more severely than any other institution by the emigration away from the farm and sometimes by the influx of a foreign population with ideals very different from their old time founders. Most of them still maintain an existence, the surrounding lines of horse-sheds only half-filled with teams on a summer morning and their membership sadly lessened from what it once was, but with the bells still flinging out over the sunny summer fields its insistent call to prayer. Some of them have ceased the struggle, but some of them, be it said, are still maintaining according to their opportunities, a vigorous and aggressive life.

The free school and the free church—these are by common consent the cornerstones of a community's well-being. Our very liberal policy of State aid and the centralized school is fully preserving the efficiency of the first, but the church must stand or fall of her self, unaided, and the decline of country population has brought to her some hard problems.

So much for a statement of conditions. There are at least some features which we must deplore. But certainly no one has ever even proposed a sure and speedy remedy. Things as they are, seem to be the result of a great tendency which it is vain to resist. The drift away from the farm seems to the writer the result of judging life by wrong standards, the search after false ideals. This much is true; that the farm has been belated in the materialistic progress of the age and that it has lacked any definite propaganda to proclaim its advantages.

It has fallen behind the town because it has been less prompt to apply technical training to its problems. Moreover, it is certain that the migration away from the farm and the accompanying decline in values is not the result of economic pressure. With the possible exception of the period of high prices and inflation during and immediately following the Civil war, the intrinsic value of land as measured by its earning power was probably never greater than to-day.

Of course, we must recognize the fact that there are districts where the depopulation of the rural townships is due to the reason, that the lands originally tilled are too rough and sterile to ever support a prosperous agriculture. That such lands should be abandoned and go back to the forest should be hailed as true progress and a gain to the race. The mistake was made when such lands were cleared. This is the case in very large sections of New England but most (not all) New York State soils have very hopeful agricultural possibilities.

Eastern lands today are worth more than they will sell for if we grant that worth means earning power rather than selling price. The writer for some time past has tried to study the question of New York land values by talking with men in many parts of the state and feels sure that during the last three years, values and possibly population are once more on the up-grade. Men in the central west, desiring to buy land, and finding it worth from \$80 to \$150 per acre, are looking to the east for cheaper

lands and are becoming purchasers. Men with money to invest are reasoning that land can hardly go lower and may go much higher and are buying land as a speculation. More and more it is becoming the fashion for well-to-do-men in the towns to own out-lying lands and play at farming; sometimes with real success. Best of all, the wider spread of agricultural knowledge and the growing belief that science will do great things when applied to the farm is leading more young men to look toward the soil as the field of their life work.

Inquiries of Farm Institute audiences show it to be a rare thing to find a thinking man who does not believe that the tide has turned. In the writing of the sociologist treating of the city's problems, there is a cry—the new Gospel “Back to the Soil.” Agriculture is not—it never again can be—the dominant business in New York State, because here only one man in seven lives by the earth. But a more intensive agriculture might bring back to the farms their old population and restore land values to the high-water mark of 1870. In many cases the telephone and the electric car will assist in this change by making the country and the city more accessible to each other. We can think of no richer blessing to the nation as a whole than a Renaissance of our Eastern Agriculture.

Those of us who love the soil and believe in the soil are looking for this, even as in the night men look for the morning.

THE MOVE FOR BETTER CORN

By T. L. Lyon, '91

Professor of Agronomy, University of Nebraska

IN the great agricultural awakening that has taken place in the last few years, no one feature has received more attention than that of corn improvement. This is due primarily to the great volume of the crop, and secondarily to the ease with

which improvement can be effected.

When it is remembered that the value of the corn crop in the United States is nearly one billion dollars annually, its importance is appreciated. When it may be shown that by adding one kernel to the size of each ear of

corn the crop of the country may be increased by three million bushels, the desirability of improvement may be conceived. As it has been demonstrated that the average yield of corn per acre is not more than one-half of what it might be, the possibilities for improvement may be estimated.

The increased interest in corn culture has been marked in numerous ways. The formation of state societies to encourage the careful selection of seed by corn growers, and to promote the use of pure bred seed, is one of the chief features. Such societies have

Competitive corn exhibits have not been confined by any means to these state societies, but have been conducted by agricultural periodicals, local agricultural societies and by business houses as an advertising enterprise. The most extensive corn display ever exhibited, was at the Louisiana Purchase Exposition during the past year, where many thousands of exhibits were collected, representing the most perfect ears to be found in this country. Some of these exhibits were models of regularity, being composed of ears in which every kernel was so



INTERIOR OF COACH ON CORN EDUCATION TRAIN

been organized in Indiana, Illinois, Iowa, Nebraska and Kansas. The oldest is the Illinois Corn Breeders' Association which has been in existence for about four years. The societies have been very active, and have accomplished much good. An important part of their work is that of holding corn expositions at which are displayed exhibits consisting usually of ten ears each which are sent in by corn raisers, both professional and amateur, and for the best of which premiums are given, often amounting to very substantial sums.

placed as to give the greatest possible amount of grain on an ear of given size.

The agricultural press and Farmers' Institutes throughout the corn growing states have devoted much space and time to discussions pertaining to corn culture. It is very seldom that a copy is issued or an Institute held in the corn belt in which place is not given to this topic.

Agricultural experiment stations have been at the front in this movement. It is fortunate that they have been, for with their scientific methods,

that minimize conjecture and scrutinize experimental evidence, they have kept the corn craze within the bounds of reason. While many of the stations are conducting somewhat similar experiments, certain of them are distinguished by some one feature. Illinois and Kansas by the successful attempt to increase the proportion of certain constituents as protein, oil or starch in the kernel; Iowa by the utilization of the county poor farms as a place at which to test varieties for local use, and Nebraska for cooperative experiments with farmers to find the type of corn and origin of seed best adapted to certain localities.

The latest feature, and perhaps the most striking from the popular standpoint, is the corn education train. One of these was run by the Chicago & Rock Island R. R. in Iowa in the spring of 1904. This was followed by one in Nebraska on the C. B. & Q. R. R. in the following December, and another in the same state on the Northwestern line in January. The C. B. & Q. is about to start a corn education train in Illinois as this is being written, and the same road is expecting to run one in Wisconsin.

The corn education trains as operated in Nebraska consisted of four or five cars. Of these, two were large coaches provided with slightly raised platforms and speaking desks at one end. These coaches were used as auditoriums, and would each hold when crowded nearly a hundred people. In addition were two private cars, one for the speakers who were from the State University, and were generally six in number, and the other for the accommodation of the railroad officials and representatives of the press. The occupants of the cars ate and slept in them during the entire trip. Attached to one of the trains was a baggage car in which was carried repair material for almost any kind of accident that might occur to the machinery or other parts of locomotives or cars.

The trains ran upon a schedule de-

vised by the operating departments of the roads, and providing for thirty minute stops at each of the points at which lectures were given. The lectures began at nine o'clock in the morning and continued with the intervals necessary to run between scheduled towns until 10 o'clock in the evening or even later. At one point a lecture was begun at eleven o'clock at night, and was listened to by a crowd of nearly one hundred farmers. Usually ten or twelve stops were made each day at which lectures were delivered. At nearly every town the crowds were so large that both coaches were necessary for their accommodation, and frequently an overflow meeting was held in the waiting room of the depot, while occasionally four lectures were given at the same time, the freight house or even the station platform being utilized as the fourth auditorium.

In order to cover the line more quickly, farmers were taken on the train at certain stations and carried to the first point where a lecture was given, and afterwards given free transportation to their home towns on the first returning train.

On the two trips made in Nebraska twenty-two hundred miles of railroad were covered, lectures were delivered at one hundred and twenty-four towns, and were listened to by nineteen thousand people, almost all of whom were farmers. This was accomplished in eleven days.

The entire expense of the trip was met by the railroads. The University furnished the speakers. The motive on the part of the railroads is to increase their freight business by educating the farmers along their line in better methods of farming. The Universities or Agricultural Experiment Stations gladly make use of this opportunity to extend their educational influence both directly and indirectly.

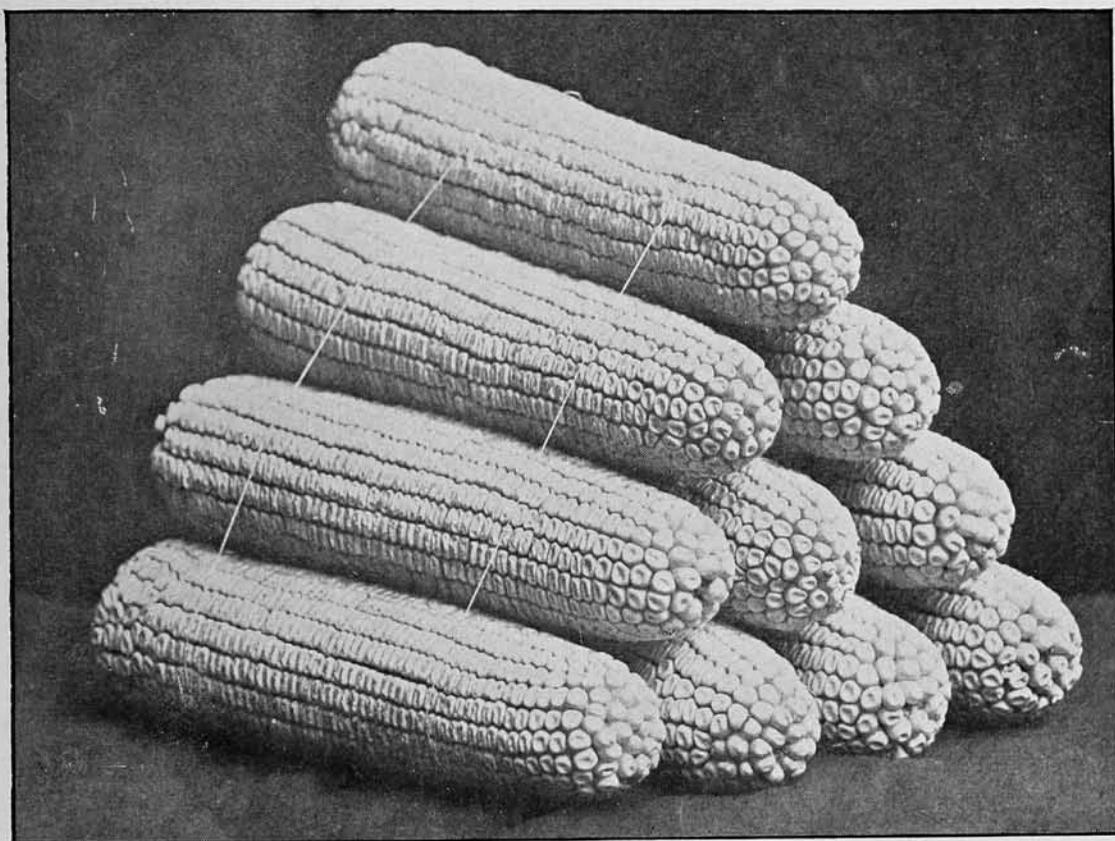
Increased yields of corn are to be looked for through better methods of tillage, and through the use of better seed. It is particularly the idea of im-

provement by means of seed selection that has met with popular favor. The principle involved is that of heredity. The argument is that by selecting ears of corn for seed that are uniform in size, and possess a large amount of grain in proportion to the size of the ear, and therefore in proportion to the plant food required, and the length of time necessary for growth, the resulting crop will be largely composed of similar ears, and the longer such selection is continued, the greater will be the uniformity in this respect.

Within the last few years the idea

eral seed corn growers who deserve the greatest credit for what they have accomplished. They have produced the best known varieties of corn grown in the Mississippi valley. A brief historical mention of one or two of these may be of interest.

J. S. Leaming of Wilmington, Ohio, began it is said about 1825 to select his seed corn according to a fixed standard, and so improved his strain of corn that his neighbors began buying seed corn from him. He continued to raise this corn for many years during which time it became



PRIZE WINNING SEED CORN

has gone a step further, and now the plant is also made the subject for selection, and those individuals that show during several generations a capacity to yield heavily are selected as the foundation of a new strain or variety. This plan has been taken up by some seed corn growers, but is considered by the average farmer as being too expensive for his own use. The result will be greater specialization in the production of seed corn.

The plan for improvement first mentioned is by no means new, and its success has been demonstrated by sev-

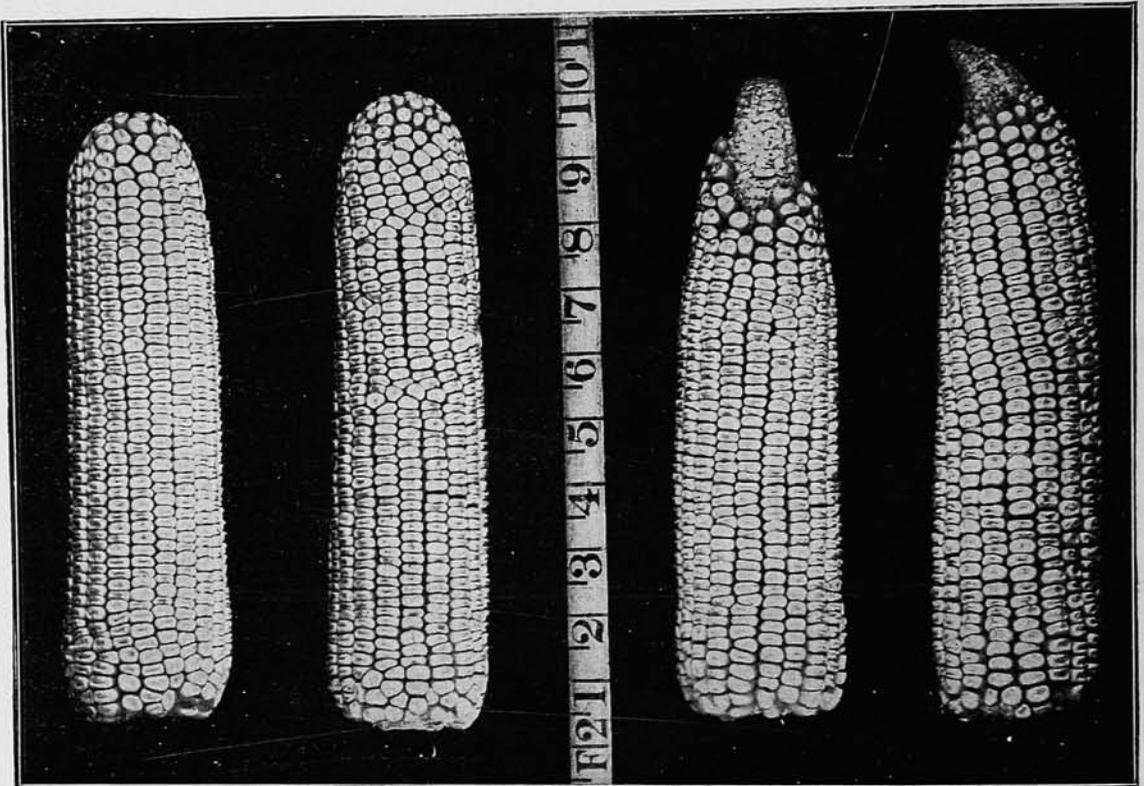
widely known. It is perhaps the most widely grown variety of corn in this country, but has been broken up into many different types, and much of it has deteriorated under careless handling.

Another old variety of corn is Reid's Yellow Dent. In 1847, Mr. Robert Reid of Delavan, Illinois, began the selection of seed corn, and his son James L. Reid has continued to raise this corn up to the present time. It is the most uniform variety of corn grown at the present time, and deteriorates less rapidly than any other un-

der indifferent treatment, both of which qualities are the result of its many years of selection with reference to a certain type.

The Boone County White corn was originated by James Riley of Throntown, Boone County, Indiana. Mr. Riley began selecting seed in 1876 from a large coarse variety of corn raised in his locality and known as the White Mastodon. He has produced a cylindrical ear, well filled with deep kernels from what was originally a tapering ear with large cob and shallow kernels.

ness as the basis for a strain or variety of corn. This is now being done by a number of seed corn raisers, and by some of the experiment stations. The method consists in planting side by side a large number of rows of corn, of which each row represents seed from a different ear. Sometimes more than one row is planted from each ear, but in either case the yield of a given number of stalks from each ear is determined, and from these the most productive are singled out for perpetuation. Desirable ears are selected from



COURTESY OF U. S. DEPARTMENT OF AGRICULTURE

IMPROVEMENT OF CORN BY SELECTION; BOONE COUNTY WHITE CORN ON LEFT AND ORIGINAL TYPE FROM WHICH IT WAS DEVELOPED BY SELECTION ON RIGHT

The improvement in the productivity of certain varieties of corn made and maintained by these men and more recently by many others has resulted from the selection of desirable ears without reference to the plant upon which they grew. By obtaining in the crop a larger proportion of good sized ears, with deep kernels and well filled out at butt and tip the yield per acre has been increased to a surprising extent.

It has been only within the last few years that any attempt has been made to select plants of great productive-

ness as the basis for a strain or variety of corn. This is now being done by a number of seed corn raisers, and by some of the experiment stations. The method consists in planting side by side a large number of rows of corn, of which each row represents seed from a different ear. Sometimes more than one row is planted from each ear, but in either case the yield of a given number of stalks from each ear is determined, and from these the most productive are singled out for perpetuation. Desirable ears are selected from

these desirable plants and planted the next year. The second year the planting may be in rows or in blocks as considered best by the seedsman. With the row system the procedure the second year does not differ greatly from that of the first year, except that where there is more than one row from the same strain of seed they are not planted side by side as it is not considered desirable by the followers of this system to close breed the corn plant, and as the greater portion of the pollen from the tassel falls on the nearest plants those in adjacent rows

become closely related. The row system is objected to by some corn breeders because cross-pollination is so intensive that the tendency is for the most productive plants to sink to an average with the least productive. To avoid this in part the block system has been advocated.

The block system contemplates planting a square of land with seed from the same ear. In this way the plants are closely fertilized, and the most productive strains not mixed to any considerable extent with less

productive ones. It is urged by the opponents of the system that the close breeding necessitated by this system is detrimental to the corn.

Cross breeding of varieties has also been carried on to a very considerable extent, and some good varieties have been produced in that way, but it is undoubtedly to the continued selection of the most productive plants that the greatest improvement in the yield of corn is to be accomplished, and the possibilities of such selection are just beginning to be appreciated.

PROBLEMS IN AGRICULTURE

An address by Willis T. Mann, Barker, N. Y.

Before the Agricultural Assembly, January, 1905. Abstracted by A. W. Gilbert, G.

FELLOW Students:—I am delighted with the evident desire to bring the work of the college, and what we may perhaps call college life, into more intimate relations with practical agriculture. It is in expression of my appreciation of this fact that I have accepted the invitation to come here and speak to you in regard to what I conceive to be some of the greater problems of agriculture. Great are the possibilities for scientific agriculture in New York State to young men trained to understand and develop them.

Nearly thirty years ago, Horace Greeley was proclaiming through the east these words: "Go West, young man, go West!" The conditions have changed, the watchword is no longer, "Go West" but, "Remain East."

During recent years there have been remarkable changes in the conditions of agriculture. These changes have imposed upon us new problems and have altered the conditions of old ones. In order that we may consider these problems with some approach to clearness I would arrange them in three classes,—

Problems in Production,

Problems in Marketing,

Problems in Social Relation.

The problems in production relate to the soil and its management, to va-

rieties and their adaptation to environment, or to the objects in view, to parasites and their control and to special care and treatment to obtain the desired result.

These questions are all included in the general farm problem how to reduce the cost of the unit of measure to the lowest point possible consistent with the maintenance of the commercial standard of quality, or in other words, how to reduce the cost as compared with the market value.

Concerning problems in marketing we must know the means and methods of transportation, and be able to control them, in some degree, at least, in the interest of cheap and rapid transportation, and careful handling and wide distribution. We must have a wide knowledge of consumptive demands and should be able to increase our markets by wise and judicious influences and methods. We must understand all the uses to which the product may be applied, in order that it may be most fully and profitably utilized. We should study the influences of high or low qualities in improving or checking consumption.

Lastly, let us consider the social and educational problems. "The key to all great problems in agriculture is education." There is, however, a broad field that is practically not

reached in our State. The great majority of the farm boys of our State are, not only, not being reached by the agricultural education now being provided, but the influences of their education are all away from the farm. This is due to the fact that no provision is made for teaching agriculture in our high schools or academies. Only a small minority of our farm boys ever will, or ever can attend the State college.

It seems to me then, that the next great step in advance in agricultural education is to meet this need of the farm boys of our State, and to afford them the opportunity to gain some knowledge of agricultural principles in the work of the high school. We need training, not alone in conditions of production, but also in those broader influences that affect our business and social relations.

MEETING OF THE NEW YORK EXPERIMENTERS' LEAGUE

Report by J. H. Barron, '06

THE annual meeting of the New York State Experimenters' League was held at Cornell University, Feb. 16th and 17th.

The meeting was opened on the evening of Feb. 16th by the address of the President, Mr. H. B. Winters, '01, W. C., of Smithboro. In the course of his remarks, he said that as alumni we owe a debt to the College of Agriculture, which we can never repay. However, each of us should come back here to the annual meetings, that we may keep in touch with what ever advancements have been made in Agriculture. In no course can we learn all about Agriculture. Let all of us, therefore, come to our annual meetings and forget neither Ithaca nor the University.

Mr. Giles, Secretary of the New York State Grange, referred briefly to the influences of the Grange upon Agriculture. One of the principles for which the Grange stands is advancement of education along agricultural lines. During its early years in the struggle for existence the Grange lost sight of these principles; but now it is beginning to realize them and giving them the attention which they deserve.

One year ago the Grange established two free scholarships, of an annual value of fifty dollars each, to Agricultural students. This year the work will be increased, and at its last annual

meeting provision was made for six such scholarships.

Professor Bailey said the College of Agriculture and the Experimenters' League, stands not only for Collegians but also for people who are graduates of the school of affairs. He said that the farmer is individualistic, and that there are many forces working in his midst, which are making toward division. One of the great needs of the time is something to bind the farmers together, and the Experimenters' League gives promise of exerting a great influence along this line. Professor Bailey advised that the experiments made by the members of the League should be made public property, and that some way be provided for publishing the results. The Cornell Countryman could become very useful by adding a department, giving the results of the work, it thus becoming the official organ of the league. In such a case the paper would merit the loyal support of all, even to a greater extent than it now does, although even now it is worthy of hearty support by every one who has ever been connected with agricultural work at Cornell.

The discussion of the Dairy Industry on Friday morning was led by Professor Pearson and Mr. Hall. It was brought out that now the trend of Dairy work is different than formerly. Then we wanted milk with a large amount of butter fat, now we want

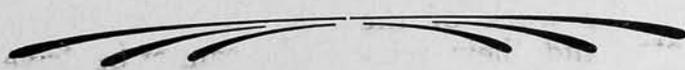
not only good milk but sanitary milk. This change is brought about by two influences (1) a constantly increasing number of careful dairymen and (2) the increasing sanitary knowledge of the public. Sanitary improvement is demanded everywhere, and milk receives a great amount of attention because it is used raw, by infants and by the sick. Dairymen cannot ignore these demands, and so they must remove the cause. In the first place, healthy animals only should be used, and they are secured only by an abundance of light, air and cleanliness. Particular attention was called to the fact that hay and bedding should not be handled just before and during milking. All utensils must be well cleaned and sterilized, and last but by no means least, the attendants must be cleanly. In conclusion it appeared that the farmer will produce sanitary milk if he has to, and that it depends upon the young men to change the condition of the herd.

In the report on Horticulture under Professor Craig, several points of interest were presented. Vetch is an excellent cover crop for orchards. It is a rank grower and enriches the soil. In fact it seems now to combine those characters which fit it to be among the first cover crops. In regard to strawberry culture it was especially emphasized to test the variety for the locality in which they are to be grown. Cultivation should never be neglected, and weeds should never be allowed to start, and especial care should be taken to avoid the formation of any crust on the surface of the ground. The berries should be graded by the pickers as they are gathered.

A discussion of plant breeding was led by Prof. Hunt and the chief principles upon which it depends were brought out. In plant breeding as in annual breeding we reap what we sow. Plants are plastic and can be changed. They are the result of two forces, environment and heredity. To effect an

improvement by a change in environment incurs expense, but heredity is a silent, inexpensive force. In breeding plants there are several difficulties which must be overcome. We must select individuals and not parts of individuals as we do when we look only to the seed. We must select from the individuals which have those characters which we wish to reproduce, and the character of the seed need not be considered provided the germ is unimpaired. In order to practice selection there must be variation and this is brought about in two ways, (1) by changing environment as soil, climate, space, and cultivation and (2) by crossing. After variation is secured improvement results from careful selection only and this is done by selecting from those forms having desired characteristics and by testing the hereditary power of the forms selected. Because this last feature is often disregarded little progress has been made in the breeding of field crops. It is necessary to keep the eyes open for chance variations, to see a good thing, select it and propagate it. The farmer cannot afford to grow scrub plants any more than he can afford to raise scrub cattle. Only by applying the same principles in each case but varying the methods according to circumstances and by studying and observing can progress in either line be made. Although plant breeding may present many difficulties the time is coming when it will be important. No great revolutionary results, however, can be expected and there will always be more failures than successes.

The following officers were elected for the ensuing year: Honorary President, I. P. Roberts; President, H. B. Winters; Vice-President, Mr. Harding; 2nd Vice-President, F. A. Salisbury; Director of Experiments, J. L. Stone; Secretary and Treasurer, G. F. Warren.



THE FIFTH ANNUAL AGRICULTURAL BANQUET

The Spirit which Pervades Agricultural Students of Cornell University and How it Voices Itself

THE same spirit of co-operation which came so beautifully to the front in the success of the Reception to the Short Course students on January 10th, where Miss Elliott and her co-workers in the Nature-Study classes entertained the men with such a delightful and homelike touch, showed itself again in the proceedings of the week from February 13-20th.

In the parade which was part of the festivities, celebrating the victory of New York Agriculture, in May, 1904, was a float of the Poultry Department, bearing the inscription "*The youngest Chick'in College, Wait Till I Get My Growth.*"

Our recent poultry show on the 13th, 14th and 15th is ample proof that the youngster has grown with vigor and solidity.

Then on the 16th and 17th followed the meeting of the *New York State Experimenters' League*. Over sixty active private experiment stations have been established by them in the Empire State. The League is bound to grow. It was organized by the Agricultural students in the Dairy Building, in the winter of 1903.

On the night of the 17th, the 5th Annual Agricultural Banquet followed at the New Ithaca Hotel.

Director Bailey said: "Every new agricultural banquet is a record breaker. Last year we were 154 at the table; to-day, we are 210. This will be the last banquet which the College of Agriculture will hold in the city of Ithaca—for in 1906 there will not be a hall in Ithaca large enough to hold the gathering. A year ago, we were before the eyes of the public in Albany. We had a registration of 238 students: to-day we have, with the graduate registration, over 400 men and women on the hill." The Dean then touched upon the work of the various departments and their relationship to New York State. "We owe

much to the 'Grange,' that true co-educational agricultural institution, truly co-educational because the Grange cannot hold meetings without women. Some years ago, I was walking over the Campus and a professor remarked to me 'he could not see what business a Dairy Building had on a University Campus.' The Dairy Building will soon be a wing of the new Hall of Humanities and that same professor goes into it to teach. But a new and larger Dairy Building is rising. We are fourth in Agriculture among the states to-day; Illinois leads, but Illinois has twice the farm area of our grand old state. Agriculture is being introduced into our secondary schools as a means of mental training on the same basis with Greek and Latin, as a culture medium. The classical studies turn out Greek and Latin minded men. Agriculture besides being a true basic element for the expansion of the mind makes agricultural-minded men in our rural communities. In the Short Winter Course, to-day, we have an Agriculture, a Dairy and a Poultry Course. In a year from now, I hope to see two more courses, a 'Good Roads Course' and a 'Women's Course.'"

Miss Louise Hastings welcomed "our guests!" I am sure those who did not feel welcome after those heartfelt sincere words of greeting had no business in the hall. Professor Bonsteel developed "our profession." In the Middle Ages we had the scholar and the craftsman who had to undergo a course of study. Agriculture simply worked. What have we to-day?

Who are the members of our profession? The only men who absolutely own the land on which they stand, by which they live. Who own it, the circling air above it and the treasures under it. The men who have no "Boss;" who cannot be driven nor unduly lead. The great body of American freemen

East and West, North and South, the American farmers."

It would lead too far to enter into the enthusiasm which radiated from every speaker.

Mr. R. D. Woolsey, '05 W. C., "*Why we Came.*"

We came for business. We found it. We found more. We found friends. We found a dignified, serious and joyous, earnest and happy body of men who stand and work for the success of the farm and the rural community.

Mr. Harry B. Winters, '01 W. C., President of the New York State Experimenters' League. "*Afterward.*"

Afterward is success. Agriculture will organize and if the man who can organize agricultural enterprises in the same way as John Wanamaker organizes department stores—is not in this room, there is something wrong with the audience.

Modesto Quiroga, on "Our Foreign Contingent."

Ezra Cornell built this University upon the basis of these words: "I would found an Institution where any person can find instruction in any subject." This is the most cosmopolitan educational platform ever uttered. We have to-day 128 students from foreign countries, 32 of them in Agriculture. We are at the beginning of a new era of social, economical, intellectual and spiritual development and the door to this new era is Agriculture. Men are here from North and South, East and West, from Europe and Asia, from South America, Australia and Africa. These men will succeed, they owe it to Cornell, and the coming generations of those countries will bless this University and the men who constitute it.

G. W. Bush, '05, "*Four Years.*"

When we came here we listened to that grand old man, that great pioneer of American Agricultural Education Professor I. P. Roberts. To him we owe the position of Agriculture in the University. Many things have changed. The under-classmen will yet occupy the new halls of the New York State College of Agriculture. The work of our grand old man is crowned by our present Dean. Men and women

if you do not go away from here after four years' study better men and better women equipped for the struggle with the world, ready to battle for your community and for the farming interests, not only for yourself, but for your fellow citizens; you have not realized the fullness of that which you might have found. After all is said and done remember that you owe your success, not only to the University, nor only to the state but also to the old folks at home.

Of course no one doubted that Mr. Charles Wilson as toastmaster would make a perfect success of the whole. But no one can help but say that Wilson surpassed himself; and if you had an opportunity to catch for a moment one of those proud looks which a happy mother and sister bestowed upon him, you can realize what happiness means to the man who has made a success of himself and who is ready now to make a success of the affairs which surround him.

Every man in the College agrees that the temporary organization of the quartet, Messrs. Mann, Curtis, King and Ratchford should continue a permanent one and that they should delight us further by their selections at our assemblies with their good old songs. Curtis' fine musical touch, which knows how to handle an unruly crowd and force them to give a *perfect yell* with delight, is well appreciated by his friends.

The banquet reflects high credit upon the Committee: R. C. Simpson, '05, chairman; J. M. Robitzer, Sp. Ag.; T. C. Hoge, Sp. Ag.; O. Lee, '06; S. D. Wilkins, Sp. Ag.; M. Ware, Sp. Ag.; A. T. Cook, Sp. Ag.; and C. R. A. Bues, '06, ex-officio.

Boys and girls of New York State, of other states, of all the world, you who are interested in Agriculture, you who may be here, who may have been here, who might be here, we cannot tell you about our College as we see it, but one thing we know:

We, the Agricultural students of Cornell University, we want you here.

—C. Bues.

The Cornell Countryman

C. S. WILSON, Editor

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MARCH, 1905

Agriculture in the New York Schools

The students were glad to hear Director Bailey say, at a recent assembly, that the schools of New York state are now to be opened to nature-study and agricultural subjects on the same terms as other subjects are admitted: that is, they are to count towards regent's credit and are to be provided for in syllabi. Of course, it is not expected that these subjects are to be forced into schools, but schools can now introduce them on the same basis as other subjects. This is a great gain and we believe that the Empire State is on the eve of a great awakening. The syllabi will probably recognize nature-study through the fifth or sixth grade, and agriculture from that point on; but the pedagogical method will be the same throughout—"to deal first-hand with common things, problems, and affairs." This is a fine culmination of the nature-study propaganda of the College of Agriculture. The College will now arouse the farmers to make the most of their opportunity.

Agriculture as Mental Training

How can a man's mind be trained? It can be trained by being employed in some definite and consecutive effort. It does not matter

what the subject matter is: if the mind is employed effectively, it will be able to make a still more effective effort whenever called on to do so. Hard, straight, direct thinking trains the mind. The number of subjects that can be made the means of training the mind is legion. It was once thought that Greek and its allied subjects were the only means of mental discipline, and there are some persons at the present day who hold this view; but this is a gigantic fallacy. We do not dispute the value of Greek, but we do dispute that "classics" is the only or even the best means of affording mental training. Most of these old subjects train the memory chiefly; and the value of even the old-time logic is open to grave question. "Reasoning power develops by use. It may be as effectively used by reasoning some problem to solution in biology or agriculture or engineering as in formal philosophy and logic. A man can be educated just as thoroughly by means of agricultural subjects as by means of ancient history subjects, providing the agricultural subjects are equally well taught.

If one subject may be as efficient as another in training the mind, it will naturally be asked why is it necessary to introduce the new subjects at all, seeing that the old are already well established. The answer is that the mere "training" of the mind should not be the only purpose of education; but that education should make the man efficient and useful. It should put him into sympathy with common affairs and the problems of the work-a-day world, and it should give him usable information.

Education should have a tendency towards something definite; for the educated man, if he is to help and lead

the world, must not stand above and aloof from mankind. Nowadays the educated man is expected to work. When only Greek-minded men went to college, it was enough that Greek be taught; but now that machine-minded and physiology-minded and farm-minded men go to college, engineering and physiology and agriculture should also be taught.

Nitrogen— Collecting Bacteria

A recent bulletin written by Dr. George T. Moore, has been published by the U. S. Department of Agriculture on the subject of nitrogen-collecting bacteria. Dr. Moore discusses many hitherto unsolved problems concerning these bacteria and through his investigations many important economical facts have been brought out.

This nodule-forming organism is a true micro-organism, of which there is but one species, *Pseudomonas rediciola*. These bacteria have three well defined stages consisting of (1) minute motile rods which produce the infection and frequently form zoogloca masses; (2) larger rods, either motile or non-motile; and (3) capsulated forms, the so-called "branched organism" which are made up of two or three rods held together in a sheath.

Formerly it has been thought by many that each of the different kinds of legumes required an entirely different kind of bacteria and that the germs which grow on alfalfa, for instance, will not grow on common red clover. But Dr. Moore has demonstrated that "the difference in the infective power of bacteria from different hosts is due to slight physiological variations which can be broken down readily by cultivation." To demon-

strate this the following experimental among others, was tried. Nodule-forming bacteria from the common pea (*Pisum sativum*) which had been grown for two weeks upon nitrogen free media, were used for inoculating seed from a large number of legumes of different kinds. In each case, with the exception of the lupines, the culture produced nodules. "A great many similar cross-inoculations were made in every possible combination, and it was satisfactorily demonstrated that it is possible to cause the formation of nodules upon practically all legumes, provided they were cultivated for some time upon a synthetic nitrogen-free medium."

The first attempt to grow and sell these bacteria was made by the Germans and the product was known as "nitragin." This preparation had varying success. Its failure to produce the bacteria was very prevalent. It is no longer on the market. The failure of nitragin to reproduce the bacteria successfully was largely due, it is thought, to the presence of too great a quantity of nitrogen in the medium.

Dr. Moore proceeded to correct this difficulty, which he describes thus; "As the result of numerous trials, however, it has been found that although the bacteria increase most rapidly upon a medium rich in nitrogen, the resulting growth is usually of very much reduced virulence, and when put into the soil these organisms have lost the ability to break up into the minute forms necessary to penetrate the root hairs. They likewise lose the power of fixing atmospheric nitrogen, which is a property of the nodule-forming bacteria under certain conditions."

This condition was met by using a medium containing very little nitrogen. The following medium is recom-

mended, 1 per cent of agar, 1 per cent maltose, 0.1 per cent monobasic potassium phosphate and 0.02 per cent magnesium sulphate to 100 cubic centimeters of distilled water.

We regret to say that, on account of the pressure of their college work, H. W. Hochbaum and T. H. King have deemed it necessary to discontinue their work on the *Countryman* board. In their places the board has chosen J. M. Robitzer and M. P. Jones. It also has the pleasure of adding to its number W. G. Phillips and R. C. H. Fowler, who have been chosen *Countryman* representatives from the Short Course students.

GENERAL AGRICULTURAL NEWS

H. A. Morgan, professor of Entomology in the Louisiana State University was appointed Director of the Tennessee Experiment Station.

* * *

At the early age of 51, died on Nov. 27 at Bernburg, Germany, Professor Hermann Wilfarth, Director of the Agricultural Experiment Station there. He was for years Professor Hellriegel's assistant during the famous experiments which demonstrated the faculty of leguminous plants to utilize the nitrogen of the atmosphere.

* * *

The oppression which monopoly may employ is nowhere more clearly seen than in the operations of the private-car companies. It is high time for the passage of a measure like the one recently introduced in congress by Representative Stevens, extending the interstate commerce law to all private freight cars. Then open offenses, at least would disappear, though some means of evading the law might only too quickly be found. The private car companies, it appears, have secured extended exclusive contracts from the railroads. What this means is discovered in charges such as were re-

cently made to a correspondent of the *New York Evening Post* by George F. Mead, vice-president of the National league of commission merchants. We relate his story, simply because it is both comprehensive and specific.

In 1903, he says, the Armours made a contract with the Pere Marquette railroad, by the terms of which only the Armour cars should be used on that line. Practically the whole fruit business of Michigan came into the control of the Armours under this agreement. The Armour company promptly raised the rental of its cars from \$20 to \$55 to Boston. The railroad people, at the same time, agreed to furnish the Armour company with information as to any other refrigerator car that might be received on their road from a connection—information such as the contents of the car, the value of the contents, and the name of the consignee. The practical working of the system was this: "Armour was engaged in the fruit and produce business so that every car of peaches coming from Michigan to Boston paid him \$70. His rental was \$55, and his mileage three-fourths of a cent a mile both ways, loaded or empty. That gave him \$70 for bringing the fruit to Boston; if he sold it at cost he was \$70 better off than the commission merchant, aside from the actual expenses of icing." He could, also, by means of his special information, anticipate by a day or two the shipments of other shippers, and thus capture the market. The injustice of such a condition needs no comment.

—*Public Opinion.*

* * *

Mr. Richard T. Keys, an Australian grazier, was sued in an Australian court for selling *three bullocks diseased with tuberculosis.*

The police magistrate held that the case was proved, and fined Keys £5 for each beast and £25 os 4d, court costs, bringing the total up to £40 os 4d (\$200). The magistrate, in giving his decision, said he was sure Mr. Keys was not aware at the time of sale that the bullocks were diseased.

—*The Sydney Mail.*

CORNELL NEWS

CAMPUS NOTES

Prof. John Craig spent the week from Jan. 30th to Feb. 4th, addressing County Agricultural Societies in Massachusetts under the auspices of the Massachusetts State Board of Agriculture. On Feb. 4th, he lectured before the Massachusetts Horticultural Society in its fine new building in Boston on the subject of "An Orchard Survey of New York State."

* * *

A list of expert judges of the New York State Breeders' Association has just been published. These men are chosen by the association as authoritative judges of dairy cattle, horses, sheep, swine and poultry. In this list Cornell has three men, G. Arthur Bell, A. O. Potter, and F. H. Thomson.

* * *

Last year the Grange offered four Cornell scholarships of a value of fifty dollars each. Three of these were awarded and two finally taken advantage of. Unfortunately a young woman who received the third could not come. This year the Grange has again appropriated the same amount of money for these scholarships in connection with the \$100 left over from last year.

* * *

Mr. T. F. McGrew of New York City, a prominent poultry expert, writer and lecturer, delivered an interesting series of lectures upon poultry subjects during the second week of February.

* * *

The fiftieth annual meeting of the Western New York Horticultural Society, marked an important epoch in the history of that organization. It was the Golden Jubilee of the Society, punctuating the half-century mark and, as such, special efforts were made to secure the attendance of prominent speakers, and to present a program

which in every way, was worthy of the occasion.

Among the important points which closely held the attention of the meeting and which received thorough discussion were: "Varieties of Apples for New York," "Methods of Orchard Management," "Sulphur Sprays," "Fruit Packages" and "Injurious Insects."

* * *

The Experiment Station Record for December contains a list of the awards granted to institutions and individuals for exhibits forming a portion of the collective exhibit of Colleges of Agriculture and Mechanic Arts and the Experiment Stations. Cornell University was awarded three gold medals, two silver medals and one of bronze. Two of the gold medals, one silver medal and the bronze medal being awarded to the College of Agriculture, one gold medal to the Department of Botany and a silver medal to Sibley College. A gold medal was awarded to the exhibit showing methods of instruction in Animal Husbandry, exhibit prepared by Professor T. F. Hunt; and another to the exhibit showing methods of instruction in the improvement of root crops prepared by Samuel Fraser. The Poultry Department secured a silver medal for its exhibit of trap nests and methods of poultry breeding and the Entomological Department received the bronze medal for its display of colored lantern slides of insects.

* * *

The following officers have been elected by the Agricultural Association to serve during the second semester; President, Christian R. A. Bues; Vice-President, Ora Lee, Jr.; Secretary, Miss Rosa Ostertag; Treasurer, Ernest Kelly, and Librarian, K. C. Livermore. A very interesting program has been arranged. Some of the subjects are "Settling the Pampas," "The Farm Home," "Prospects for Agriculture in the East," "Railroad

Car Monopoly vs. Shipping Rates," and "The Worn Out Farm." Twenty-five cents makes you a life member of this oldest of Cornell societies.

* * *

C. D. Jarvis, '99, of the Ontario Agricultural College at Guelph, has entered the Graduate Department at Cornell University, and has registered for a Master's degree in Horticulture.

* * *

One of the pleasing issues of the Short Winter Course is the formation of the "Fletcher Club." The officers are: President, J. W. Woolsey; Vice-President, H. H. Herriman; Secretary, Mrs. Chas. Dey, and Treasurer, E. L. Chapman. Regular meetings are held every Friday evening at 7:30 in Barnes Hall, and consist of debates and short talks on agricultural topics.

* * *

The dairy students have not fallen far behind for they have formed a similar club called the "Shorthorn Dairy Club." Their officers are: President, S. Millen; Vice-President, A. S. Mihaldo; Secretary, H. E. Austin; Treasurer, L. A. Beecher. Meetings are held every Monday evening at 7:30 in the Dairy Building.

* * *

Tuesday evening, February 13th, Mr. Orr of Beaver, Pa., gave an informal talk before a joint meeting of the Agricultural Association and the Poultry Association. He spoke of his "Recollections" which reached back over a period of twenty-five years including very useful experiences and humorous stories. He stated that his love for poultry was certainly hereditary dating back to his grandparents in Virginia. His first real experience came when he was a teacher. In a piano box and several shoe-boxes placed in a small narrow lot, he raised chickens for a number of years thus demonstrating the commercial side of this profession.

Mr. Orr's warm-hearted advice may be found in the following paragraph. Build the poultry house low and air-

tight at the back to avoid draught. Embody in its construction these three Cs: Comfort, Cleanliness, and Convenience. Keep a few breeds of poultry and learn each to perfection. Separate males and females in May or June, and continue this separation until fall. Kill off the extra males early for their increase in commercial value will not counterbalance the ration bills. Mr. Orr advocates line breeding, substantiating his theory by saying that double breeding tends toward useless birds which must be discarded in a variety test. Reduce the flock after a term of years to one cock and four hens, or that proportion and thus intensify the strain.

* * *

John H. Tull accepts a position as special agent in the Bureau of Plant Industry. Mr. Tull was with us all winter as an assistant in the Experiment Station greenhouses and will be missed by his many friends in the College. He is a graduate of the four years' course in practical gardening at the Missouri Botanic Gardens and spent last spring and summer at the Exposition developing the Wild Flower Garden at the west of the Agricultural building in which were exhibited living specimens of the representative native wild plants of the St. Louis flora.

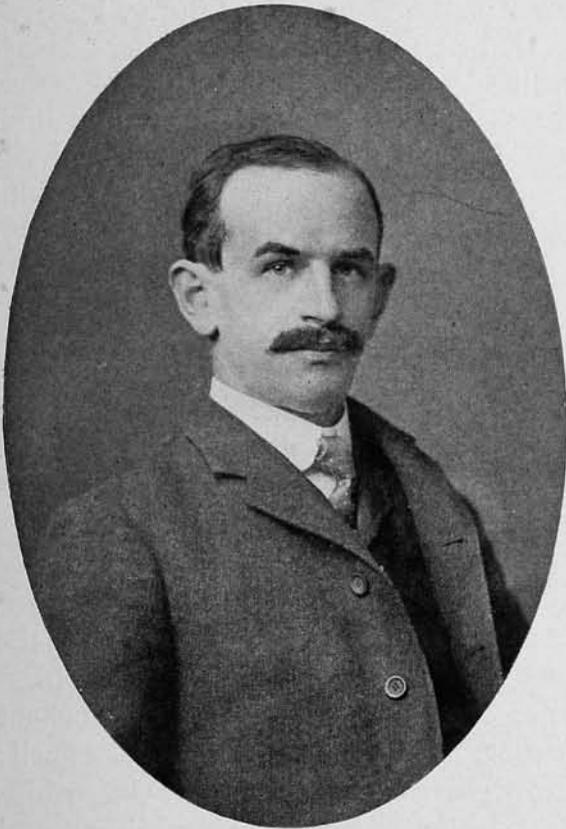
Mr. Tull's work will be in the Division of Foreign Plant and Seed Introduction. His immediate problem is an investigation of the economical importance of the Japanese matting rush, *Juncus effusus*. This plant is a common native of America, growing wild everywhere, but has never been developed commercially in this country. The experimental grounds will probably be located in the rice districts of the Carolinas for which 20,000 young plants have been secured in California and will be shipped east early in the spring.

At his last writing Mr. Tull was still in New England studying the manufacture of the matting as conducted by the Goodall Matting Co., of Kennebunk, Maine.

FORMER STUDENTS

The alumni editors are anxious to hear from former agricultural students, and would appreciate any such information that the short course men could leave at the Cornell Countryman office, in Morrill 19. Office hours: Mon., Wed. and Fri., 4:30-6 p. m.; Tue., Thu. and Sat., 12-1 p. m.

'91, B. S. A.—Jared Van Wagenen, jr., '97, M. S. A.—Mr. Van Wagenen was born May 14, 1871, of Holland and Puritan ancestry, at Lawyersville, Schoharie Co., N. Y., on "Hillside



JARED VAN WAGENEN, JR., '91

Farm" which has been in the possession of the family for more than a century. He prepared at the Cobleskill High School two miles from his home and entered the University in the fall of 1887, graduating and receiving his advanced degree as indicated above. At the time of graduation he was orator on the Woodford and Commencement stage for mention of which see *Cornell Countryman*, March, 1904, Former Student column, Class of 1891. Most of Mr. Van Wagenen's work has been along the lines of dairy and animal husbandry. During the winters of 1894, '95, '96 and '97 he

was instructor in butter making in our short dairy course.

On Dec. 31, 1896, Mr. Van Wagenen married Magdalene E. Lamont and they now have three children, two girls and a boy. Since then almost his entire time has been passed on the farm except for incidental teaching, principally in farm institute work. Mr. Van Wagenen's church relationships are Dutch Reformed of which there is a very active community at Lawyersville. In general, Mr. Van Wagenen takes pride in being familiar with the everyday work of the farm and holds to the gospel of the worth and dignity of labor—be it manual or otherwise.

In *Country Life in America*, Nov. 1904, Professor L. H. Bailey writes the ninth article in the series "How to Make a Living from the Land." This article is about Mr. Van Wagenen's farm under the title "A General Farm that Pays." It describes the thrifty, "mixed husbandry" farm so characteristic of the hills and valleys of New York State, and we advise every *Countryman* to read it.

Professor Bailey concludes with these words:—"As a piece of farming Hillside Farm is interesting because it illustrates how farming appeals to a college-trained man. Mr. Van Wagenen was not upset by his college course. He is not possessed of the idea of overturning old methods, but merely of adapting them and improving them. He has not adopted any 'fancy' features. He has not even gone into a specialty nor into intensive culture. The general mixed farming must remain the business of far the greater number of our farmers and it is hopeful to see well trained men lend their skill and wisdom to it."

'85, Special.—Edward B. Sanford is running a large farm at Warwick, N. Y., where he has a fine herd of 100 Holstein Freisian cattle. He is also secretary and treasurer of the Sanford Dairy Co. of New York City.

Ex.-'88.—John W. Sanford is now in charge of two dairy farms comprising 300 acres, and is also engaged

in real estate and insurance business at Warwick, N. Y. He is a director of the First National Bank of Warwick, and is connected with various other local enterprises.

Ex.-'99.—B. F. Liddon was in Florida for some time, engaged in cultivating pineapples and oranges. He is now cashier of the Citizens Savings Bank, established in 1903, at Corinth, Miss. Since leaving Cornell, Liddon states, he "has had the success of marrying the girl of his choice."

'99, B. S. A.—H. W. Jeffers recently visited the University and while here spoke before the Short Course students on "The Production of Sanitary Milk." Mr. Jeffers is, at present, superintendent of the Walker Gordon Company's farm at Plainsboro, N. J. Recently, this company put up several thousand half-pint bottles of milk for the use of a New York family on a yachting cruise. This milk is expected to remain sweet for two months.

'01 Special.—H. E. Crouch is manager of the Brookwater Farm, R. F. D. No. 7, Ann Arbor, Mich. The farm, containing 500 acres, is owned by Professor H. W. Mumford of the Univ. of Illinois and is devoted to the production of short-horn cattle, durc-jersey swine and fancy dairy and poultry products.

'01, Special.—Daniel S. Dean has recently bought a farm of one hundred and forty acres, most of which is rich bottom land along the Susquehanna River, at Nichols, N. Y. He was married about two years ago, to Miss Anna Leisme of Nichols, N. Y. Mr. Dean is applying the principles he learned at Cornell and his success

is earning him a worthy reputation in his part of the country.

'02 M. S. A.—Edwin J. Kyle, B. S. '02, Ohio State University, is professor of soil physics in the A. & M. College of North Carolina, at West Raleigh, N. C.

'02. Dairy.—A clipping from the local press of Oneonta, N. Y. has just come to the *Countryman* office, telling of the death of Elmer Nearing. He was working with his father in the latter's wood lot, cutting down a large tree. In falling, the tree lodged in the limbs of another; Nearing had just cut the leaning tree loose from the stump, when a large limb was thrown from an unexpected direction, pinning him to the ground and inflicting internal injuries from which he died eight hours later. The clipping contains the following comment:

"All circumstances considered, this is one of the saddest fatalities we have been called upon to chronicle. Mr. Nearing was a young man with a future; he was but 34 years old; he was married to Miss Winifred Hay of New Lisbon last June, when they immediately began housekeeping on the farm he bought last spring at Noblesville. Mr. Nearing was an excellent farmer, full of ambition to excell; was well read and educated—a graduate of the Morris High school and of the short dairy course at Cornell University. The future looked bright and prosperous, and to be thus ruthlessly and tragically terminated seems incomprehensible."

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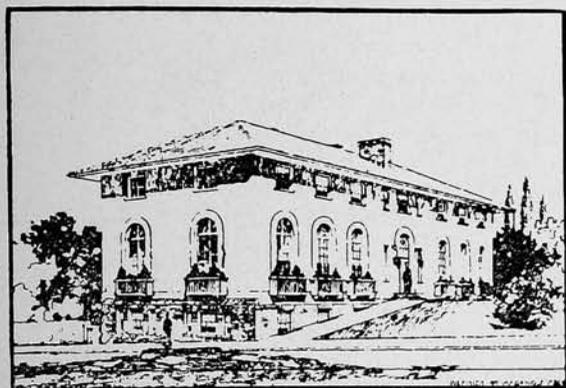
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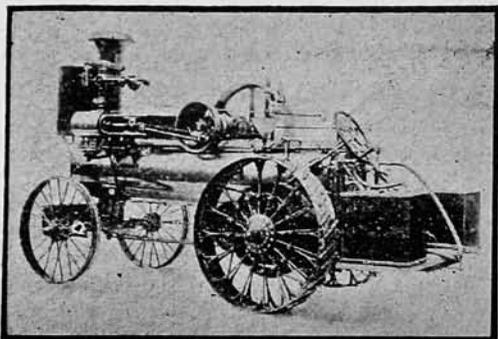
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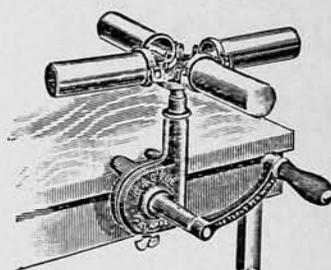
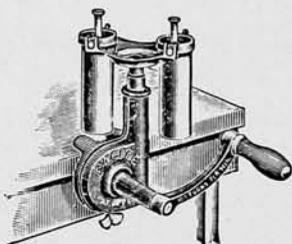
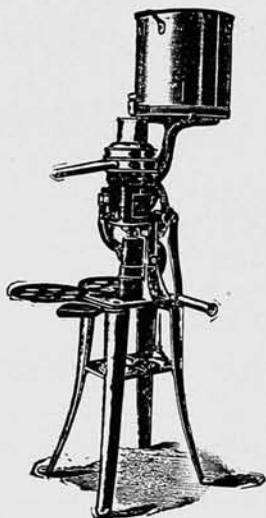
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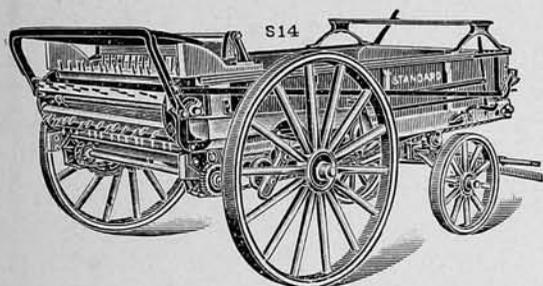
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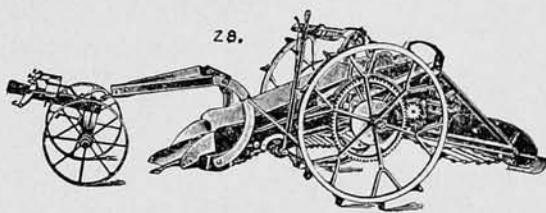


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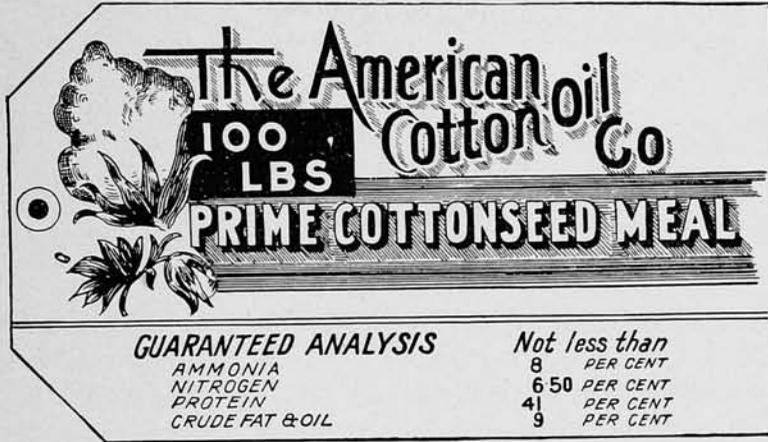
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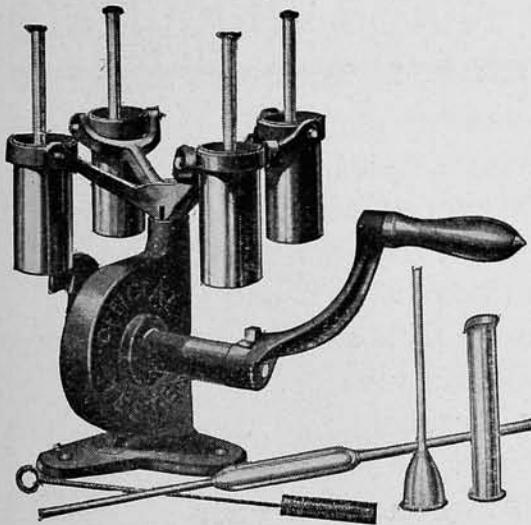
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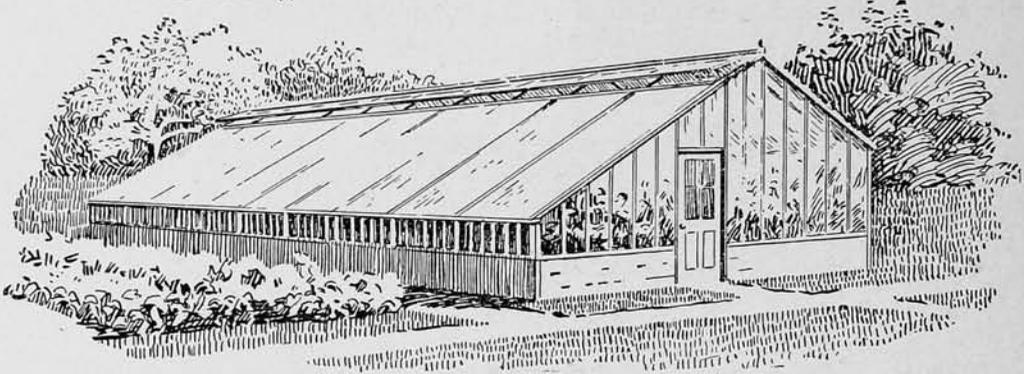
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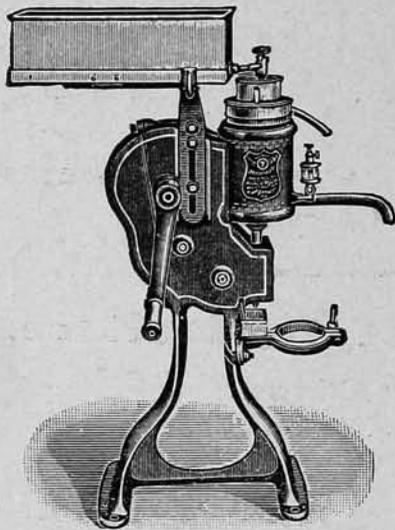
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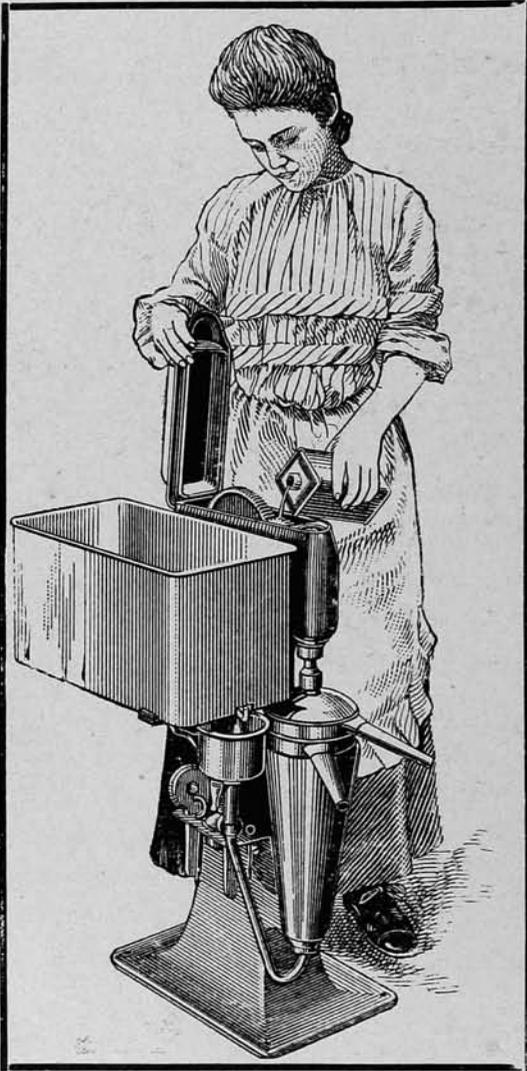
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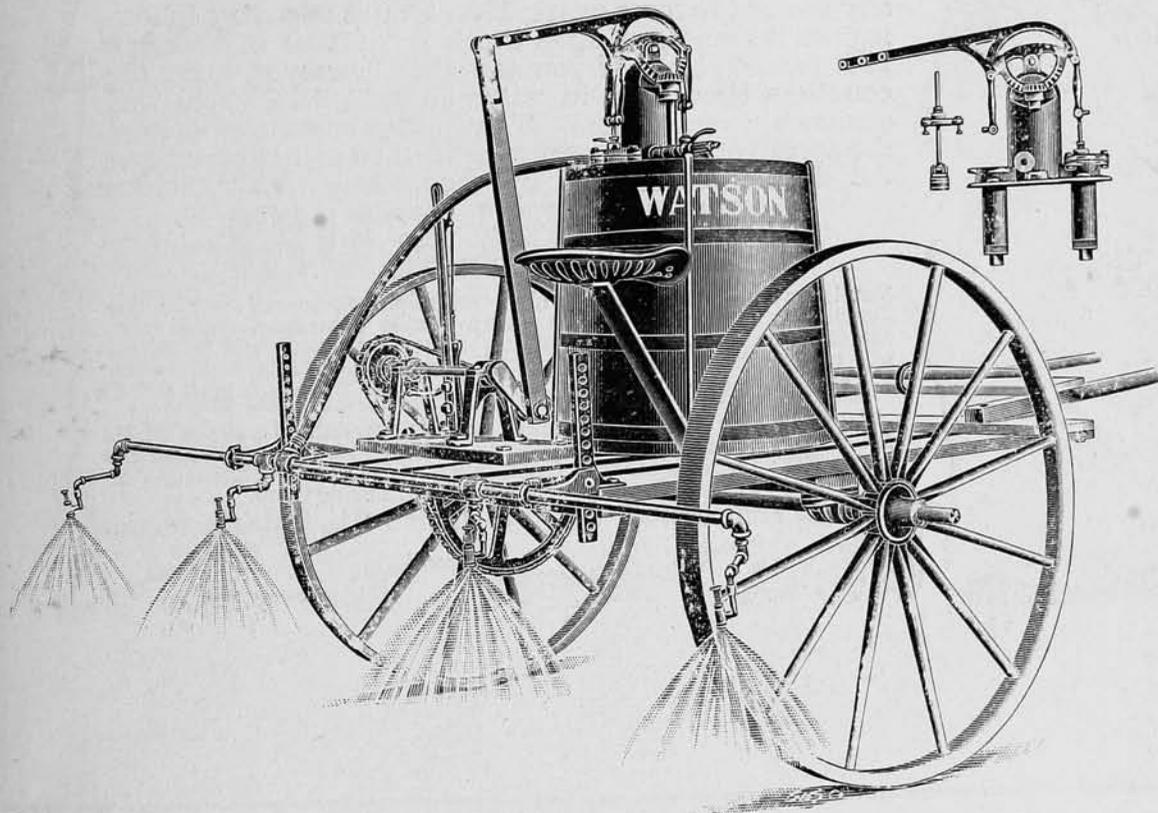
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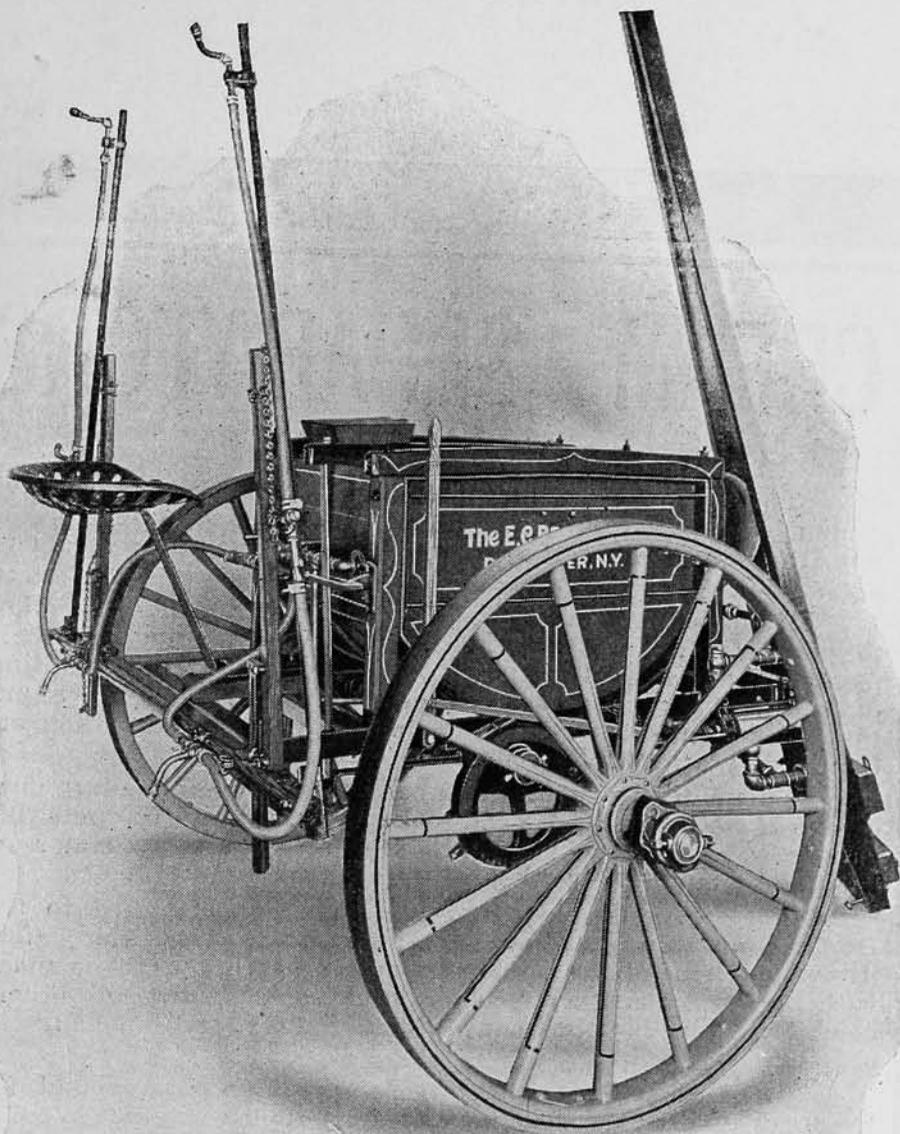
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THE CORNELL COUNTRYMAN is an Illustrated Monthly Magazine, published by students and graduates of the Cornell University College of Agriculture.

MANUSCRIPT for publication should be received by the 10th of the month preceding that in which it is to be published.

SUBSCRIPTIONS, \$1.00 per year, 10 cents per copy. At the expiration of each Subscription, notice and renewal blank will be enclosed. In order to insure renewal remittance should be made before the publication of next issue.

ADVERTISING RATES made known on application. We aim to advertise reliable firms only.

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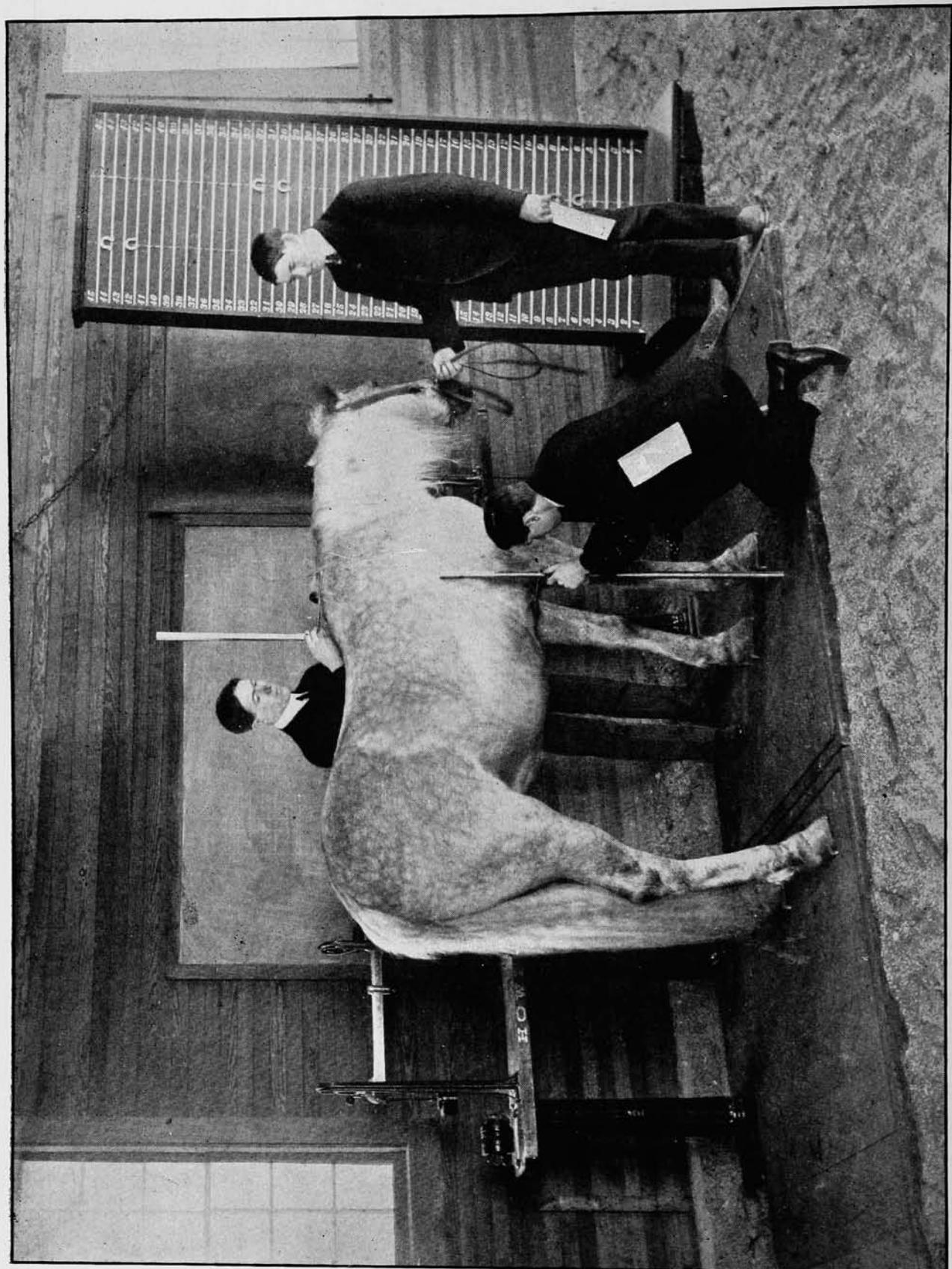


PHOTO BY MORGAN
STUDYING THE HORSE. CLASS IN ANIMAL MECHANICS, COLLEGE OF AGRICULTURE, CORNELL UNIVERSITY

THE CORNELL COUNTRYMAN

VOL. 2.

APRIL, 1905

NO. 7

THE HORSE INDUSTRY IN NEW YORK

By Thomas F. Hunt

Professor of Agronomy, Cornell University

THE State of New York is a consumer of horses. New York State contains not far from one-tenth of the population of the United States and produces about one-fiftieth of the horses. The chart on the next page shows graphically the number of colts produced for each 100 horses kept in the United States, and the different divisions thereof, according to the Census of 1900, by taking the number of yearling colts as a basis for such calculation. It will be noted that in the United States for each 100 horses there are raised annually eight colts. This is the number required to meet the needs of the country plus the export. The total number of fresh horses required annually, therefore, is about 1,500,000. The North Atlantic States produce about 3.5 colts for each 100 horses, South Atlantic, 5.6; North Central States, 8.6; South Central, 5.7; and the Western States, 12.9, and New York State, 3.5 colts. The Western States include those states west of Denver. It is here that the breeding of horses is most active in proportion to the horses kept. In the United States there is raised one colt annually for about every four farms, in New York State one colt for every eight farms, and in Iowa one colt for every two farms.

A similar relationship may be noted in passing, between the persons engaged in farm labor, and the number of horses kept upon the farms. There are more than twice as many horses in proportion to persons engaged in farm labor in Iowa as in New York State. This is not without its influence upon farm income and hence upon the value of farms.

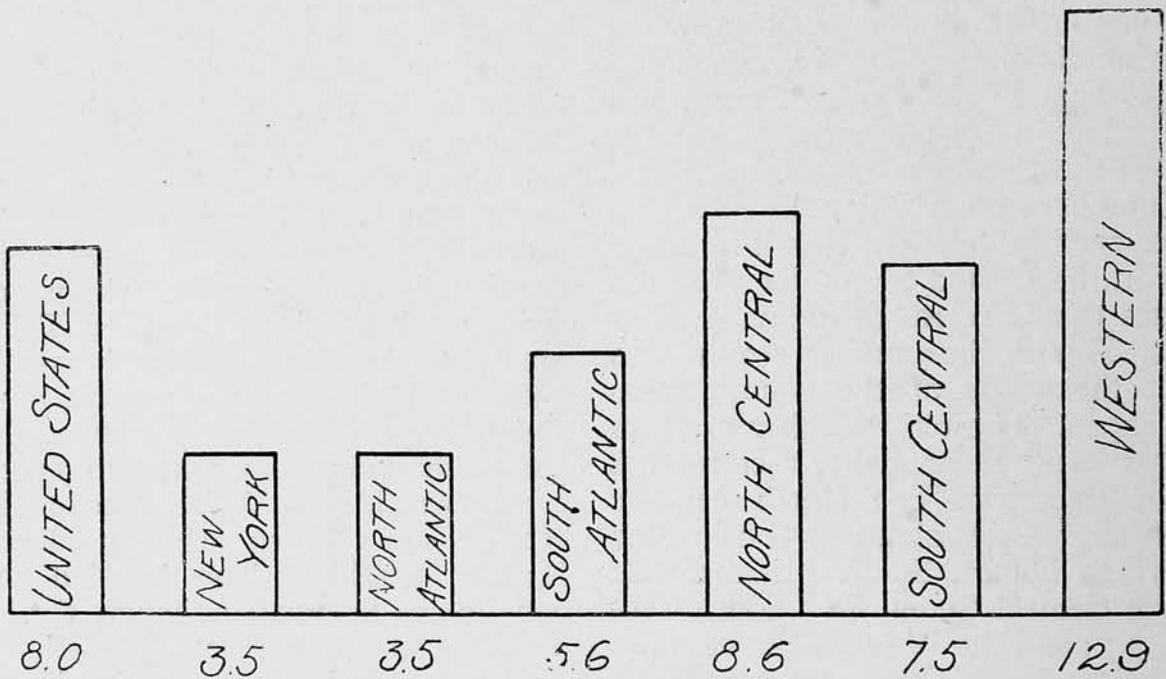
The value of the horses in New York State probably equals, if it does not exceed, the total value of all other domestic animals within the State. The value of the horses upon the farms of New York State Jan. 1, 1905, was over 40 per cent of the total value of the horses, cattle, sheep, and swine upon New York State farms. It must be remembered that only about two-thirds of the horses of New York State are upon the farms, the others being employed in cities while comparatively few cattle, sheep and swine are kept within the cities. There are approximately a million horses in New York State at the present time, and it is probable that the state consumes annually from 50,000 to 75,000 horses worth from \$5,000,000 to \$8,000,000 more than she produces. Buffalo is said to have handled 40,000 horses in 1904, although this is probably an over estimate. These horses come principally from the North Central States, including especially Iowa, Ohio, Illinois, Nebraska, Kansas and the Dakotas. New York State stands fourth among the states in the value of farm horses, being exceeded only by Illinois, Iowa and Ohio. It is exceeded in numbers by several states. When we include the horses in the cities it is probable that New York State stands at least second, if not first, in the total value of horses among the states.

The fact that the State of New York is a consumer rather than a producer of horses has led to the development of agencies for taking care of this large trade. A single horse frequently passes through a number of hands in its way from an Ohio or Michigan farm to the final consumer in

one of our large cities. If a draft horse, it may be purchased by a local horse buyer in the adjoining town who in turn sells it to a dealer who ships it to some one who makes a business of fattening draft horses, much as steers are fattened. When ready for the market, this horse may be purchased by a shipper who sends it to the Buffalo or New York market, where it is sold on commission, either at private treaty or at public auction. Here it may fall directly into

them and educate them for customers requiring high class horses.

The largest sale stable in the state is Fiss, Doerr & Carroll Horse Company., East 24th Street, New York City, said to be the largest dealer in horses in the world. Here public auctions are held every Monday and Thursday throughout the year. At East Buffalo there are two large sales stables—the Crandall Horse Co., affiliated with the last named firm, and the Hickok, Aldrich Co. The former



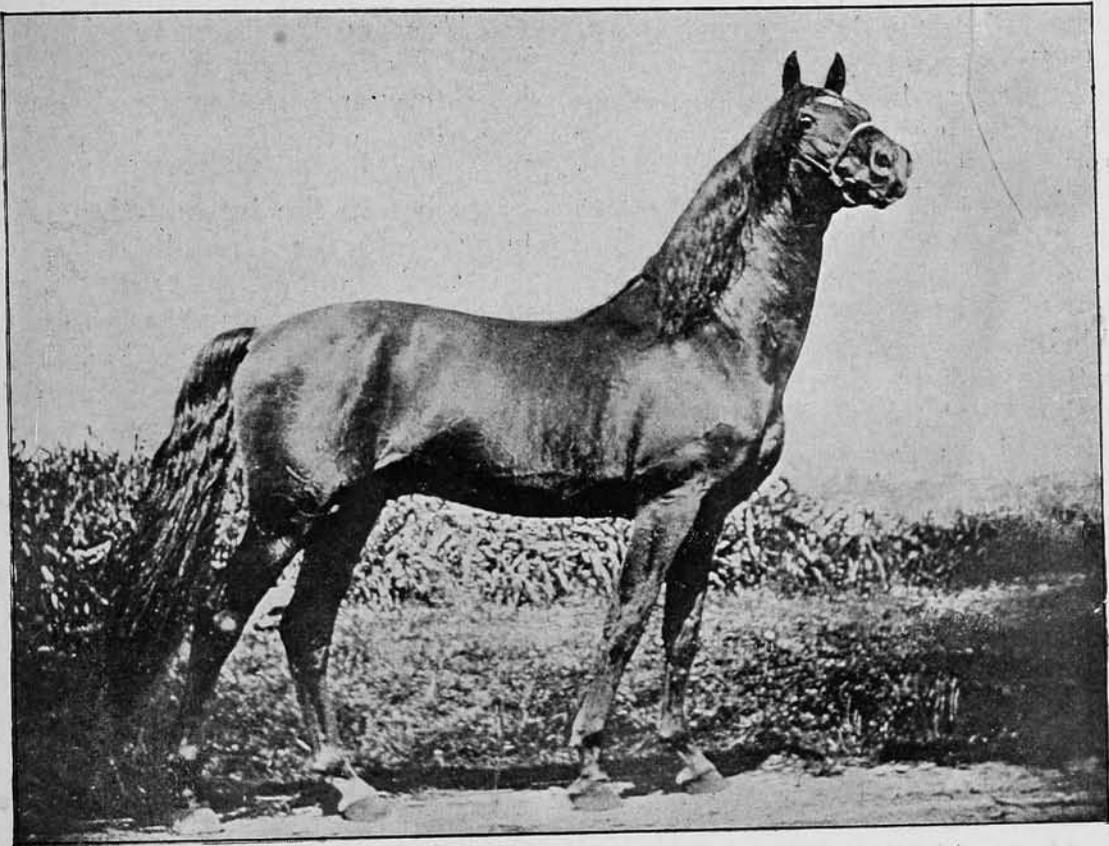
NUMBER OF COLTS PRODUCED PER 100 HORSES

the hands of the consumer, or it may be purchased by a dealer who takes it to a smaller town to sell, either directly or through a local dealer. It is needless to say that every man through whose hands this horse passes expects to receive some compensation for his labor and other expenses. In the case of coach and carriage horses and drivers, many are purchased in the large markets in their green state by trainers who have establishments in different parts of the state, who fit

conducts an auction every Monday morning, and the latter every Monday afternoon throughout the year. These three establishments receive all classes of horses consigned to them on commission, but their sales comprise chiefly draft horses, chunks, common work horses, and uneducated horses of the lighter type. One of the Buffalo firms, which handled 17,000 horses last year, writes me that approximately 15 per cent weighed more than 1,500 pounds, 15 per cent weighed

less than 1200 pounds, leaving 70 per cent between 1200 and 1500 pounds. It is safe to say, therefore, that at least three-fourths of these horses possessed more or less draft breeding. The American Horse Exchange, 50th St. and Broadway, of which W. K. Vanderbilt is president, makes a specialty of selling carriage, coach and riding horses as well as holding special sales for breeders and dealers in high class horses. The Fasig-Tipton Co. conducts special sales at the Madison Square

sales are much the same with all these large commission firms. In a general way it may be said that a horse may be sold at auction under one of five different conditions: (1), title only is guaranteed; (2), horse is guaranteed to be a worker only; (3), horse is guaranteed to be sound as to wind and to be a worker; (4), horse is guaranteed serviceably sound; (5), horse is guaranteed sound. Every horse thus sold must be in all respects as guaranteed, but the purchaser must examine



WHITE RIVER MORGAN

Owned by L. D. Ely, Rochester, N. Y.

See page 128

Garden, where the best standard bred horses are consigned for sale and where the highest prices for horse flesh are obtained. This company holds the Old Glory sale during the two weeks just following the National Horse Show and the Mid Winter sale of the "400" the first week in February. In addition it conducts the Blue Ribbon sale at Cleveland, Ohio, and the Down East auction at Boston, both in May.

The rules adopted for the auction

and try the animal within the required time specified, usually on the day of the sale. All kinds of vehicles and appliances are usually on hand to show horses according to the uses for which they are intended. These sales are conducted very rapidly, sixty to seventy horses per hour being sold. Not all horses, however, are sold at public auction. Many are sold at private treaty. One has to pay a slight advance in price at private sale, but it gives a wider range of selection

and a better opportunity to select wisely.

While this is a state of horse dealers rather than breeders, occasionally a breeding establishment may be found. The most noted of these breeding establishments was the famous Village Farm, East Aurora, N. Y., founded by C. J. Hamlin, whose death occurred February 20th, about two weeks after his horses had been dispersed at the Mid Winter sale, Madison Square Garden. This breeding farm, founded nearly half a century ago, with definite objects in view, became the "greatest trotting nursery in the world." "From its paddocks," it is said, "have come more trotting and pacing champions than from any other farm in existence, and more 2:10 horses and more 2:15 horses than from any other farm that ever existed." As an illustration of the success of this breeding establishment, six trotters, viz: the Abbott, 2:03 3-4; Lord Derby, 2:05 3-4; the Monk, 2:05 3-4; Phantasy, 2:06; Nightingale, 2:08; Daredevil, 2:09,—have won an aggregate of more than \$200,000. Three were sired by Chimes and three by Membrino King.

It is suggested that the mantle of Hamlin may fall upon R. H. Murray, at Canastota, N. Y. Whether this is true or not the home of Medio is a successful breeding establishment, from which a considerable number of high class horses are sent out each year. Honorable F. C. Stevens, Attica, N. Y., is well known as a breeder as well as importer of hackney horses. His horses are known in every show yard. In this state also are a couple of well known establishments for the breeding of ponies, C. Howard Davidson breeding Welsh ponies

at Millbrook, N. Y., while E. F. Hawley, Pittsford, is equally successful with Shetland ponies. Among the breeders of Morgan horses may be mentioned Bayside Farm, Rochester, N. Y., owned by L. D. Ely. It is here that White River Morgan is kept, one of the most highly bred of living Morgan stallions.

Very few horses of the draft type are bred in New York State, most of them being of trotting blood, frequently of the Morgan type. It would be interesting to trace, if it were possible, the influences which have led the New York farmer to stick largely to the Morgan type of horse. It would be interesting to know whether this was due to the fact that the Morgan horse became established in New York State before the introduction of draft horses into the United States, which occurred about fifty years ago, or whether the environment is more suited to this smaller horse. The breeding of draft horses began in Central Ohio and has gradually moved westward until the whole of the Central West has become permeated with horses of draft breeding. During the half century that has elapsed the draft horse has appeared unable to make its way eastward to any considerable extent except to be consumed. Whatever may be the reason, one thing is certain that the phenomenal development of the Central West has been in large measure related to the application of efficient motive power to the production and marketing of farm crops. The draft horse has been a factor in this development. The efficiency of the horse as a motive power has been raised to such an extent as to reduce the number of horses required to do a given amount of work.





COURTESY OF HORTICULTURAL DEPARTMENT, CORNELL UNIV.

SETTING CABBAGE—A PLANTER AT WORK IN THE FIELD

COMMERCIAL CABBAGE CULTURE

By Fred E. Gott

IT was not until within the last quarter century that cabbage growing obtained much prominence as a commercial industry in the State of New York, except in the market gardens in the vicinity of the large cities. Since 1880 the development of this industry has made rapid strides. And, now, in the middle of the first decade of the twentieth century we find this important vegetable taking its regular place in the common rotation followed on market farms wherever soil and climatic conditions are favorable. We find also that Michigan, Wisconsin and several other states are now growing large quantities of this crop, so much so, as to materially influence the supply and market. It is a crop that usually pays the farmer well for the time and attention given to its cultivation, but like all other good things may be overdone. As the wide variations of prices in different seasons conclusively show—a very high price for the crop

of any one season stimulates an immense planting the succeeding year to the extent of over-production, consequently low prices and inadequate returns—but the farmer who will be content with a small or moderate acreage, and who will apply the very best cultural methods to the same, is the one who will obtain the most satisfactory results.

Great care should be taken in obtaining only the very best seed, and this is not always an easy thing to do. There is a constant tendency in this plant to revert back to its original type—a stump with a few scattering leaves—of use only to perpetuate its kind, but not to form a head. In the purchase of seed we must take into consideration, also, the fact of an inherent trait of human nature which, if not thoroughly subordinated by moral rectitude may lead to such acts as filling the middle of a barrel with cider apples, or the mixing of good

seed with an inferior article to increase bulk.

As very few growers will care to spend the time and care necessary to grow their own seed, I will simply advise early purchase, if possible from a dealer with whom you are acquainted and who has a reputation to sustain. Then in a short, heart to heart talk tell, or write him exactly what you want and expect, and if he has it, pay him all he asks. No doubt he will have seed which he could sell you for less money but it will be dearer in the end. Get one pound for each four acres to be set. Some growers advise sifting the seed using only the largest. My own experiments along this line do not prove the value of the operation.

The utmost pains should be taken in the preparation of the seed bed, the soil of which should not be too heavy. Else the aid of a pick-axe and crowbar may be required when you pull the plants. It should be a rather light loam, well drained, naturally rich, but no manure should be applied or the plants might be induced to make too succulent growth; such plants do not bear the shock of transplanting as well as those that are more stocky and tough. If the plot intended for plants is not considered rich enough naturally, it should have been manured the previous season and some other crop grown upon it.

Much more essential than manure is the thorough and complete preparation and cultivation of the seed bed. Fit it as perfectly as for onions, so that no lumps larger than a pea will remain unpulverized to the depth of six inches, and this means a whole lot of labor with cultivator, roller, harrows and float. And do not neglect to remove all stones which might interfere in any way with thorough work. The object should be to give the young plants the most congenial conditions for strong growth and the development of as perfect root system as possible. While the tender roots of the young plant will find their way between the particles of a well prepared soil in their search for plant food,

they are not of sufficient strength to drill their entrance into solid lumps of hard soil to obtain the food which is locked up therein, hence can only fasten themselves to the surface of such lumps, and when we pull them we wonder why they have not grown better. The seed is sown about six weeks prior to the time when the plants are to be set, which, in our latitude, is about the fifteenth of May, in drills twelve to fourteen inches apart and not over one-half inch in depth. They may be sown by hand, but much more rapidly and easier with any good garden drill, preferably when the soil is neither too wet or too dry. If the soil is rather dry and does not contain too much clay, it will be well to go over the piece after sowing and press the earth solidly around the seed with the ball of the foot. In heavier soil the roller of the seed drill will be sufficient for the purpose. In either case a rake or weeder should be lightly used within a day or two after seeding to prevent the formation of a crust over the seeds which would tend to prevent their breaking through to the surface.

As soon as the rows of growing plants can be seen the cultivation should begin, first with the rake, then, as they grow larger so that the danger of covering the young plants is avoided, with the wheel hoe and cultivator. No weeds should be permitted to grow either in the rows or between them. The plants should not be compelled to struggle for existence against rank growing weeds, and the soil mulch should be carefully preserved. Much stronger plants will result by thinning to one inch apart. And it will pay well to take time to do this when the plants are from one and one-half to two inches high. It is not advisable to use the same plot for growing plants continuously each year on account of insect and fungus diseases.

Aside from the heaviest clays and the lightest sand almost any soil under proper methods of cultivation will grow profitable crops of cabbage. Too much stress cannot be laid upon

the importance of thorough and intelligent cultivation and handling of the soil, for more depends upon the condition of the soil than upon its character, and many inferior soils under the best methods of tillage give greater returns, than do the very best soils under careless or indifferent management. One should fully understand the nature and character of his soil, and a knowledge of its particular cultural requirements is imperative. Most of our soils contain latent plant food

value, in moderate quantities, should be hauled immediately from the stables, each day if possible, and spread upon the field. My practice is to use the droppings and soiled bedding from the horse stables as litter for fattening cattle, this being much dryer than the droppings from the cattle, is an excellent absorbent. Then the poultry droppings well mixed with ground rock or gypsum is spread evenly over the manure in the stables and thus a uniform mixture is obtain-



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HARVESTING CABBAGE—A LOAD READY FOR MARKET

in abundance, and the efforts of the husbandman should be directed towards the rendering available that which he is already possessed of rather than to place dependence upon costly purchased fertility.

The clover sod, containing as it does large quantities of humus, nitrogen and other plant food in the decaying roots of this legume, undoubtedly furnishes the best conditions attainable for this crop. Stable manure composed of both the solid and liquid portions of the excrement of all the farm animals and poultry, thoroughly mixed so as to be of uniform strength and

ed, and when the weather is not too severe is drawn to the field each day, not more than twelve or fifteen two-horse loads per acre being spread as evenly as possible on the land. Treated in this way the loss of its essential elements is reduced to a minimum. Going over the field with a smoothing harrow or weeder in the spring prior to plowing will disintegrate any lumps of manure that might remain and improve the distribution of the same.

As early as possible but not until the soil has become sufficiently dry to crumble from the mold board, the

field should be plowed. And here, more than in any other operation, depends the success or failure in growing a remunerative crop. Each furrow should be absolutely straight, and an equal width of cut from one end of the field to the other, and all portions of sod turned out of sight. To do this, a good plow, in perfect order, with a jointer, and all properly adjusted, and a team and driver who know their business will be required. Remember the field must be thoroughly fitted before the plants are set. No amount of subsequent cultivation will atone for careless and defective preparation. The furrows should not be turned bottom upwards, but at an angle so that the sod and the dressing of manure will be distributed through the plowed soil and not all at the bottom of the furrow, where, in a dry season, it would be likely to destroy the capillary connection between the tilled surface and the subsoil. I have seen the failure of crops for an entire season follow the plowing under of a heavy growth of rye or clover in the manner indicated, whereas if the furrows had been set up at an angle there would have been nothing between the lower edge of the furrow and the subsoil to interfere with a complete establishment of capillarity.

The roller and the harrow should follow the plow each day, never allowing the furrow to become glazed. When this advice is followed the perfect fitting up of the soil can be readily accomplished. Thorough pulverization and compacting of the soil is imperative. This is done with the spring tooth and Acme harrow, the roller (used with judgment) and lastly a home made plank float.

Commercial fertilizers can often be used at a profit and should be drilled broadcast just prior to setting the plants and before the finishing touches with the Acme and float. The best results are obtained when the plants are set just before a rain rather than just after. Unfortunately we are not always wise enough to determine ac-

curately just when the rain will come. The distance apart for setting varies somewhat with different varieties. The larger domestic kinds should be three feet each away, while winter varieties like the Danish Ball Head will do very well set in rows three feet apart and twenty-six to twenty-eight inches in the rows, which will give 6700 to 6200 plants per acre.

Long top roots and excessive growth of leaves should be removed at time of transplanting and much pains taken to have the soil well packed about the roots. When these precautions are observed and strong, well grown plants are used, very few will be lost, but the field should be looked over within a few days and all missing plants replaced. We wish every plant to form a marketable head, and leave no waste places. In a few days the plants will have recovered from the shock of transplanting, and cultivation should at once begin. This should be deep and thorough at first but shallow during the remainder of the season and should be continued as long as it is possible to get through between the rows. A crust on the surface of the soil between the rows should never be permitted to exist. To prevent this often necessitates the use of the cultivator once a week or even oftener, and the latter cultivations are best performed with quite narrow teeth. In every wet season deeper cultivation, even late in the season, often becomes necessary in order to restore the best conditions for soil activity. Subsequent applications of commercial fertilizer, during the growing season, are often advantageous, not necessarily to the whole field, but to portions upon which the growth of the plants has been arrested for any cause or where the plants show a lack of vigor or an unhealthy color. In such cases I have found an application of nitrate of soda to be of great benefit. Care should be taken to apply to the soil around the plant and not to the plant itself. Nitrate of soda is readily available as plant food and the results of its ap-

plication in the cases mentioned is often wonderfully prompt.

In harvesting care should be taken to avoid bruising the heads particularly if they are to be stored. A bruise is about as fatal to the keeping quality of a cabbage as it is to an apple. An important question which must be determined by the grower himself is whether it is best to sell immediately from the field, or to hold his product for an increased price.

A head of cabbage will never be any heavier than when it is first cut, and we sell them by weight. The shrinkage of stored stock is often tremendous. In order ever to derive the advantage of the high prices which are sometimes obtained late in the season, one must have a purposely constructed store house—a portion of the basement where farm animals are kept will not do. It is seldom profitable to store with the expectation of selling "just after the holidays." That is the time when the large dealers unload their storehouses as a rule. The market is then well supplied and the farmer with his two tons, or a carload, perhaps, is not in the merry-go-round for an instant. If he stores at all he should be able to hold his crop until late in the season if necessary, and to do this he must have a building in which the temperature can be perfectly controlled. It should not vary much in either direction from 33 degrees F. More cabbages are lost by the temperature of the storehouse being too high above the freezing point than below it. Perfect ventilation must be provided for as well as protection from sudden cold spells. The bins should be so constructed that the contents of each one can be in-

spected at any time and, if necessary, be removed without disturbing the adjoining bins. To sum up, such a building, constructed with a view to obtaining only the best results, is an expensive affair.

Diseases and insect enemies are hard to combat. The application of generous quantities of lime to the seed bed is recommended as a preventive of club-root. I believe this to be effective in most cases. But we must remember that this disease is peculiar not only to the cabbage but to other members of the cabbage family, as well as certain weeds. And where a soil once becomes badly infected it is better to discontinue the crop. In fact, it is better not to use the same land in succession for any plants or crop.

A well limed seed bed is not a happy hunting ground for the cabbage maggot, but I doubt if it will entirely prevent his depredations. This maggot and the aphid are most serious pests. The latter is a sucking insect and is accordingly combated with emulsions. As most of its time is spent on the under surface of the leaves which even curl around it, thus affording it complete protection, not much can be accomplished owing to the difficulty of bringing the emulsion into direct contact with its body. Tobacco dust is also recommended for this pest.

Fortunately such visitations as we had in 1903 are rare. Whenever this pest appears in small numbers the infested plants should be destroyed by burning and the same disposition should be made of plants infected with club-root. The cabbage is of great value as food for live stock or poultry.



THE SPIRIT OF THE "SHORT HORN"

By H. H. Herriman

IT has been said that the Short Course students of Cornell receive more practical instruction during the few weeks that they are here than do the students of any other course in the same length of time. I believe the "Short Horns," to a man, will agree to that. Study to work might be our watchword.

But this is not all that we are doing—we must have a little play, a respite. So, instead of rough-housing so much, we spend our energies in another direction. The General Ag.'s and Dairy classes form themselves into clubs. The Fletcher Club, called so after our popular professor, and the Dairy Club. The poultry students affiliated with the regular poultry class.

The Fletcher Club holds its meetings weekly in Barnes Hall amid the many trophies won by the University. Each meeting is said to be better than the previous one. It is certain that all have been greatly enjoyed and well attended, far more than half the members coming. The one effort made by the entertainment committee was to have from time to time as many members as possible take part in the talks and discussions of the club. And it has been a surprise, a wonder, and a delight to the professors and club members to learn that there was such good material and such a quantity of it among them, and to find all this in such a short time. Remember, the course is but eleven weeks long, and the club naturally congratulates itself in bringing to light such a wealth of talent. The short talks have all been exceptionally good: a five minute's talk on some familiar farm subject. The debates have given not only much pleasure and amusement, but considerable information on the subjects treated. And, of course, these debates were on matters relating to agricultural life.

There was an exciting and well

fought debate between the Dairy and Fletcher Clubs and aside from the consideration above stated, the meeting of the two organizations brought about a better understanding, and a feeling that we are all of one class. Although the Dairy Club team lost, the Club had an enjoyable evening, and we became much better acquainted. The two sets of boys do not know each other as well as they should, and all are sorry we have not met oftener.

But there is always more entertainment in store, in the form of stunts and music by the members, and the orchestra and the quartette. Every one is enthused with the idea of helping in any way that he can of doing his share, to advance the enjoyable times. It is a splendid thing to have sufficient musical talent in a class whose members come from all parts of the country. And a treat this talent is every time. Necessarily, this means many rehearsals, but the time is cheerfully given and the results amply repay.

There is another part willingly given by all, the club dues or tax. This money is used to pay for the lights of our room in Barnes Hall, and to furnish the refreshments. At each meeting there is served a different kind, nothing great, but it adds to the social time. During the meeting, some of the glorious Cornell songs are sung, the boys especially liking "Jingle Bells," that rollicking, swinging song! The evening ends with our yell too, and given with plenty of vim:

"Cornell, we yell,
We work, we strive,
Fletcher Club, Fletcher Club,
1905."

In the early part of our term, a reception was tendered by the Ladies of the Nature Study Course, the Faculty and the Regular Ag.'s, the

ladies having entire charge under the supervision of Miss McCloskey. We had a very pleasant evening. It was given for the new men to become acquainted, and to learn the Cornell songs and yell, to imbue Cornell spirit. March 14 a reception was given in return by the Short Ag.'s to those who so kindly welcomed us when we came. A goodly number was present, and they enjoyed the stunts, hits

and music given. There were ten numbers on the programme and praise was unstinted for each one.

The boys did finely, but only what was expected of them. Yells were given as each professor was hit off. The refreshments were partaken of with much gusto and, after singing the Cornell songs, we adjourned, feeling that the short-horn reception had been a success.

"FARM LABOR THE WORLD OVER"

Facts from the Report of the Industrial Commission, 1901

THE UNITED STATES

THE average rate of wages of farm laborers according to investigations carried on appears to have nearly doubled in fifty years, and is now fully as high as at any period in 20 years and higher than in any other country in the world. The efficiency of the more skilled and reliable class is found to be increasing from the influence of agricultural education, in the object lessons presented by the thousands of graduates and students of colleges and dairy schools, the teaching of farmers' institutes, and the agricultural press. The influence of the general use of farm machinery in the same direction is very apparent; it also tends to ameliorate the drudgery of farm labor, and shorten the hours of service.

The common labor of the farms, including the transient service in harvest or other operations and the less intelligent of the foreign elements, does not appear to be improving in efficiency. It is less reliable and valuable than the native farm labor of a generation ago.

The difference in wages between the districts in which white and colored labor predominate is wide. In regard to efficiency, colored labor is, as a whole, standing still or retrograding. Although such is the case, some testimony is adduced showing improvement in efficiency of a small class of colored laborers in certain sections.

Colored labor seems to be superabundant, listless and unambitious, lacking inducement to effort. On the other hand, it is shown that many of these colored laborers go from Virginia to Rhode Island and Connecticut, get \$18 to \$25 per month and board, give good satisfaction to their employers and return south in the winter. They are probably above the average in reliability and efficiency, and it is certain that at home they could not command more than half the wages they receive in the North.

As a result of the investigation the conclusion is reached that our farm laborers, with apparently lower wages than persons of the same intelligence and skill receive in town-employment, save more money, have more comforts, and fewer anxieties, and have better opportunities to secure homes and social position. Many instances are cited, and they are by no means rare, of laborers who have gone to the towns, spent their little savings, and after years of struggle have returned to the country to recoup themselves. In addition to wages it is the rule for married labor in the country to have a house free of rent, have a garden, fire wood, pasturage for a cow and other prerequisites. In many cases the enterprising laborer becomes a tenant and afterwards a farm owner.

—J. H. Barron, '06.

The Cornell Countryman

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APRIL, 1905

The Latest About Soil Fertility

Professor Whitney, Chief of the Bureau of Soils at Washington, visited the University early in March.

While here he very kindly consented to speak before the members of the Seminar in Advanced Agronomy and gave them a genuine treat by telling them of the recent developments in the soil fertility problem. His argument in brief was as follows.

It is known that plants grow better in fertile than in infertile soils. Professor Whitney found that solutions from soils of both classes contained practically the same amounts of plant food. The answer to the question at first was thought to lie in the movement of soil moisture. It was thought that perhaps the physical condition of the soil had a controlling influence on the accessibility of the soil moisture to the plant roots. If this were true the difficulty would be overcome by growing the plants in soil solutions. The plants that were grown in soil solutions, however, acted the same as when grown in the soils from which these solutions were derived. The question was yet unsolved.

Among the factors involved in the problem he mentioned two in particular; first, it is the tendency of all substances to assume the most insoluble

form when brought into solution; and second, one cannot take out of solution the last traces of soluble substances, and in dealing with plant growth one is dealing with these infinitely small quantities which are beyond ordinary methods of chemical determination.

Then Professor Whitney took a concrete example, the soil in Takoma Park, Washington. This was the soil of his own lawn and he had tasked himself to the utmost in trying to get grass to grow on it but had failed. Application after application of manure, amounting in all to fifty tons per acre, had been made with seemingly no results. Neither was the color of the soil changed as might be expected nor did the grass grow any better. All the manure he applied seemed to vanish and disappear. In his despair he applied fresh ground leaves. He went into the forest, plucked the leaves from the different trees and ground them in a sausage grinder. Applications of these different leaves were made on different portions of the soil. Certain results were obtained. The sumach leaves turned the soil dark and gave it a rich color. Chestnut and oak did this slightly. He tried the growth of plants in soil treated with sumach leaves. The transpiration by the plants and likewise their growth in this soil was approximately 100 per cent greater than in case of the plants on the untreated soil. Now, what has produced the effect? Was it the application of the humus of those leaves, was it merely the effect of the coloring matter contained in the sumach leaves, for we know that the leaves furnish us a dye, or was it the reducing power of the sumach?

The thought occurred to him that the result might be due to the effects of a reducing agent. He added lime, a comparatively large quantity too, and the same effect was produced, i. e., the transpiration and growth of the plants was increased approximately 100 per cent. He also tried pyrogallol, a powerful organic reducing agent, the same as is used in photography with the same effect. Soil solutions were made from the original soil possessing the same infertile qualities of the soil. He added these agents to the soil solution producing the same effects as did the application of the same agents to the original soil. Now, to make the case general he tried these agents on different kinds of infertile soils and their solutions with the same effect. Hence he concludes that the infertility of the soil was not due to the lack of plant food. Moreover, the cause of the infertility of the soil is transferred to the solution and is a property of soil solutions rather than of the solid mineral matter of the soil.

Then he made a soil solution of both a fertile and infertile soil. In the solution from the fertile soil the plants grew well; in the solution from the infertile soil they did not grow well. He poured a portion of the infertile solution into the fertile and this addition made the fertile solution infertile, although there was, of course, no less plant food.

Now he goes a step further. We know that when the colored solution from the barn yard is passed through charcoal or carbon black the color is removed, no matter how much the solution may be colored. The same effect is produced by ferric hydrate. Professor Whitney then made infertile soil solutions and added carbon black, and also (to different portions) the

ferric hydrate. The result was a fertile solution. Lest it might be argued that these compounds produced a stimulating effect on the roots of the plants through mechanical irritation, he added the carbon black to the solution and then filtered. The result again was a fertile solution.

During the progress of this inquiry, it was found that in the early stages of germination, the rootlet first excretes a chemical substance and afterwards reabsorbs it. The same kind of seeds saturated with a one per cent solution of this substance would not germinate.

Now he makes up a new solution of plant food, containing chemically pure mineral compounds of known composition, and then places wheat seedlings in it. At the end of six days the solution became discolored and the seedlings ceased to grow. The seedlings transferred to a fresh solution grew for six days and then ceased to grow. Other seedlings immersed in this solution would not grow. Now, this solution in which the seedlings had grown six days and then ceased to grow, and in which other seedlings would not grow, was treated with carbon black; other portions with ferric hydrate and filtered. Into this solution seedlings were immersed and again they grew six days and then ceased to grow. It is clear, thought the speaker, that the retarded growth of the seedlings was not due to the lack of plant food but to the toxic effects of the compounds excreted by the plants themselves.

What the College Boys are Doing

The February issue of the *Countryman* published an article entitled "Enlarging Our Sphere of Influence." The article was written by Scott

Perky and described a movement which the Alpha Zeta Fraternity had undertaken, but which had failed of results. In this article he states that a year or two will pass perhaps, before a similar work will be started. We are glad to see that this work has again been taken up. The movement once more originated in the fraternity, but is spreading to include every student in the College of Agriculture. An executive committee has the work in charge. This committee has created two other committees, one on programs, the other on arrangements.

The object of the movement is to hold meetings about the county which shall be conducted conjointly by the students and farmers. In this way the

students hope to come in closer touch with the practical farmer. The students have the theory perhaps, but they lack experience and practice. They are willing to share their theory with the farmer and hope to secure in turn some fragments from the farmer's valuable store of experience. Although they may be graduates of the Agricultural College, the students keenly feel their lack of experience. By holding meetings with the farmers, they hope to be of some help to them from the side of theory, and to receive help from them along the lines of practical experience. It is hoped that the movement may also awaken a deeper interest in the work of the college among the farm homes of the state.

GENERAL AGRICULTURAL NEWS

In articles in the *Deutsche Landwirtschaftliche Presse* A. Kirsche discusses his experiments in breeding *Oats* in such a way that the crops can be increased by heavy manuring without the necessary adjunct of lodging. His conclusions are summed up in these sentences:

1. In breeding for solidity of stem the main points to consider are the lowest internodes, as here the greatest weight is carried.

2. The weight of the stem does not give a certain basis, upon which to calculate the carrying capacity of the stem. However, usually, if the lowest internode has a great carrying capacity, this is also great in the others.

3. Though we should aim for shortness of the lowest internode, a plant with this character should only be used for breeding purposes if the stem at the same time possesses great carrying capacity.

A Unique System of Lighting

The government laboratory buildings in the Philippines is nearly completed and fitted up in the most scientific and up-to-date manner. Something entirely new is used in the way of light supply for the administration building. As Asiatic coal is not very well adapted to the production of illuminating gas, and European or American coal would be too expensive, some ingenious mind has turned to cocoanut oil as a gas generator. For this purpose strong cast iron retorts are brought to a red heat and cocoanut oil is slowly admitted to them. In the process a high grade illuminating gas is generated. This gas is free from all smoke and refuse.—*Der Tropenplanzer*.

* * *

The total exports of Denmark during 1903 were somewhat less than \$100,000,000. Of this the Agricultural Co-operative Societies exported \$57,070,000 or over 57 per cent. of the total exports of the country. Certainly co-operation in agricultural lines has reached a high level in that industrious nation.

W. H. Ogilvie, of Kelso, Scotland, who has recently been appointed editor of the station publications, will also have charge of a course in agricultural journalism in the college. The latter course is established through the liberality of John Clay of Chicago, who, realizing the great importance of suitable training of college students in the field of agricultural journalism, has contributed liberally to Mr. Ogilvie's salary. This is believed to be the first department of agricultural journalism that has been established in that country or elsewhere.—*Experiment Station Record*.

* * *

Some Points of Interest Regarding the National Dairymen's Association of New Zealand Lt.

"The National Dairy Association is of great value to producers. In addition to the ordinary work which falls to such bodies, it acts as general agent for members. Contracts for regular service of steamships to London at fixed rates of freight are arranged and consignments of produce received for storage and shipment. It also undertakes the supervision of all shipments of dairy produce, the freezing of butter for export, the collection of rebates, concessions or return primages on weights and distribution of same to producers. Sales of dairy produce are made, and fire, marine and accident insurances effected for members at lowest rates. Information in connection with the various markets is supplied, and reliable factory managers and assistants are engaged.

The annual subscription for persons or companies ranges from \$1 to \$8 according to output. This charge covers all work done on behalf of the members, with the exception of the one per cent commission charged for buying goods or selling produce.

Says Secretary Harkness of the Association: 'New Zealanders are thorough believers in the system of government control of the dairy industry, and above all of grading, branding and instruction.'—*Extracts from The Sydney Mail*.

The Agricultural Schools of Austria

In the year 1904 there existed in Austria 184 agricultural and forestry schools. Of these are:

- 2 of university grade,
- 3 agricultural academies,
- 9 agricultural secondary schools,
- 5 forestry institutes,
- 1 institute for the brewing industry,
- 2 institutes for fruit, wine and horticulture,
- 39 agricultural schools of a lower grade with full year's instruction,
- 71 agricultural winter schools,
- 9 forestry schools of a lower grade,
- 15 dairy and domestic science schools,
- 24 lower grade specialized schools for fruit, wine, garden, hop and bee culture,
- 2 brewing schools,
- 2 distillery schools.

Of these 184 institutions seven are maintained by the national and 60 by the provincial governments, 5 by the counties, 103 by agricultural societies, 9 by private parties. Instruction was given in the year 1904 by a permanent teaching force of 601 instructors with 794 assistant teachers. The attendance on registration day was 7148 students, of which 5235 or 73 per cent were farmers' sons.

These schools are situated in 17 provinces of the Empire and instruction is given in eight different languages—namely: German, Bohemian, Polish, Slovenian, Italian, Servo-Kroatian, Ruthenian and Roumanian, of which Bohemian and German lead.

It must be born in mind that these figures are for Austria only and do not include Hungary, Bosnia and Herzegovina, Croatia and Slavonia. In other words, of the total of 240,942 square miles contained in the Austria-Hungarian monarchy these figures cover only 92,649 square miles with a population of 22,702,891 people. In extent the territory, the agricultural interest of which are discussed here, equals nearly the combined territory of the states of New York and Pennsylvania with about twice the population of these states.

CORNELL NEWS

CAMPUS NOTES

The Short Course Dairy Students are very fortunate in having the privilege of hearing a fine series of non-resident lecturers. Some of the lecturers and their topics are: Dr. Harding, Bacteriologist at the Geneva Experiment Station, "The Changes which take place in the Making and Curing of Cheese;" Mr. Smith of the same institution, "Relation of Factory to Patron;" Mr. H. E. Cook of Denmark, "Possibility of Factory Management;" Hon. Geo. L. Flanders, Assistant Commissioner of Agriculture, "State Agricultural Law;" Mr. Henry Mattison, State Butter Instructor, "Creamery Patrons."

* * *

Prof. Stone is preparing a bulletin on Potato Culture which will be ready for distribution about April.

* * *

Mr. C. A. Rogers, of the Graduate Department of Horticulture, has accepted a position with the Vick Seed Firm at Rochester.

* * *

The Department of Horticulture has received an application for a man to take charge of the plant breeding grounds of a prominent seed firm in New York.

* * *

The Short Course Students have the right Cornell spirit. On March 2d there occurred in Barnes Hall a debate between the General Agricultural Students and the Dairy Students. The subject was, Resolved, that Poultry Farming is More Profitable than Dairy Farming. The sides consisted of three men, the General Agriculture students supporting the affirmative. The judges were Dr. Fletcher, Prof. Rice and Mr. Trueman. The affirmative won.

* * *

F. E. Bailey, one of our special students, has just recovered from a five

weeks' siege of scarlet fever. We are pleased to see him up and among us again.

* * *

Sixteen members of the class in Poultry Husbandry have visited the following places on an excursion during the past month: Chas. A. Cypher Incubator Co., Buffalo, N. Y.; Cypher's Incubator Co., Niagara Falls, N. Y.; Curtis Bros. Wyandotte-Pekin Duck Farm, Ransomville, N. Y. Later 25 members visited the Geneva State Experiment Station, Geneva, N. Y.; Gardner & Dunning Barred Plymouth Rock Plant, Auburn, N. Y.; D. M. Osborn & Co. Farm Implement Mfg. Auburn, N. Y., and C. H. Wyckoff's White Leghorn Farm, Aurora, N. Y.

* * *

Our college is receiving visits from many representatives of industries throughout the state. Mr. Bert Olney of Oneida and Mr. Owens of Turren, proprietors of canning factories, spent two days here in the early part of March, investigating problems of their business with special reference to agriculture.

* * *

The Department of Horticulture has completed arrangements with the Seed Division of the Plant Industry Department at Washington, whereby an extensive co-operative study of the garden beans will be carried on this coming summer at the University.

* * *

The Dairy Department is receiving daily calls for men to take charge of and to work in Cheese Factories. This speaks extremely well for the efficiency of our Department.

* * *

The Farmers' Institute held Feb. 27th, 28th and March 1st at Elmira was very successful in its purpose. There was a very large attendance, the hall was not large enough to hold all

that wished to attend. All were very enthusiastic as evinced by the numerous questions with which the speakers were plied. Our faculty was well represented by Dean Bailey who spoke on "Does Farming Pay?" Prof. Rice on "Poultry;" and Prof. Hunt on "Beef Cattle." Such efforts are worthy of the co-operation of our faculty and the various agricultural institutions and associations of the state.

* * *

The Union Carbide Co. of Chicago has donated two tons of carbide to the Horticultural Department for the furtherance of the acetylene experiments which are now taking place.

* * *

A number of our agricultural faculty attended the State Farmers' Institute Annual Banquet at Utica on March 7.

* * *

Hon. Mr. Downing, Commissioner of Education of the State of New York, addressed the Agricultural students March 3rd on the question of introducing elementary agriculture into the public schools.

* * *

Mrs. Henry Parsons of New York City, noted for her school garden work among the poor children there, recently delivered a very interesting lecture before the University.

* * *

We notice with pleasure the appearance of a new book from Orange Judd & Co. entitled "*The Potato*" by Samuel Fraser, Assistant Agronomist at Cornell University. The book is well edited, comprising a full up-to-date treatise of the subject. It comes from one who has made a careful study of the literature of the potato and is familiar with the best methods of its culture at Cornell. The book is well written and reflects much credit upon the author.

Professor Slingerland gave a two hour lecture course on insect pests of farm, orchard and garden, and remedies for them, to the winter course students.

* * *

Under state appropriation there has been sustained at the College of Agriculture, Cornell University, a free Reading-Course for Farmers' Wives on subjects pertaining to home life. A particular feature of the course this year will be the establishment of clubs among rural women for the study of the printed bulletins. These may be in connection with the grange, or in clubs organized especially for this study.

The course covers three years and is divided into the following series:

- I. The farm-house and garden.
- II. The farm family.
- III. Sanitation and food.

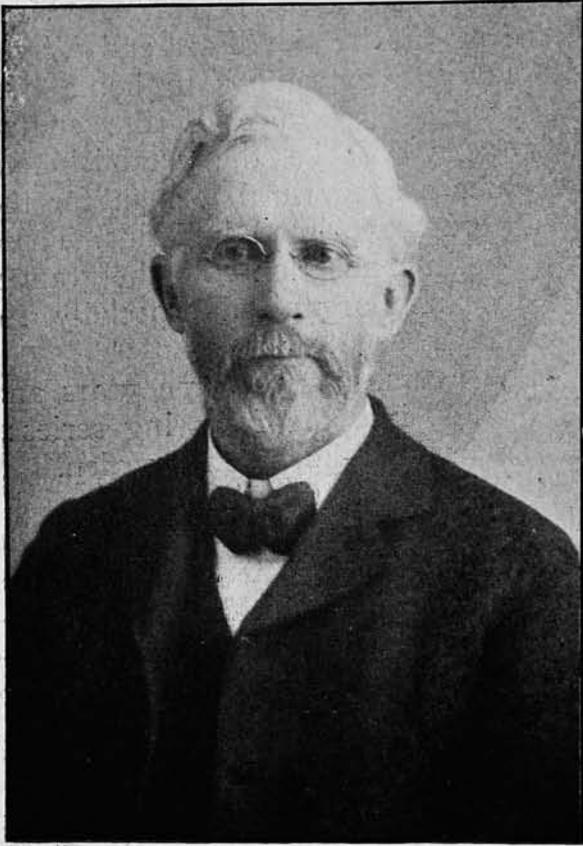
Membership in the course is free in the state of New York, and is secured by sending the name and address to the Farmers' Wives' Reading Course, Cornell University, Ithaca, N. Y.

* * *

A prominent vineyardist in Chautauqua County writes Professor Slingerland that his recent Bulletin No. 224 on Two Grape Pests "is certainly a very valuable and important Bulletin to the Chautauqua vineyardist. It must have been extremely gratifying to you to be able to certify so positively and unqualifiedly to the complete and splendid success of your efforts to subdue the most deadly enemy our vineyards have yet known, namely, the root-worm. I was very happy to be able to write as positively as I did regarding last season's spraying, but I could not with any regard for truth express myself with less assurance. Your victory is certainly magnificent. The menace of destruction has vanished. We have under your lead, met the enemy and they are ours. I am resetting my vineyards with all confidence of absolute protection from the root-worm."

FORMER STUDENTS

'74, B. S. A.—John L. Stone. Professor Stone was born in 1852 near Waverly, Pa. on the farm which he now owns and a part of which his grandfather, coming from New England, settled upon about 1800. He prepared for college at Madison Academy,



JOHN L. STONE, '74

Waverly, Pa. Later he entered the Agricultural Course at Cornell and graduated with the class of '74, thus being a member of the second class graduated from the Agricultural Department. After graduation Mr. Stone returned to the home farm and took up practical agriculture. In 1876 he was married to Jennie D. Parker of Clark's Green, Pa. They have four children, all girls.

He became interested in livestock and in 1884 visited England and Holland making an importation of Shropshire sheep and Holstein Friesian cattle. In connection with some neighboring farmers he organized the Lackawanna Breeders' Association and became its secretary-treasurer. He was president of the Lackawanna County Agricultural Society, a member of the

Pennsylvania State Board of Agriculture and for several years worked on the Farmers' Institute staff. In 1897 he left the farm to engage in the Extension Work of the College of Agriculture, in which work Professor Stone has been eminently successful and through which he has probably come to know as many farmers in New York State as any other agricultural worker. In 1903 he was made assistant professor of Agronomy which position he still holds.

'95, B. S. A.—After graduating, Rufus H. Pettit was appointed assistant state entomologist of Minnesota. He then went to Ingham, Mich., where he became connected with the Michigan Agricultural College and Experiment Station as assistant entomologist. At the end of two years he was advanced to the position of entomologist, which position he has held for the last six years.

'95 B. S. A.—'96 M. S. A.—G. Harold Powell was horticulturalist in the Delaware College Experiment Station from 1896 to 1901. Since then he has been in the Bureau of Plant Industry at Washington, where he is now pomologist in charge of fruit storage investigation. This work is intended to determine the principles which influence the keeping qualities of fruit in warehouses and their carrying qualities in transit. It has been extended throughout the apple, pear, and peach belts east of the Mississippi River, and into the orange and lemon growing regions of southern California.

'95, M. S. A.—Immediately after graduating, S. H. T. Hayes worked in the chemical laboratory, and later had charge of milk testing in the dairy course at Cornell. Afterwards, he was for one year in the Boston laboratory of the Walker-Gordon Co. He then became manager of the Baltimore laboratory of the same company, at 421 North Charles Street. This laboratory is one of the eighteen similar establishments that the Walker-Gordon company have in the United States, Canada and England.

'95 Special.—Carroll C. Clevenger has a 460-acre farm in the Shenandoah valley at Stephenson, Va. Seventy-five acres of the farm are planted to a peach orchard, from which twenty-eight car-loads of peaches were shipped during the past season. Clevenger "believes that young men make a mistake in leaving the farm to take up salaried positions in the cities. There is just as much money, and far more genuine independence and health on the farm."

'96, M. S. A., '90, B. S.—After graduating in 1890 L. C. Corbett acted as assistant horticulturalist at Cornell University until 1893; was professor of horticulture and forestry at South Dakota Agricultural College from 1893 to 1895; was professor of horticulture and forestry at the University of West Virginia from 1895 to 1901; has been horticulturalist of the U. S. Dept. of Agriculture from 1901 until the present time. He has also revised the horticultural parts of the International Encyclopedia and of the Century Dictionary. Professor Corbett was at Cornell University January 8th and 9th, 1904, to address the annual session of the Agricultural Experimenters' League of New York.

'96, B. S. A.—Glenn W. Herrick has been teaching entomology, zoology and botany at Agricultural College, Miss., for nearly eight years. Part of his work is indicated by the heading of the letter, "Boll Weevil Quarantine. Glenn W. Herrick, Entomologist." In referring to his duties he says, "it has been good, hard, glorious work."

'96, B. S. A.—Chas. W. Mudge, who graduated with special mention in chemistry, was assistant instructor in chemistry at the University of Maine in the winter and spring of 1897. After that, he worked with Assistant Professor Cavanaugh of this college on the large number of sugar beet analyses made at that time. Later he became assistant chemist for the Binghamton Beet Sugar Company. In March, 1899, he received an ap-

pointment to the department of chemistry at the state experiment station at Geneva, which position he still holds.

'96, Special.—John C. Percy entered Stevens Institute at Hoboken, N. J., in the fall of 1896, graduating with the degree of Mechanical Engineer in 1900. He has acted as foreman and superintendent of blast furnaces at Wheeling, W. Va., and at Pueblo, Colo., and at present he is chief engineer of the pumping department of the Wm. B. Schaife & Sons Co., Pittsburgh, Pa.

'98, Graduate.—H. C. Irish is superintendent of the Missouri Botanical Gardens at St. Louis. He was at Cornell as a special student in 1896 and later, in 1898, was registered for a master's degree in agriculture. Mr. Irish is making a special study of the different varieties of North American peaches.

'02, Winter.—Walker S. Dickinson thinks it is a splendid plan for the agricultural men of Cornell today to keep in touch with one another. During the past year he, his father and a younger brother have been running three farms at Groton, N. Y. These together with their large dairy afford him abundant opportunity to put into practice the ideas gained in his course at Cornell. He was unable to meet with the class in 1902 at the State Fair, but says if they try to meet again he will be present to see all his classmates and renew old acquaintances.

Ex.-'03.—E. L. Caldwell left us in 1902, and is now in business with E. H. Caldwell, general hardware dealer of Corpus Cristi, Texas. Great development is expected to follow the completion of two railroads through that part of the country, connecting with Brownsville on the Rio Grande. After returning from a trip down the valley of the Rio Grande, Caldwell writes us that that land is the finest in the world. but cannot be cultivated without irrigation from the river. The rest of the country is also too dry to cultivate, but on most of it irrigation from artesian wells is practicable. Caldwell

hopes some day to see a number of Cornell men interested in the development of his part of the country.

'03, Winter.—D. G. Crowell, in partnership with his brother, is conducting a fruit and dairy farm at Wallhill, N. Y. The partnership goes by the name of "Crowell Bros." and has been very successful. Crowell Bros. won a silver medal on a collection of apples, at the St. Louis Exposition, and also received first premium on fruit at different county fairs last fall. Mr. Crowell found the course in 1903 of such practical value that he thought it worth while to come again this winter.

'03, Winter.—J. R. Bodurtha has moved from Burlington Vt., to Springfield, N. J., where he has charge of a large dairy farm.

'04, Winter.—John M. Lewis is on the home farm at Alfred Station, N. Y.

'05, M. S. A.—Walter Strickland Thornber was born near Rantoul, Champaign County, Illinois. He moved with his parents to Iroquois, South Dakota, in the spring of 1883. In 1893 he entered the South Dakota Agricultural College and soon after was made student assistant in the Horticultural Department. He graduated in 1897 and was given full charge of the Horticultural Department for one year during the absence of the head of the Department in Europe and Asia. Afterwards he was made assistant in Horticulture and Botany, which position he has held until the present time. He took his Master's degree at the South Dakota Agricultural College in 1899, doing considerable advanced work in Cornell University.

In August, 1904, he was granted leave of absence for one year and came at once to Cornell to take an advanced degree here, which degree he expects to get next June.

Last month he accepted the position of Horticulturist in the Agricul-



WALTER STRICKLAND THORNBUR, '05

tural College of the State of Washington. This college ranks well among the colleges of the country and the high regard in which it holds the graduates of Cornell reflects high credit upon the Horticultural Department here. In the last four years two other Cornell men have held the same position. From 1900-02 it was held by Prof. S. W. Fletcher; in 1903-04 by Prof. N. O. Booth, and now the Horticultural Department of Cornell sends another man in the person of Mr. Thornber. The *Cornell Countryman* heartily congratulates Mr. Thornber on his new appointment.

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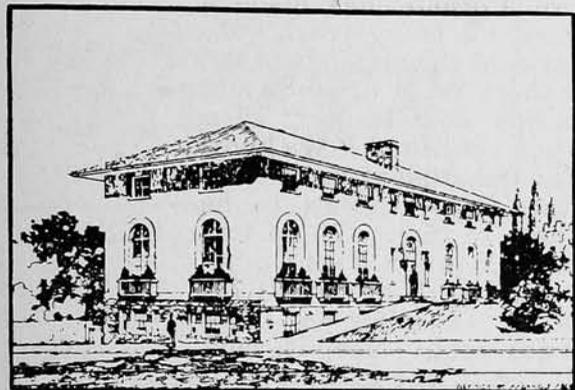
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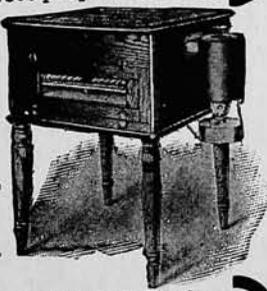
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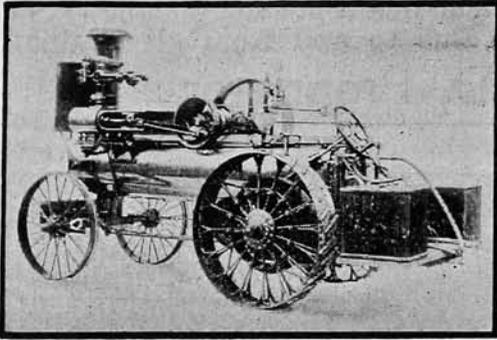
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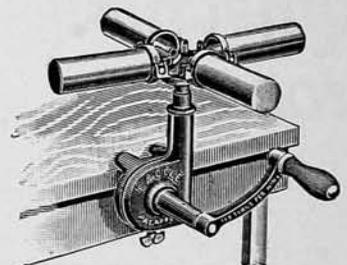
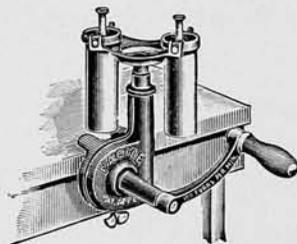
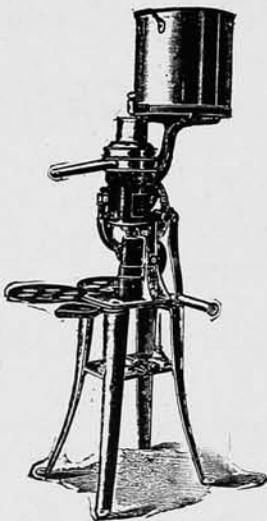
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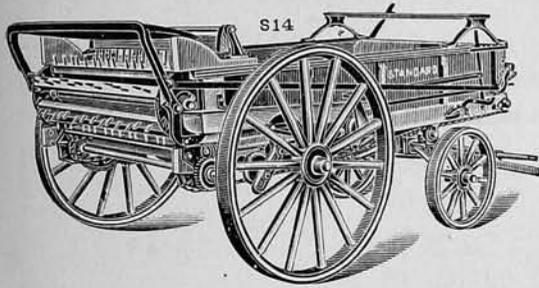
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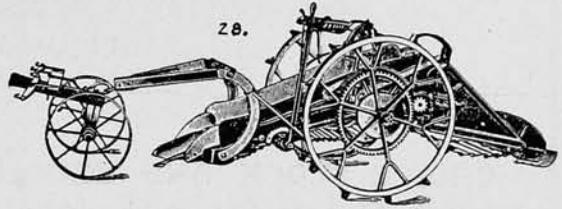
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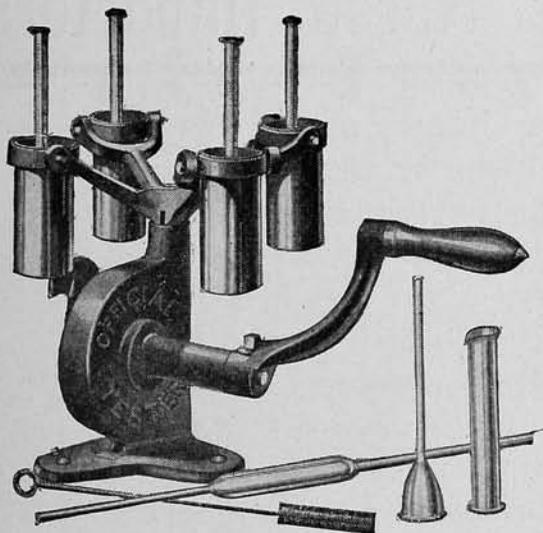
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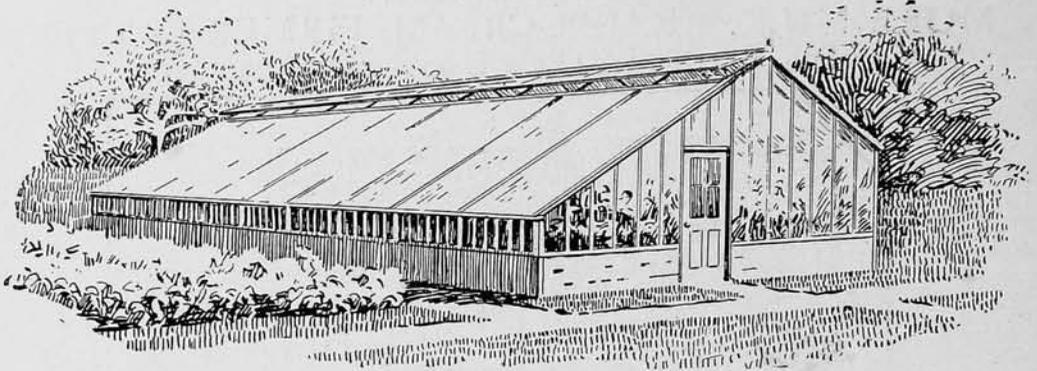
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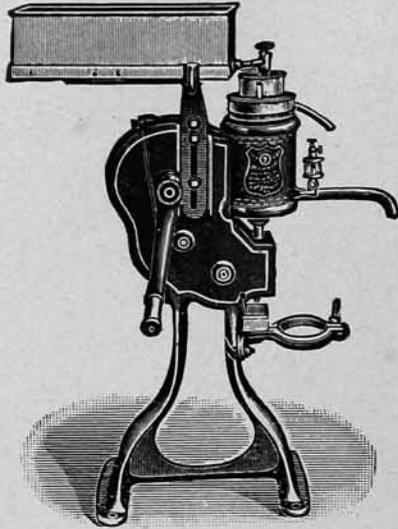
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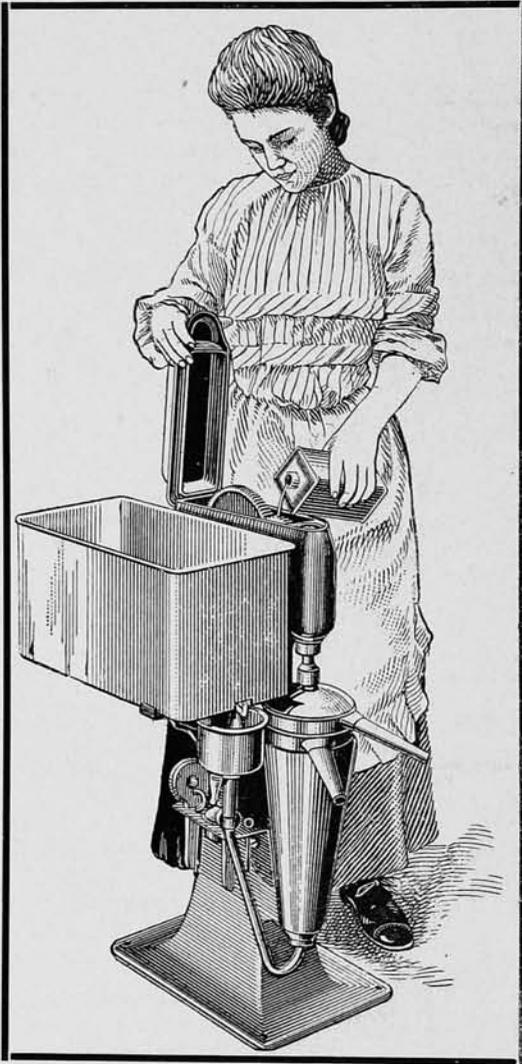
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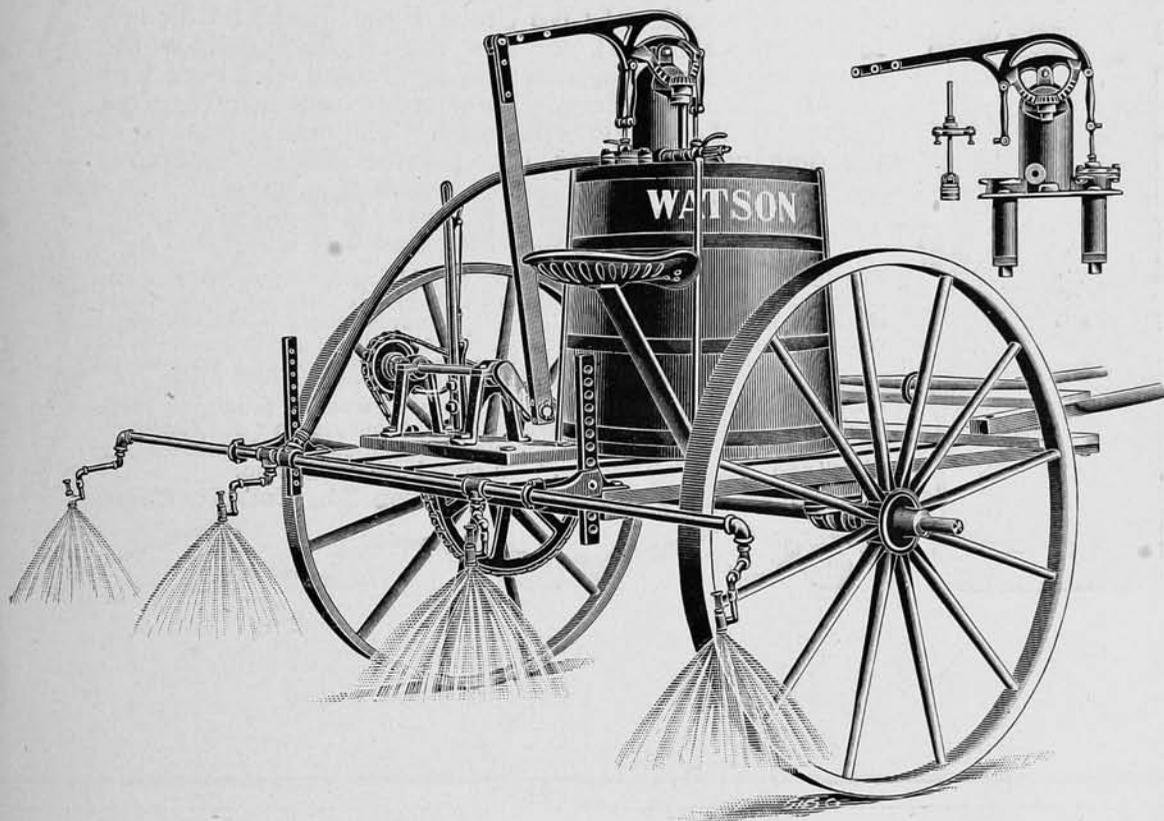
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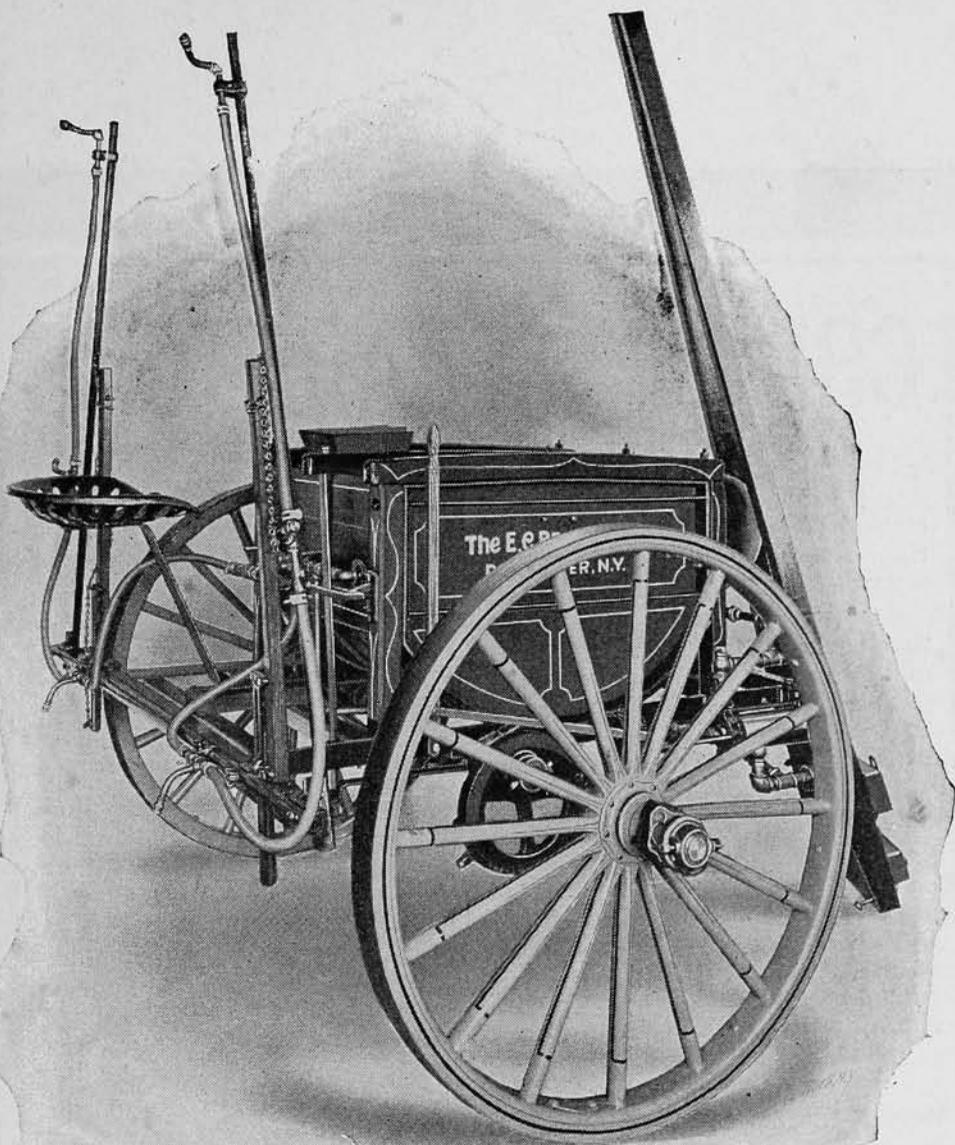
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MANUSCRIPT for publication should be received by the 10th of the month preceding that in which it is to be published.

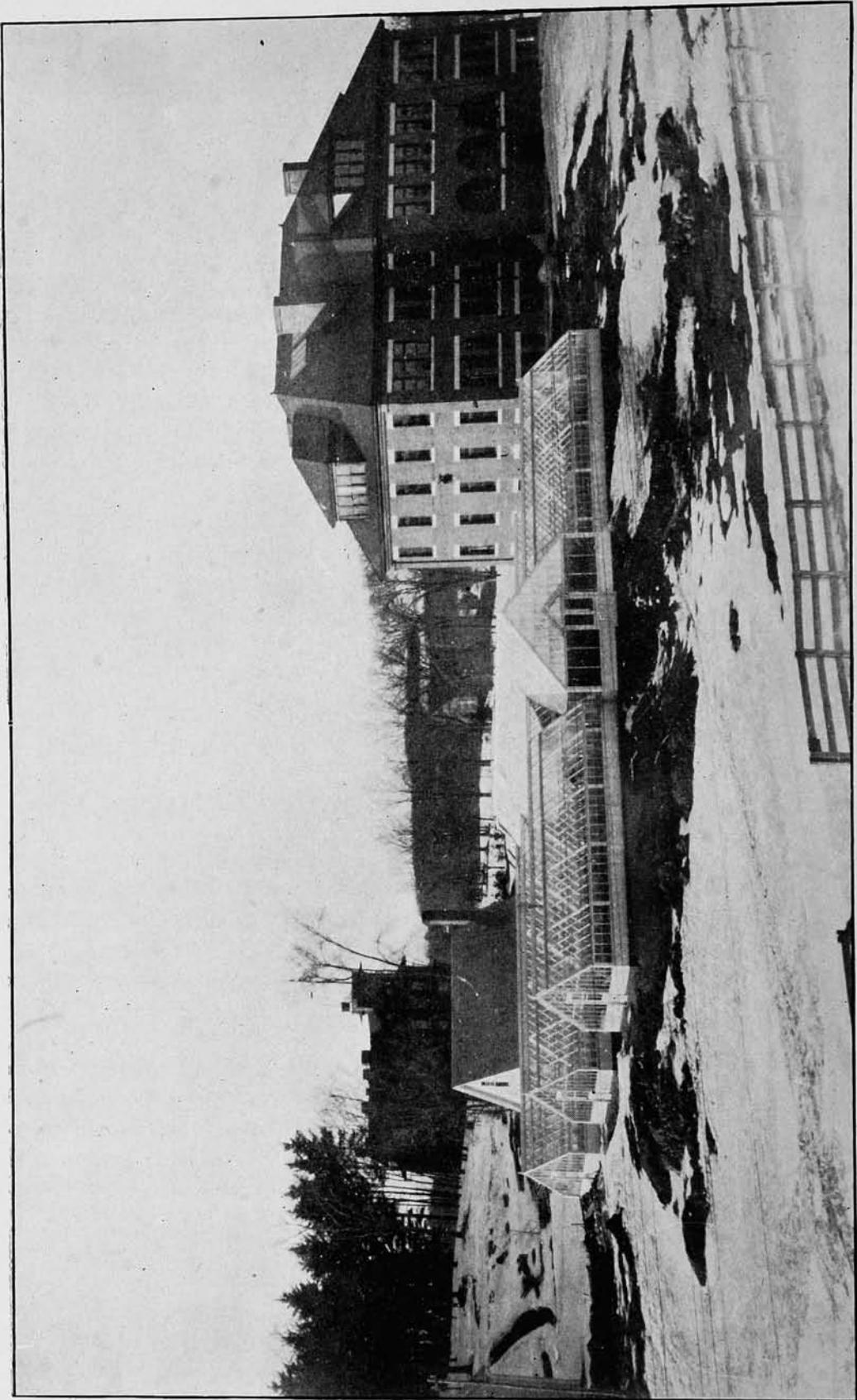
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MAY, 1905

NO. 8

CO-OPERATIVE AGRICULTURAL COLLEGE COLONIES

By *H. J. Patterson*

Director Maryland Agricultural College and Experiment Station

THE formation of co-operative College Colonies would solve many of the difficulties which confront those young men who have taken an agricultural course and who desire to engage in practical farming for themselves. Such an organization, or group of farmers would also serve as a training ground for those who desire to fit themselves for farm superintendents and managers, as well as be the center for the development of much which is desirable in agriculture.

The plan which is in mind for a Co-operative College Colony is for a group of young men who have taken a course in agriculture to band themselves together and settle in some section which offers opportunities for them to pursue the lines of agriculture which they would like to engage in. The Colony might be made up of the graduates of one college or of several colleges. It also might be made up of the graduates of a single year or so organized as to take in recruits from year to year. There are many sections of the country which would be glad to receive such a colony, but none would hold out any warmer welcome than the South and then, too, it is doubtful if any other section of the country could offer as good opportunities for such an enterprise. There are a lot of landowners in the South who would give such colonies such splendid opportunities for their work, and in some cases, they would even go so far as to present a small tract of land to each individual member.

When all things are considered in the way of a variety of crops, good

climate, and good markets for all products, the South would ultimately develop greater advantages for all concerned than the Western free homestead acts which people have gone wild over time and again.

Specialties in farming, such as growing bulbs, plants, particular classes of fruits, or vegetables, poultry, early lambs, swine and dairying, would probably offer the best opportunities for colonies of this character; yet there is no doubt but that the so-called mixed husbandry and staple crops could be made very successful.

The development of farming under the auspices of such a colony would demonstrate in a very forceful way the true opportunities in the business of farming and give many young men examples which would aid them in choosing a profession. There is no doubt that there is a wide-spread love for farm life, and many would take it up in their early years if they had the true facts placed before them instead of using some other business as a means of acquiring the capital necessary to embark in agriculture.

The average young man, when it comes time to choose a business, is much influenced by the few illustrious examples of the success which has come to the great lawyers, financiers, captains of industry, and forget to consider where the average man in these professions stands.

The difficulties which confront those who take up some of the so-called learned professions are well brought out in a speech made by President Harper of Chicago University to one of his classes graduating

from the law and medical schools, when he said, "You who are entering the world will find that poverty will be the strongest opponent to overcome. You who are entering life as lawyers need only to look at the papers to find that the average lawyer of today does not earn his salt. Those who are to become physicians will find that their only companion for a few years to come will be the wolf at the door."

Notwithstanding this unattractive picture and condition we find the professional schools attracting young men by the thousands.

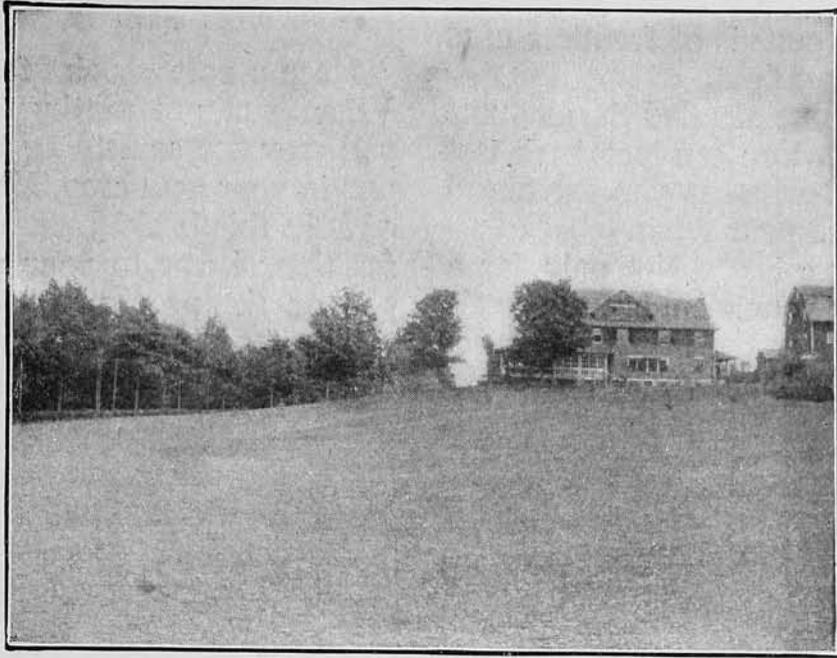
There is no doubt but that all industrious agricultural graduates could do better at the start than that pictured above by President Harper for the professional man. Any intelligent, industrious young man, if given ten acres of land, can make a living the first year, and by the same application, which makes the successful business man, will at the end of ten or fifteen years be making more financially, be better physically and more independent than the average man leading a professional or business life.

The College Colony will enable many men to get a start in agricultural pursuits which would not see a way otherwise. The formation of Colonies by agricultural students who have graduated in either the short or regular courses in our agricultural colleges should offer an opportunity for men to develop both themselves and the practice of farming in a way that is impossible under the conditions commonly prevailing, and make it

possible for the college to exert an influence on practical farming which it will take years to accomplish through their graduates locating singly and in isolated sections and in communities which are often unsympathetic.

The Colony of agricultural graduates would soon become the social and political center of the community in which they were located, and such a center would be the means of correcting many of the conditions which at present exist in rural life. In other words, the high ideals which would come as a result of the predominating influence of the educated and trained agriculturalist would make the social conditions of the community more attractive than those to be found in most towns or cities. Consequently, such a community would have a tone of contentment and satisfaction which now seldom exists; and it is just such a social condition which would ultimately result in making rural life so attractive to the young people of the farm, that most of them would want to remain there and hence, reverse the tendencies which are now so prevalent. When the people in the country can be made to realize the opportunities in agriculture in a way, which the Colony would demonstrate, then the authorities of our agricultural colleges will be more exercised as to means for giving accommodations to students who seek admittance than they now are in determining means for making the courses sufficiently attractive to gain a fair proportion of students.





FARM-HOME OF H. B. WINTERS

BUSINESS METHODS IN FARMING

By *H. B. Winters, W., '01*

ONE man goes through the world seeing more than another. You are in Ithaca learning to see. Do not neglect your bookkeeping. It is important. Bookkeeping—business methods help us to see our farms. Help us to know what pays what does not pay. Help us to know what is really worth doing. In operating a big farm expenses are large. We must know the profitable from the unprofitable. We have a few records as blank forms to help us do this. The weekly milk sheet shows the amount each cow gives every milking and total amount for the week. Also shows the total amount of feed for the week. This has helped us to make the average amount of milk per cow 3796 lbs. greater in 1904 than it was in 1900. The daily work report shows the kind of work each man does every day. When he began, when he stopped and amount of time spent on each item. The man keeps this report himself and hands it into the office. The monthly work report shows the kinds of work done during the month. The total time spent each day on every piece of work and the

total number of hours spent on every piece of work for the entire month.

What the milk sheet is to the cow, this report is to your man or yourself. Here is what he has done. How well he has done it. What it is worth. There is what it cost. It is surprising how you can size up the value of a man from this sheet. The best of men may make a poor showing for a day or two but his value begins to show in 30 days. From these reports you can find what the labor costs

to milk your cows, to grow your oats,

to deliver the milk to the creamery, to sit on a soap box at the corner grocery.

These monthly records are also useful in keeping records of

Wood cut for yourself and your men,

In showing how many times you loan your horse,

In showing the per cent of time lost on Sundays, and weekdays by every man.

They will show you how many loads of hay you cut from each field. The day you put it in and the barn.

Show you the quarts of grass seed and oats, the pounds of fertilizer used any day on any field.

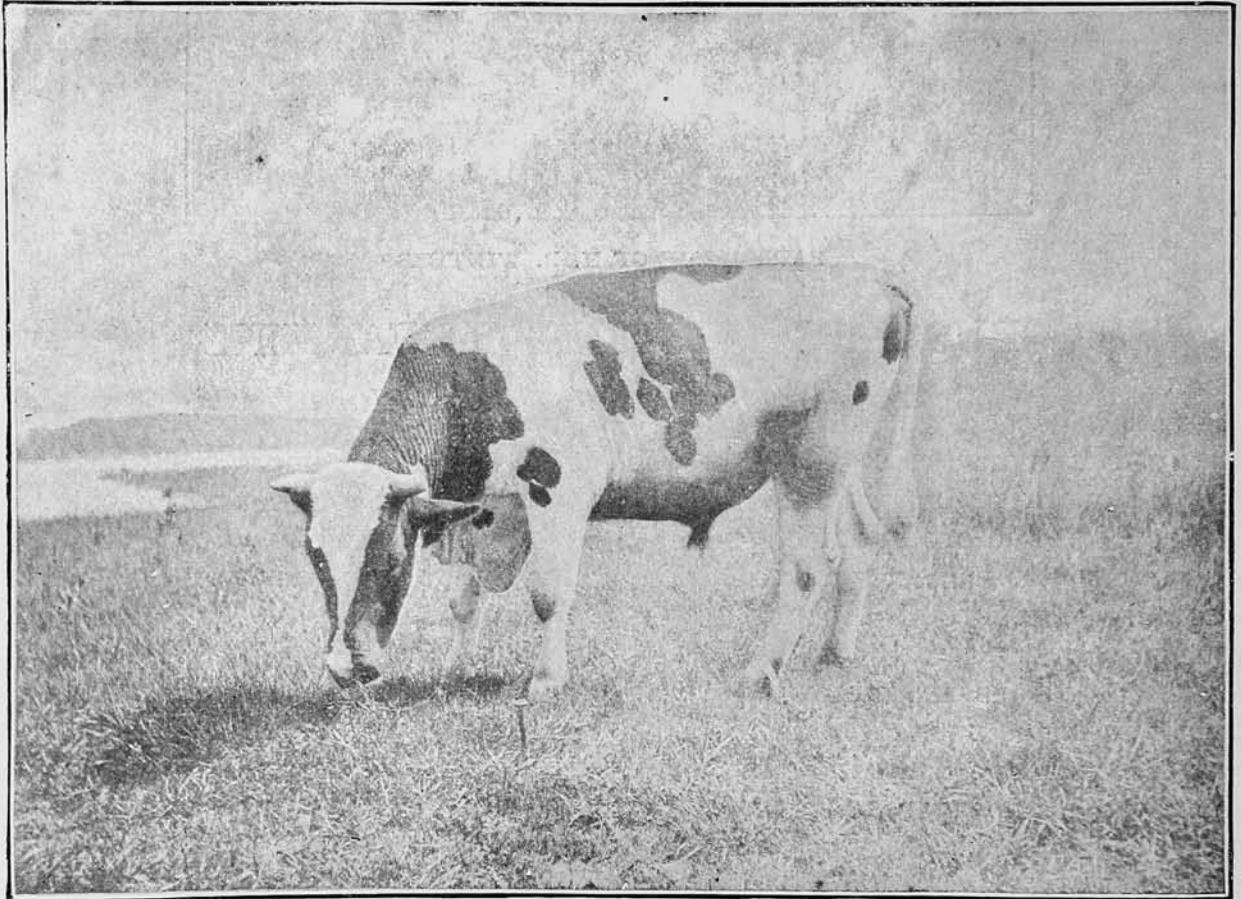
From that you can find the amounts used per acre. You can look back last year and find whether you are ahead or behind with your work.

Keep a time book. Not only for a record to pay your men, but the meals to be paid for at the boarding house. If you are threshing grain put down

tember make a memorandum on the leaf for that day.

Keep a note book for next year. When you are putting in your oats you may see something that will help you in your next crop. Make your note of it in this book. January first transfer these items to your new calendar pad on the proper leaves.

The card index is a great help and has thousands of users. All systems



A THOROUGHbred BULL, RAISED BY H. B. WINTERS

the number of bushels every day. If you are filling the silo put down the number of loads.

Keep a work book. Map out every man's work for the day. Let him know just what it is. If there are any changes correct this book the next morning.

Keep a calendar pad with a leaf for every day in the year on your desk. If you want to do something next Sep-

and records are working towards this remarkable device.

Tomorrow I go to Binghamton. Put the card for that city in my pocket. My notes and memoranda are with me. My work for the day is on that card. How simple!

Put Business Methods and Systems in your work. Someone is going to run a big farm like John Wanamaker runs a department store and—*Make Money.*





AN INSTITUTE IN THE SANITARY COW STABLE OF H. E. COOK

NEW METHODS IN INSTITUTES

By R. A. Pearson

Professor of Dairy Industry, Cornell University

FARMER'S Institutes are being developed to a high point of efficiency. The careful thought of many of our strongest agricultural leaders with years of experience in the work has resulted in successful methods. Gradually these are being changed as improvements are found possible. The question box, the employment of speakers fresh from the farm who are practicing what they preach the frequent use of charts and the magic lantern, and the holding of special institutes such as those for beekeepers and poultrymen are all reminders of more or less radical improvements during the past few years.

Institutes are usually held in halls and the programs are made up of talks about things that cannot be seen because they are not present although sometimes excellent pictures are displayed. Recently we read in the *Countryman* Professor Lyon's

interesting account of the Nebraska corn train which is a novel way of taking a suitable hall as near as possible to the people and the points of interest. Occasionally a speaker shows the thing he is discussing and, if they are not too large, a number of objects may be exhibited to illustrate different forms or the effects of various kinds of treatment. The object lesson addresses elicit great interest. The hearers become seers also and it is safe to say that to many persons the value of the instruction is more than doubled because they can see so much that they cannot hear or, hearing, cannot understand.

The development has now gone one step farther and persons attending institutes are taken to or called to meet at places where they can see the things they are to hear about when these things cannot be brought to the usual meeting hall. We have heard of an in-

stitute in another state at which the entire audience was given a trolley ride through the country, the institute speakers calling attention to points of interest enroute. And at least one Farmer's Institute Director takes selected farmers to farms where new kinds of work are carried on and to cities where market demands can be studied.

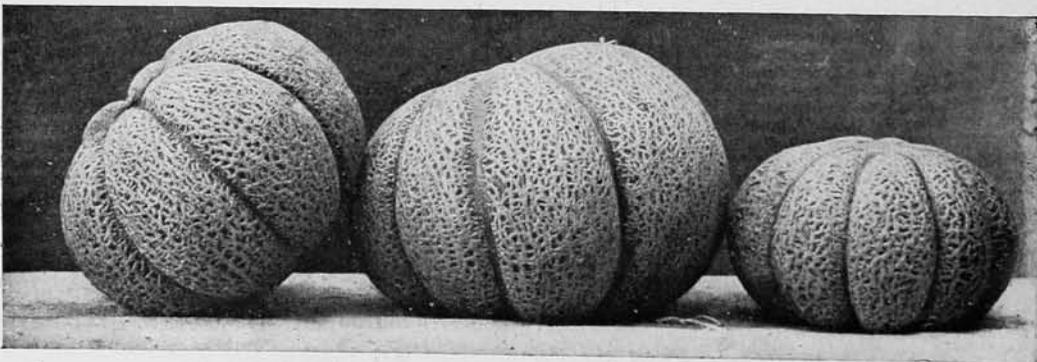
A novel experiment was tried in this state at the close of last season's institute work. It was in the form of an institute in a sanitary cow stable and it was held on the farm of Mr. H. E. Cook at Denmark, Lewis county. Mr. Cook, in his institute talks, has long advocated better stables for dairy herds. Thousands of farmers throughout the state have seen his little tin model showing how a stable should be ventilated and they have heard him plead for purer air, more light, and greater comfort and cleanliness for the cows. A few years ago he built on his home farm a stable embodying all the advanced principles which he advocated. It is a marked success. The cows are healthy, clean and comfortable and their yield is large. Cleanly methods of work have been introduced just so far as they are practicable without increasing the cost of the milk.

It was natural for Director Dawley to select this place for an object-lesson institute. Advertisements were sent about the district as usual. They stated in large letters that "The Bureau of Farmers' Institutes would hold a meeting in H. E. Cook's Cow Stable." It was unique and though the day was stormy as large a crowd gathered as

could well be accommodated. Seats were placed across the wide passageway between the two rows of cows where the manure wagon is driven daily and at one end a low platform was provided for the speakers. When all the seats were filled the people crowded into the feeding alleys, some perched upon the stanchion frames and others stood in the stalls between the cows.

At the opening of the meeting it was suggested there should be no cheering because this might unnecessarily excite the cows and the first speaker was interrupted only by an occasional lowing of a cow or bleating of a calf. But Mr. Cook himself made an announcement which was applauded and after that, the injunction against noise was forgotten. The writer was surprised a few days later to learn that the unusual happenings in this stable caused only a very slight temporary decrease in milk yield.

The regular program included addresses upon feeding and selecting dairy cows, diseases of cows, and the production of sanitary milk. At noon lunch was served in the passageway between the cows by Mr. and Mrs. Cook and their neighbors. To many of those who partook, this was the most interesting feature of the institute. Three hundred men, women and children and fifty cows, all eating in a barn! But why should it not be clean enough to eat in a barn when our most important and delicate food is produced and exposed there? This was the keynote of the meeting; and the lesson was deeply impressed.



AGRICULTURAL EDUCATION IN NEW ENGLAND

By F. Wm. Rane

Professor of Horticulture, New Hampshire College

FROM the standpoint of educational institutions New England ranks well not only in number but prestige. Our people are of the literary type and when one thinks of Boston, our principal city, and its environment, the association of culture and refinement quickly asserts itself.

It is not strange that the literary type of education still is the more popular, as it has been through this channel that our men in history have risen to such high distinction as jurists, statesmen, poets, etc., and their lives thus interwoven with our national fabric. New England's facilities for an education enabled the earlier generations to furnish the supply of brains largely for the expanding and developing newer sections of the country. As time has gone on, however, the other sections of the nation have in turn developed a more or less similar product, until today it is not uncommon for the eastern country to call on the west for men of affairs and even instructors in educational institutions.

The economic phase of education is gradually dawning even in New England. Technical schools and technical instruction even in the old line colleges and universities are developing new and expanding activity. It is quite true of engineering education, and although not so marked, agricultural education is gradually getting a foothold.

In a country with conservative people, like New England, it is not strange that from previous literary ideals and training, industries requiring a great amount of manual labor and savoring of commercialism were gradually lost sight of. Agriculture served as a universal industry for subsistence in the earlier day and the land was made to overwork without replenishment, to educate the family and

run the nation whose demands must have been many.

New York and the whole western country probably will never experience a similar period. The development of the newer sections of the country is associated with the modern or industrial education. Men are taught in the modern institution to use their hands as well as their tongues. The gray matter of the brain is developed to call out the laws and powers in organic and inorganic nature, to develop the nation, as well as to compose verse and perfect oratory.

Some writers would have us minimize the practical and economic to be found in a college course. That time may come when it is necessary to call a halt in this direction, but it is doubtful if we have reached that stage in many sections and assuredly not so in New England. All thinking and educated people should be generous enough to recognize that life is not all literature and poetry, and that what is delightful and tasteful to the few does not feed the multitude, or give permanence to the nation.

Agriculture is not considered as a popular vocation in New England other than by a comparative few. We have men here and there who are sufficiently successful in various branches as to be recognized as carrying on a pronounced gainful occupation, but generally speaking farming and general agriculture simply make an honest living for the practitioner under present methods.

Under these conditions it is plainly evident that a course in agriculture at an agricultural college or even couched under the head of a University is not popular. Public sentiment goes a good way toward shaping these matters.

At present it is becoming fashionable for men of means to purchase

summer homes in various sections of New England and not a few are already engaged in farming. This type of people in search for the pleasures and beauties of life, in so far as money can obtain it, turn first to an agreeable and picturesque country; and then for health and recreation, evidently, find nothing better than an association with the culture and growth of tree, plant, and flower.

The growing interest in agricultural education in New England perhaps cannot be better illustrated than to cite the development of one of its institutions within the past few years. The New Hampshire College at Durham ten years ago had practically but one man teaching agriculture and the number of students rightfully classed as pursuing this work could be numbered on one hand. Today the instructors outnumber the former students and the students pursuing agriculture are fully one-half of those in the institution. Ten years ago a bare recitation room in one of the college buildings was the whole equipment. Today a fine building comparable with any at the institution graces the campus and is utilized for agricultural instruction alone. Lecture rooms are here found for Agronomy, Animal Husbandry, Horticulture, Dairying, Farm Mechanics, Forestry, etc.; also well equipped laboratories for Soil Physics, Pomology, Olericulture, Landscape Gardening, Forestry and Farm Machinery. Offices for the professors, instructors and assistants are found here, also reading and seminary rooms, a stenographer's office, herbarium, photographic room and a large room equipped and exclusively used for live stock judging.

In conjunction with this building and similarly utilized for instruction is a modern range of greenhouses, a recent gift from the state legislature; a creamery building, barns, orchards, garden, etc.

The New Hampshire College was simply a department of Dartmouth

until 1891 and while generously fathered by that noble and historic classical institution, nevertheless its ardent supporters were unable to penetrate the avenues of usefulness until once established upon its own footing.

Today this institution though young and with its reputation still to be made is steadily and surely gaining ground and developing a beneficial sentiment. New Englanders need not go west to be taught up to date agriculture. If they will but get in touch with the *esprit de corps* of this single institution such an acquaintance, it is believed, will be found helpful.

Of all sections in our common country there is none where people can enjoy life better and find greater inducements for a profitable and happy vocation than right here in New England. The education that will fit one to derive this pleasure and further one's enjoyment fortunately will also promote blessings to others by enhancing valuations for the commonwealth, and give healthful employment to individuals.

Many think that the ordinary literary training fits the young man for the profession of an agriculturist as well as that of the technical or special. Much depends upon the individual under consideration, but actual experience over a decade of years proves this argument is no more true than when people were prone to look upon the engineering profession as on the same plane with that of the blacksmith. Boston does not call on her blacksmiths to construct her subways, but the skilled engineers. New England is slowly beginning to realize that to get the values out of her inheritance, namely her agriculture, it needs well developed training of the right sort.

There is by far a greater demand than the college can supply for young men as superintendents of farms, managers, foremen, creamery managers, superintendents of grounds, gardeners, park and cemetery superintend-

ents, florists, fruit-growers, market gardeners, nurserymen, landscape gardeners, etc. An education that prepares a man to fill such positions must needs be technical to a sufficient degree. Not all students either that pursue this sort of an education show sufficient ability to successfully grasp the possibilities here offered. Other things being equal, however, it is believed that for the greater numbers contemplating a college course who expect to earn their own livelihood, the pursuit of a technical course sim-

ilar to that represented here offers as great inducements as any. Particularly is this true in New England where lands are comparatively cheap, where the knowledge gained in such a course can be quickly made to bear results, and where markets are of the best. Meanwhile, not forgetting that the occupation at the same time brings with it the delight and pleasure of life equal in value to that which our people of wealth travel over the earth in search of at any cost.

FARM LABOR THE WORLD OVER

By E. O. Fippin, G.

A PROPOS the invitation of the Countryman in its February number of comments on the problem of farm labor, and the facts in that connection showing some remarkable low wage scales paid in certain foreign countries, I am led to call attention to certain local developments in the farm labor problem in our own country that give at least a hint at the trend it is likely to take in the future.

The comment on all sides along this line is sufficient evidence of its vital importance, and this has been brought directly home to us in the university in the lectures on "*Problems in Agriculture.*" that have lately been given by men direct from the farm. Will you permit the opinion that no other condition connected with farm practice will have a greater effect upon the future development of the farming industry in this country than that of labor to carry into operation the information gained by scientific research? What we need now is suitable men at the plow; with the hoe, and the pruning hook.

We are told that American agriculture will follow European methods—the German and the Holland say—of intensive farming with individual ownership and direction, with the owner and manager also doing with his own hands, and those of his family,

all the operations from spading the soil to carrying the milk to the city in casks on his shoulders. Without disparaging individual ownership the suggestion is offered that our manufacturing interests have not followed European tendencies of development but have developed along broad and intensive lines—lines of least resistance—lines made possible by our peculiar American conditions and race characteristics. And there are similar tendencies in our agricultural pursuits.

To some of these we now call attention. Tobacco is one of the staple crops of this country, in the production of which a very large sum of money is invested. To the initiated it has many departments. The production of cigar wrappers in America has been developed in Gadsden county, Florida, over the state line in DeCATUR county, Georgia, and in the Connecticut Valley. The product competes with the imported goods which sell in this country for from \$3 to \$6 per pound and millions of dollars are involved in the business. The following outline shows briefly how much labor is required in tobacco production:

In the vicinity of Quincy, Florida, the Schroder and Augumbaugh company, of New York, has between four and five thousand acres of which from

500 to 700 are planted to tobacco. About 300 acres of this is covered with a shade nine feet high made of thin lath or loose cloth and walled at the sides. This develops tobacco plants nine or ten feet tall with full fine leaf in from 6 to 8 weeks. The plants are set by hand, largely hoed and worked by hand and the leaves are harvested one at a time as they ripen and carefully carried in baskets to the curing barns where they are strung on strings, suspended on lath and hung in the barn.

Over the state line in Georgia the A. Coin Company has 30,000 acres of land of which probably 6,000 are under cultivation and between 500 and 600 acres are covered with shade for wrapper production. In both of the above cases labor is employed by the hundreds of persons. Practically all of this labor is colored. It consists of all ages and both sexes. It is not highly efficient nor can it be depended upon to work without minute direction.

The systems of management differ somewhat with the company but are very similar. The resident manager directs the general policy of the plantation. Under him are a number of superintendents that execute his policy and carry out his directions for a single farm or part of the plantation of several hundred acres. In addition to tobacco, he has corn forage and sugar-cane and keeps cattle. The workmen are divided into groups according to the special work in hand and over each group is a foreman who is colored and who is chosen for his general efficiency. The manager and superintendent are white. Black men as foremen give better results than white men in the same capacity. By the diversity of crops mentioned all the laborers are

held throughout the year. This is important because it insures sufficient help at the time of tobacco harvest.

What are the wages? Foremen receive 70 cents a day if the company is generous. Good men laborers receive from 45 to 60 cents per day; women from 30 to 40 cents and children from 15 to 25 cents. The laborers board themselves. The working day is from 12 to 14 hours.

It is an axiom among the managers and superintendents that that particular class of the colored race will work just enough to live and if he can secure the means to that end in three days he will work only three days and take life easy the remaining three days of the week. So to secure the use of their services the full week the necessary wages are equally divided over that time. There are many exceptions to this rule and the general tendency is upward.

The same business is in operation in the Connecticut Valley where labor is nearly all foreign born, Polish and Italian. The system of management is similar to that in the South. The wages are much higher. A newly arrived Polander unable to understand any English except the words that mean a full day's wage commands from \$1.25 to \$1.75 and he may get board into the bargain. They are not employed the year through.

These few facts are not given as showing ideal conditions or results but they represent an American tendency. Taken with those that may be obtained on many western farms they indicate a tendency different from those in European agriculture. They are American. We have not mentioned the communal tendency in this development. It is significant.





CANKER WORMS CAUGHT BY "TREE-TANGLEFOOT"

AN INTERESTING CANKER WORM EXPERIMENT

By *M. V. Slingerland*

Assistant Professor of Economic Entomology

THE class taking advanced work in economic entomology made an interesting experiment in March, the results of which are shown in the accompanying picture. For several years a group of large elm trees about a mile from the University campus have been nearly defoliated by hordes of spring canker-worm caterpillars. These little measuring-worms hatch in May from eggs laid on the bark by moths that emerge in March and April from pupae in the soil beneath the trees. The male moths have well-developed wings and fly readily, but the females are wingless and are thus obliged to crawl up the trees and deposit their eggs on the bark of the branches. The ascent is always made at night. Various devices, such as sticky bands, and wire, tin or stiff paper barriers, have been used on the trunks of trees to prevent the ascent of the wingless female moths.

Recently the Tanglefoot Fly-paper manufacturers have made a "Tree-Tanglefoot" mixture, and with a liberal sample furnished by the firm,

several of the infested elm trees were treated. The elm in the picture was over two feet in diameter and the bark was very rough. It took several pounds of the "Tanglefoot" to make a complete band six or eight inches wide around the tree. The application was made on March 15th just before the moths began "running" up the trees, and the picture was taken March 31st. Great masses of the wingless female moths can be seen on the lower edge of the sticky band and thousands of flying males were caught all over the band. A few females were able to get over the band where dead males had formed narrow bridges across the "Tanglefoot." Several pints or many thousands of the females were caught and killed by the band on the large elm. As each female may lay two hundred or more eggs, the tree will be relieved from feeding hundreds of thousands of canker-worms in May. The experiment was thus a striking success and has furnished a valuable object lesson to the class in economic entomology.

The Cornell Countryman

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 MAY, 1905

The Year's Work

The college year is drawing to a close and it becomes necessary to look forward and plan for the future. The *Countryman* Board for the coming year has been chosen and has already organized. Next year promises still greater advances for the *Countryman*.

The new board is as follows: J. E. Coit, editor; M. W. Evans, alumni editor; E. Kelly, H. E. Ross, C. J. Hunn, Miss L. P. Hastings, associate editors; O. Lee, business manager; J. H. Barron, J. B. Shepard, M. P. Jones, assistant managers.

Very little change has been made in the policy of the paper over last year. The form remains practically the same with the exception of such minor changes from time to time as were in keeping with the proper development of the paper. The character of the articles has been three fold—scientific, educational, and practical. In each issue the editors have tried to have at least one article of each character. This has not always been possible but it has been their aim.

A new departure was introduced in *Former Students*. Beginning with the February number the *Countryman* has published each month the picture of a Cornell graduate who has been

successful in his work. It is hoped that this feature may continue as we believe it an important part of *Former Students* news.

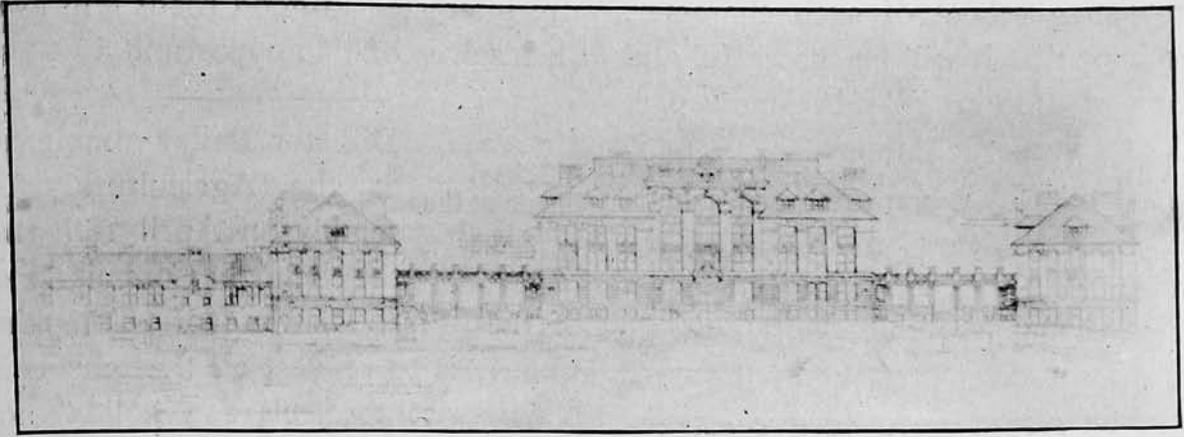
The size of the magazine has been increased four pages. Though this may seem small, nevertheless, a corresponding increase each year will, in the course of a few years, make the *Countryman* the largest magazine published at an agricultural college.

We believe the *Countryman* has an important field of work. That it is still in its infancy may be true but it is rapidly growing. One student who graduated here last year wrote back: "I miss the campus, the professors and the boys but I have the *Countryman*, and I feel thankful for it." We hope the *Countryman* may be efficient in binding all Cornell men together in one bond of common interest.

New Hall of Agriculture

The contract for the new buildings for the College of Agriculture has been let to Morris Kantowitz, Albany, N. Y. The bids of this contractor were the lowest received, about \$178,000. This, however, is for the construction of the three main buildings only and does not include the heating, plumbing, lighting or equipment nor the stock judging pavilion. The cost of complete construction, plumbing, heating and lighting will range from \$250,000 to \$270,000.

The sum received from the State is \$250,000 and the University in buying the Dairy Building gives \$40,000 more making a total of \$290,000. The provisions of the state law were such that \$50,000 of this sum might be spent on equipment. The plans as accepted,



NEW AGRICULTURAL BUILDING

however, will leave about \$25,000 only for equipment.

The plans provide for a very convenient and attractive building—one which will add greatly to the beauty of our campus.

Agriculture in the High Schools In a recent number of the *Countryman* mention was made of the fact that the Regents of the State had accepted Agriculture as a part of their educational system and it would be included hereafter among their syllabi. The agricultural syllabus is now being prepared and will be introduced this fall. According to the outline it will be a part of the second year's work, probably comparable to a course for which two or three hours college credit is given, though that has not yet been definitely decided. Five hours of biology, as botany, zoology and physiology, will be given in the first year's work with agriculture following this in the second year. Botany, zoology and physiology are classed as biological subjects and thus are not included under the head of agriculture.

It cannot be expected at the present time that the High Schools will be able to provide a teacher for agricul-

ture alone. Probably the teachers will be supplied by the Agricultural and Scientific Colleges, in which case a science teacher would be fitted to teach biology and agriculture.

That every High School will introduce agriculture this fall is not expected. But if twenty should take up the subject and make a beginning, those who have been instrumental in introducing the subject will feel that their efforts have been sufficiently successful.

Good Roads School

An important Good Roads bill is now before the state legislature. This bill provides for the bonding of New York State to the amount of \$50,000,000 for the improvement of our roads. Should it become a law it will place New York first among the states of the Union in regard to her highways.

It is proposed now to establish a Good Roads school here at Cornell. This school will provide training to those thousands of men who, if the above mentioned bill is passed, will be needed to construct and maintain our highways. This attempt is the first which has been made in the state to

establish a school of such character. We hope that it will be successful and that such training may become a part of our educational system.

A Good Roads conference is scheduled to be held at Cornell May 16-19. The primary purpose of this conference will be the discussion, from an educational point of view, of the different phases of good road construction. Prominent men from the state will attend and take part on the program. Among them are the following: Professor L. W. Page, Department of Agriculture; W. Pierrepont White, Utica; E. L. Powers, editor of Good Roads Magazine; Henry Van Alstyne, State Engineer, and two associates; Geo. C. Diehl, County Engineer, Erie Co.; F. E. Dawley, Director State Institutes; Arthur Warren, County Attorney, Monroe Co.; G. M. Tucker, editor Country Gentleman; H. W. Collingwood, editor Rural New Yorker; W. G. Johnson, editor American Agriculturist; E. B. Morris, Master of the State Grange; W. N. Giles, Secretary of the State Grange, and George A. Fuller, Overseer of the State Grange.

An exhibition of road machinery is expected. It is hoped that all those who

are interested in good roads will avail themselves of this opportunity.

A School Picnic at the College of Agriculture

Director Bailey announced at the Agricultural Assembly on April 18th that the School Commissioner of the First District of Tompkins County is to request all the schools in his district to declare a holiday for Friday, May 26th, in order that the teachers, children and patrons may have an excursion to Cornell University. The First Commissioner's district includes practically the western half of Tompkins County. It comprises about eighty-five teachers and about fifteen hundred children. Commissioner Updike is very desirous that rural problems should be met by means of the rural schools. At the time of this excursion various specific plans will be laid out for the work of the schools in the district and it is hoped that some very important enterprises may be set on foot. It is probable that the students in the College of Agriculture will be given a holiday in order to help in the entertainment of the guests. If the day should turn out to be pleasant it is thought that three hundred to four hundred persons will avail themselves of the holiday.

GENERAL AGRICULTURAL NEWS

A unique way in instructing the farmers in animal husbandry has been devised by the Canadian Department of Agriculture. The department sends out a train loaded with all kinds of domestic animals, including horses, cattle, sheep and swine. Instructors accompany the train and deliver lectures at various points along the route, and the farmers bring their animals to the train and compare them with those

sent out by the department. This novel method of teaching has proved very successful since by it a class of farmers receive instruction, who could not be reached in any other way.

* * *

The Oklahoma Agricultural College gave a short course of only one week during the past winter. Stock judging was the main subject given and much good was received by those who attended. One hundred and thirty-five

farmers availed themselves of the opportunity, a fact which shows the great interest taken in the course.

* * *

There is a constant attempt on the part of agriculturists to reclaim waste land and bring it under cultivation. One of the latest attempts of this kind is to drain the South Western part of Buena Vista County, Iowa. This section of the county is at present worthless, as during a wet season the excessive moisture entirely ruins the crops. The total cost of this great enterprise has not been fully determined but the entire amount will be met by a tax upon the farmers in that section of the county.

* * *

It was formerly thought that the process of making syrup from corn was a wonderful one, but the state of Minnesota can go one better than that. According to a certain Minnesota paper a factory has recently been built at Edgerton for making syrup from pumpkins. It is said that one ton of pumpkins will produce from twenty-five to thirty gallons of syrup.

* * *

European milk consumers are much alarmed over an attempt which is being made by capitalists to form a milk "trust." The trust has already gained control of nearly all the European condensed milk supply, and has a capital of \$10,000,000.

On account of the perfect cooperation of the Danish farmers the trust has not gained any foothold in Denmark. So far as known Denmark is the only country which has resisted the invasion of the trust.

* * *

Luther Burbank has recently been appointed special lecturer at Stanford University.

Beginning with the March issue the Century magazine commenced a series of articles entitled "Wonder Works of Science," which are accounts of the great scientific achieve-

ments of Luther Burbank. Unlike many successful scientists Mr. Burbank has had to work almost wholly without means and directly against public sentiment. Oftentimes the results of years of patient work would be lost because of the lack of funds to carry on experiments any longer.

Plant breeding was so little known and so unfamiliar, that people thought it a sin and in direct opposition to the laws of the Universe.

One instance is given where Mr. Burbank was invited by a certain minister to hear the reverend gentleman preach. Mr. Burbank accepted the invitation but much to his disgust the whole sermon was a tirade against himself and the work he was carrying on.

To describe Mr. Burbank's achievements would take volumes, but one deserves especial notice, and that one is the thornless cactus. Mr. Burbank has bred the common desert cactus from a thorny useless weed to a thornless food producing plant. The leaves are thick, heavy and juicy and are regular "storehouses of food." So perfect has the work been accomplished that the cactus will breed true almost without exception. This new cactus is thought to be of great economic importance in building up the arid desert regions. Another peculiar and valuable feature of this cactus is that it will grow either in a warm or cold climate.

Another fruit of Mr. Burbank's breeding is the "plumcot," which is a cross between the plum and apricot.

* * *

New York State Winter Fair

A joint meeting of the Board of Directors and the Exhibit Committee of the New York State Breeders' Association was held at Syracuse, N. Y., on April 20th.

There were present Pres. Milo H. Olin, Perry, N. Y.; Wing R. Smith, Syracuse; Wm. T. Thorne, Skaneateles; George E. Peer, Chili Station; W. A. Alexander, Union Springs; F. E. Dawley, Fayetteville; G. B. Tall-

man, Fayetteville; Harvey Connor, Avoca; E. H. Chapman, Albany; Prof. H. H. Wing, Ithaca, and Sec. Thomas F. Hunt, Ithaca, N. Y.

It was decided to hold a Winter Fair at Syracuse, in connection with the next meeting of the Association on Dec. 19, 20 and 21st.

A Premium List was adopted and will be ready for distribution in a short time. The Chamber of Commerce of Syracuse through its Appropriate Committee is working heartily with the Board of Directors to insure the success of the exhibition.

The Fair is sometimes spoken of as a Fat Stock Show, since fat stock and dressed carcasses are to be prominent features of the show. It is, however, to be more than a Fat Stock Show since prizes are offered for Dairy Cattle. There will also be a dairy cow test and several prizes for Stock Foods such as corn, roots and hay. The Board of Directors has decided to lay special emphasis upon the educational features of its Meetings. At each session there will be lectures with regard to the animals or other objects on exhibition, by men and women of

National reputation. At the evening session, it is expected to arrange for lectures and demonstrations on the cooking of meats, which will be of special interest to housekeepers.

This Exhibit will also offer valuable opportunity for breeders to exhibit animals which they wish to sell although they may not be entered for premiums.

Mr. J. C. Duncan, Chairman of the Exhibit Committee, has received a large number of letters from breeders and fatters of live stock, expressing their interest in the Exhibition and stating their intention of making an exhibit.

Exhibitors and others interested may obtain a premium list from the secretary.

* * *

On April 5 Professor Bailey gave an address before the Teachers' College of Columbia University in New York city. His topic was "The Outlook for Industrial Education," and is one of a series of talks on Contemporary Educational Problems.

CORNELL NEWS

CAMPUS NOTES

Mr. Whetzel is trying several mixtures to find a remedy for the Pseudopeziza or leaf-spot on alfalfa.

* * *

Alfalfa has wintered well on the Dunkirk gravel loam soil and is being grown on the Dunkirk clay loam soil. These soils are found on the University farms. The latter is the one considered most unfavorable, but the results obtained thus far appear to warrant further trials. These will be made during the coming year.

* * *

Dr. Fletcher has gone to Florida to spend the month of April.

* * *

Mr. Fraser is continuing his experiments with the potato this year.

Prof. Pearson has just published a new score card for judging the sanitary conditions of dairies. It is arranged in five parts—health of the herd, cleanliness of the cows, utensils, attendants and handling of milk—each part being subdivided and given 20 points, 100 points being a perfect score.

* * *

Mr. Iorns has given us some of the results of his experiments with acetylene gas light upon growing plants. Some returns are very striking, such as blooming narcissus, also growing wheat and corn which have never seen sunlight. After further study on the histological and commercial lines, the whole is to be published.

Mr. E. O. Fippin, B. S. A., a graduate of Ohio State University and a graduate student at Cornell during the present year, has been assigned by the U. S. Dept. of Agriculture, Bureau of Soils, to take charge of the Soil Investigation work at Cornell during 1905-6.

* * *

Cheese from Certified Milk

Mr. Hall, Instructor in the Dairy School, recently has reported interesting results of some work in cheese making on the famous Briarcliff Farms belonging to Mr. W. W. Law. He has shown that cheddar cheese of the finest quality can be made with the aid of a good starter from the fresh rich milk of Jersey cows and without as much loss of fat, especially in pressing, as is ordinarily suffered in cheese factories where "ripened" milk of medium composition is received and used. These favorable results contradict the belief of many cheese-makers and he attributes them to the fact that Briarcliff milk is produced with the utmost regard for cleanliness, thus excluding many damaging bacteria. This milk is sold in New York city under the supervision of the Milk Commission for twelve cents per quart and the cheese brings sixty cents per pound which is practically the same rate.

* * *

Albany, April 4. "In addition to the annual appropriation allowed Cornell University, the supply bill this year, carries ten thousand dollars to aid in extending the reading courses and free winter courses for farmers' sons and daughters, in the College of Agriculture."

"It also carries ten thousand dollars to establish and equip a good roads school in the College of Agriculture and to provide for the instruction therein of highway commissioners, overseers of highways or other officers and persons in charge of the roads of the state, in the science of road-making."—Ithaca Daily Journal.

On April 8th, Prof. Wing shipped a Holstein bull calf to Mr. E. R. Denson of Chenandega, Nicaragua, Central America. During the week following another bull calf was shipped to the farm of Mr. C. G. Williams, Agriculturalist at the Ohio Experiment Station.

* * *

Dr. J. A. Bonsteel who has been assigned to Cornell for the past two years is recalled to the Bureau and will leave Ithaca for Washington, D. C., soon after June 15th.

* * *

Prof. Cavanaugh is now occupying his new residence on Stewart Ave., just below the Campus.

* * *

Prof. Rice has broken ground for a residence on Cornell Heights.

* * *

The Poultry Department has been successful in placing the students of the special winter course who wished positions. There is a greater demand than supply.

* * *

The N. Y. State Grange has again appropriated \$300 to be paid to those members who pass the best competitive examination for entrance into any course in the Cornell University College of Agriculture.

* * *

C. R. A. Bues has secured through the Horticultural Department, a position with Elwanger & Barry of Rochester, for the spring shipping season. He is to take charge of the fumigation of their stock.

* * *

Mrs. Comstock has two new books in press—"How to Keep Bees," Doubleday, Page & Co., and a booklet for the use of pupils in the schools—"How to Study Spring Flowers," American Book Co.

"The Good Roads School to be held by the College of Agriculture will be held starting May 15 and lasting one week instead of on April 15 as announced.

This is really a conference and is the first of its kind in the state. Among those who will attend are State Engineer Van Alstyne, William Pierrepont White, of Utica; a representative of the Department of Agriculture and possibly the Secretary of Agriculture, an officer of the State Grange, and a Director of the Farmers' Bureau."

—Ithaca Daily Journal

* * *

Prof. Rice attended the Conference of Rural Progress at Brown University, Providence, R. I., on March 22 and 23rd, and at which time he spoke upon "The Poultry Industry." Mr. R. J. Crosby, one of our graduates, and at present connected with the Dept. of Agri., spoke there at that time.

* * *

Mr. C. S. Wilson made a trip during the Easter recess to the Hudson River region for the purpose of investigating greenhouse construction among the leading firms of that vicinity, such as Lord & Burnham, Tarrytown; Pierson & Sefton, Jersey City, and C. W. Ward, Queens, Long Island.

* * *

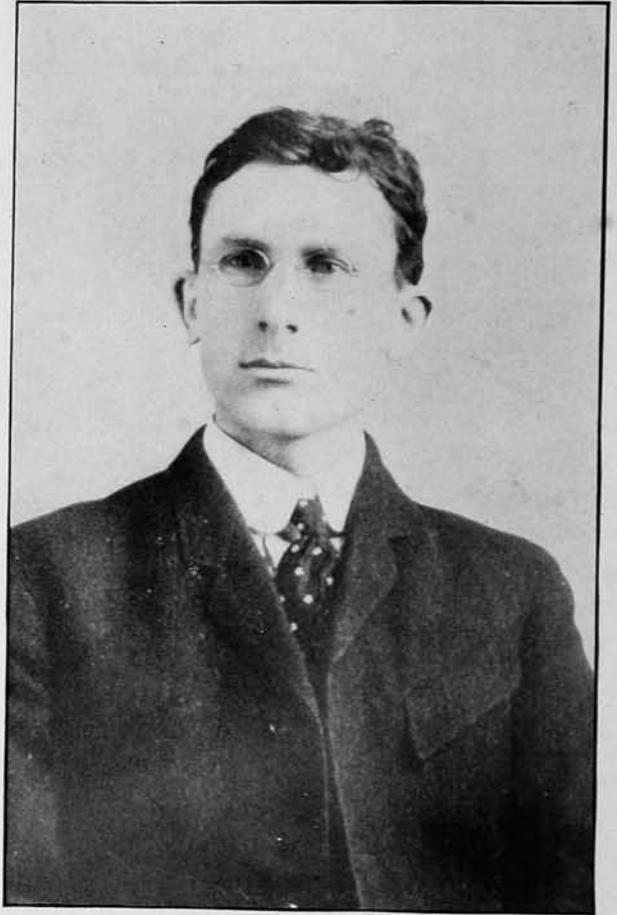
The winners of the prizes in the judging contest during the recent trip of the Animal Husbandry class were: 1st prize of \$10, G. M. Wilcox; 2nd prize of \$5, divided between Tufts and Elwood.

FORMER STUDENTS

'95, B. S. A.—John M. Trueman was born in 1870, of English parentage, at Point De Bute, New Brunswick, Canada. After taking a preparatory course at Truro, Canada, he entered Cornell as a special student at the beginning of the second term in 1892; the next year he entered the regular course, graduating in three

years and one-half. In 1896 he was married to Miss Clara Huff, of Ithaca. They now have a family of three boys and a girl.

Mr. Trueman's first position was as an instructor in dairying at the Agricultural College, Brookings, S. D.



JOHN M. TRUEMAN, '95

After teaching for two years and a half, he became manager of a large dairy farm at Thorndale, Pa., where he had charge of both the farming operations and the care of the milk from one hundred Jersey cows, the milk being pasteurized for the Philadelphia market. In 1899 he became manager of an estate at Waverly, Pa., where he remained four years. In 1903 he was made assistant in dairying and animal husbandry at Cornell. About April 1 he resigned, to accept a position in the department of dairying at the University of Illinois, Urbana, Ill. During the first part of the year Mr. Trueman will give instruction in the college; during the latter part he will be engaged in field work.

'88, B. S. A.—Mr. Gilmore recently visited Mr. G. D. Brill, at Poughquag, Dutchess Co., N. Y. Mr. Gilmore and Mr. Brill together went to China in 1897 to establish and take charge of a school of agriculture. The school was in operation for two years, when it was broken up by the Boxer uprising. Mr. Brill then went to the Philippines, where he was engaged in educational work until a little more than a year ago. He is now with his brother on their old home farm, where they keep one hundred dairy cows.

'91, B. S. A.—Chas. H. Royce, '92, M. S. A., has taken a position as manager of the Pencoyd Farm, at Balla, near Philadelphia, Pa.

'96, B. S. A.—Maurice G. Kains, '97, M. S. A., who was for some time connected with the Division of Botany of the United States Department of Agriculture, is now the poultry editor of the *American Agriculturist*. His address is 52 Lafayette Place, New York City.

Sp. '96.—F. D. Pearson is in the farming business three miles south of Ithaca.

'97, M. S. A.—Invitations have been received for the marriage of Harris P. Gould of the Division of Pomology of the U. S. Dept. of Agri., to Miss Alice Peabody. Mr. and Mrs. Gould will be at home at 114 W St., Washington, D. C.

Ex.-'98.—Dana L. Stafford of Gowanda, N. Y., appreciates the good work of the *Countryman* and writes us that he enjoys the notes about former students, and is pleased with the general "get-up" of the paper.

'98, B. S. A.—Wm. C. Baker, who is now studying art in France for the second time, will return to Ithaca about August to enter the employment of Director Bailey.

'99, Special.—F. E. Van Alstyne of Kinderhook, N. Y., is managing a private creamery on the home farm. The Van Alstyne herd consists of a fine collection of grade Gurnseys, which produce from 160 to 200 quarts of milk daily throughout the year. In

addition to this from 600 to 800 quarts are purchased daily from neighboring farmers, thereby making the creamery a good paying enterprise.

'01, B. S. A.—H. Mason Knox, who is engaged in practical farm work at Canton, N. Y., is also editor of the agricultural department of the county newspaper. Various problems are proposed and discussed by the farmers in the columns of the paper. Much interest is shown, and much practical information is gained in this way.

'02 Winter.—Clifford E. Aldrich is with his father on their farm at Mattituck, L. I. Vegetable and seed growing is an important industry in that vicinity, potatoes and cauliflowers being the most important crops. The farmers about Mattituck have formed a co-operative club; one of the objects attained by the club has been to arrange with the railroad to run a special train for the purpose of quickly transporting the cauliflower crop to New York and other markets. The club also buys, through its purchasing agent, such supplies as coal, feed and fertilizers at wholesale rates.

Ex.-'03.—R. J. Roach is employed as field agent of the Colorado branch of the New York Life Insurance company. Mr. Roach has his headquarters at Victor, Colorado.

'03, Winter.—Bruce M. Wilmer is in partnership with his brother on their farm at Faulkner, Md. The farm consists of 750 acres, and is devoted chiefly to stock-raising. Mr. Wilmer is experimenting with soil inoculation for alfalfa.

'03, Winter.—N. J. Hitchcock is managing his father's farm at Lebanon, N. Y. Mr. Hitchcock is a member of the Experimenters' League; by the means of this organization he keeps in touch with the work at Cornell.

'04, Special.—E. K. Morse was married at Moravia, N. Y., last summer. He has been working in his father's store at that place, but this spring will go on a 140-acre grain and dairy farm of his own.

'04, Dairy.—G. W. Bowman of 111 E. Embargo street, Rome, N. Y., did not finish his course last winter on account of sickness. Last summer he worked in a milk station for the Remsen Dairy Co. at Remsen, N. Y. The coming season he will have charge of a cheese factory at North Bay, N. Y.

'04 Winter.—R. R. Gould is at work on his father's farm at Jamestown, Chautauqua county, N. Y. He says that he enjoys farming very much, especially since taking the winter course, which taught him a good many "whys."

'04, B. S. A.—We are very glad to hear that Walter Thomson, who was sick during the latter part of last spring and through the summer, is now entirely well. We are told that he is very successful with his stockfarm at Holland Patent, N. Y.

'04 Dairy.—R. D. Washburne is now located at Verbank, N. Y., where he is foreman of the plant of the Locust Farms Dairy Company. Since leaving the dairy school Mr. Washburne has met with exceptional success in his work: he writes "thanks a thousand times for my instruction in the Dairy Class of '04."

'04, B. S. A.—H. E. Kinne is at his home at Hartwick Seminary, Otsego Co., N. Y., where he has established a live-stock commission business. He is especially interested in Jersey, Gurnsey and Holstein dairy cattle; at the same time he deals in other cattle, and also in sheep.

'04, Winter.—George Van Swall is conducting his father's farm at Oriskany Falls, N. Y.

'04, B. S. A.—Norman R. Shields has become interested in brick-making and is at present superintendent of the Spencer Red Brick Co., Spencer, N. Y.

'04, Winter.—Angus Phillips is superintendent of a large hop farm at Oriskany Falls, N. Y.

'05, Dairy.—Harold Straw has charge of a fine creamery at Fenton, Michigan. Mr. Straw, although new to the business, shows every promise of being a capable butter-maker.

Ex.-'05.—Fred Johnson who left us this spring to take a position with the Department of Agriculture at Washington, has been detailed to spend the summer in New York state studying entomological problems. His headquarters will be at Youngstown, Niagara Co. The main feature of his work will be in relation to the curculio; there is much that is not yet known, especially in regard to the life history of the pest.

'05, Dairy.—Grover C. Eaton, of Willet, N. Y., who was a student in the short dairy course in '04 and '05, and a successful creamery operator, died at his home on April 2nd of typhoid pneumonia. He made many friends during the two winters he was here, and it is believed that he had an exceptionable bright future in his chosen work.

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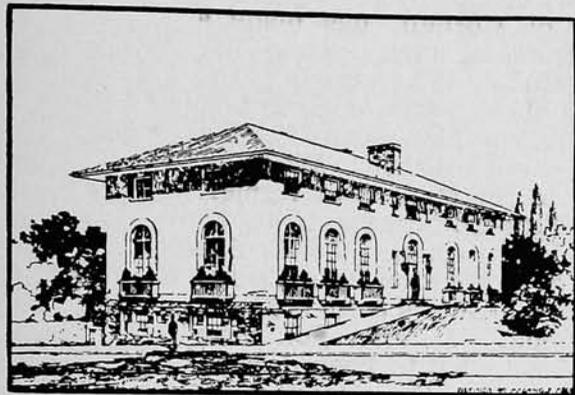
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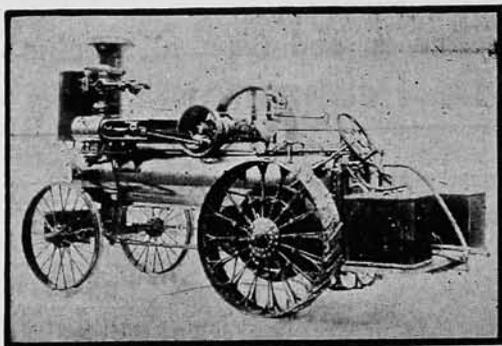
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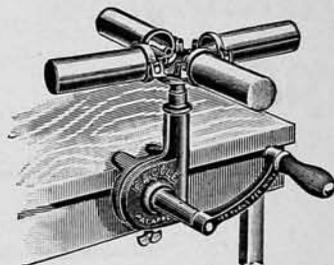
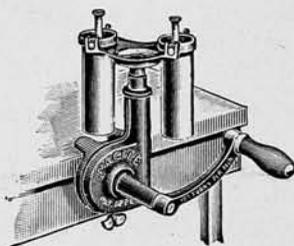
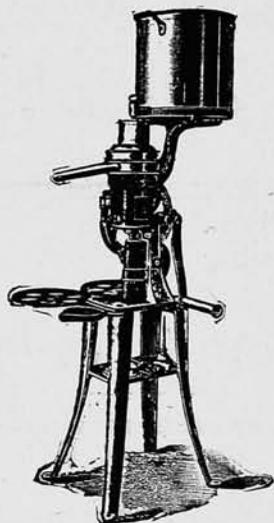
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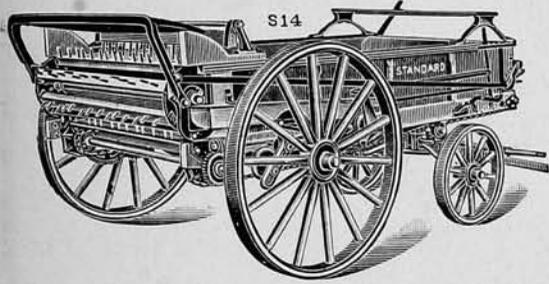
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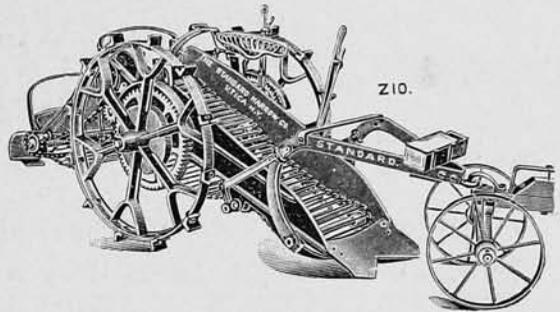
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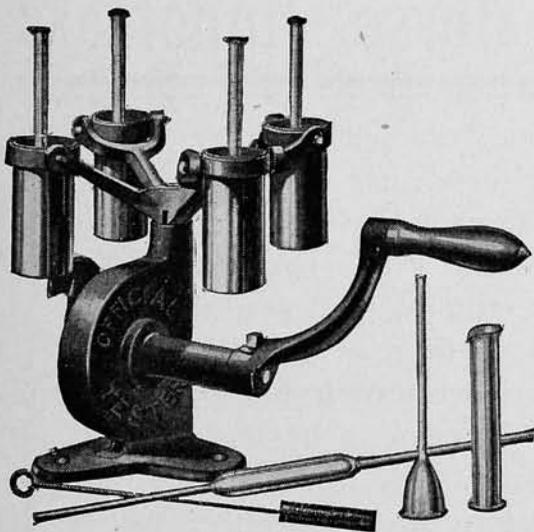
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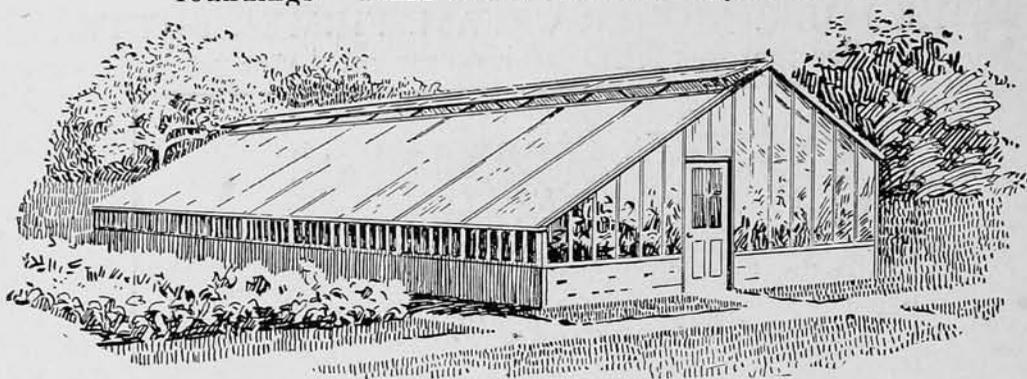
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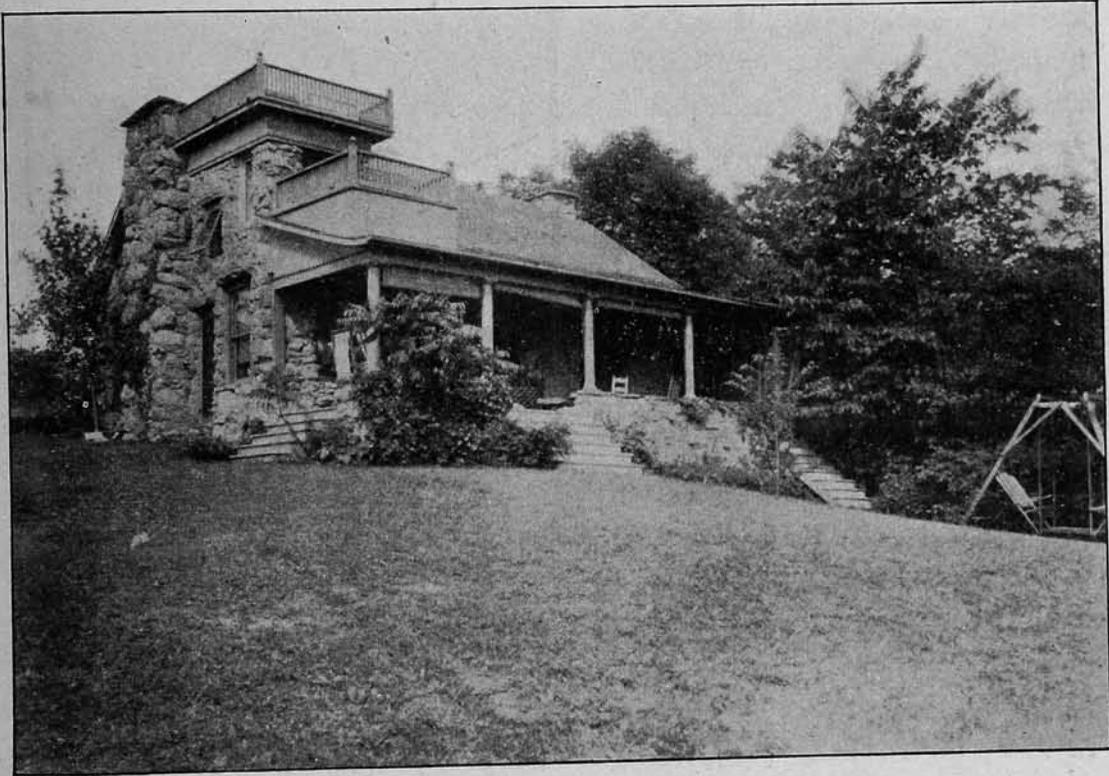
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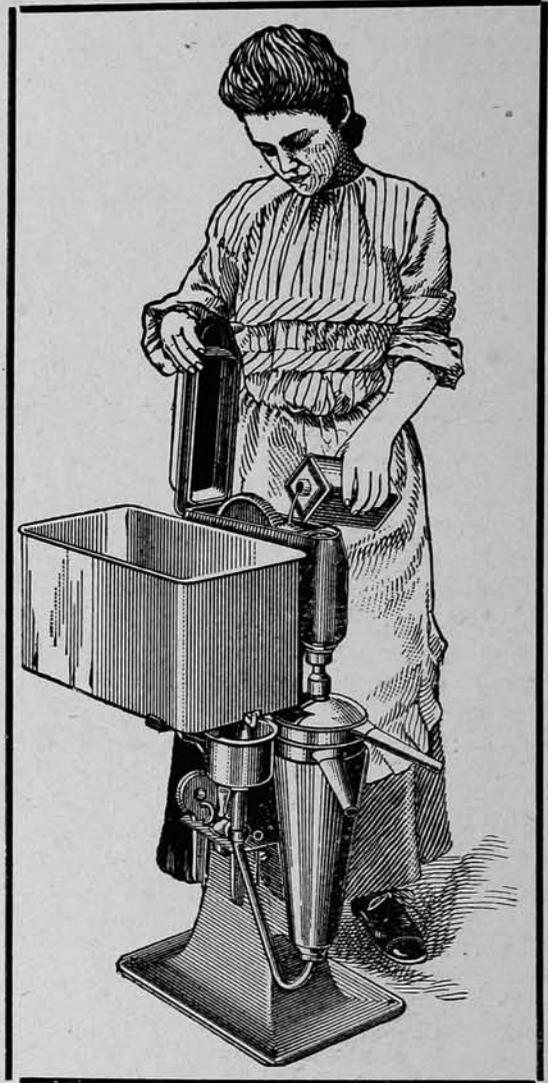
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| | |
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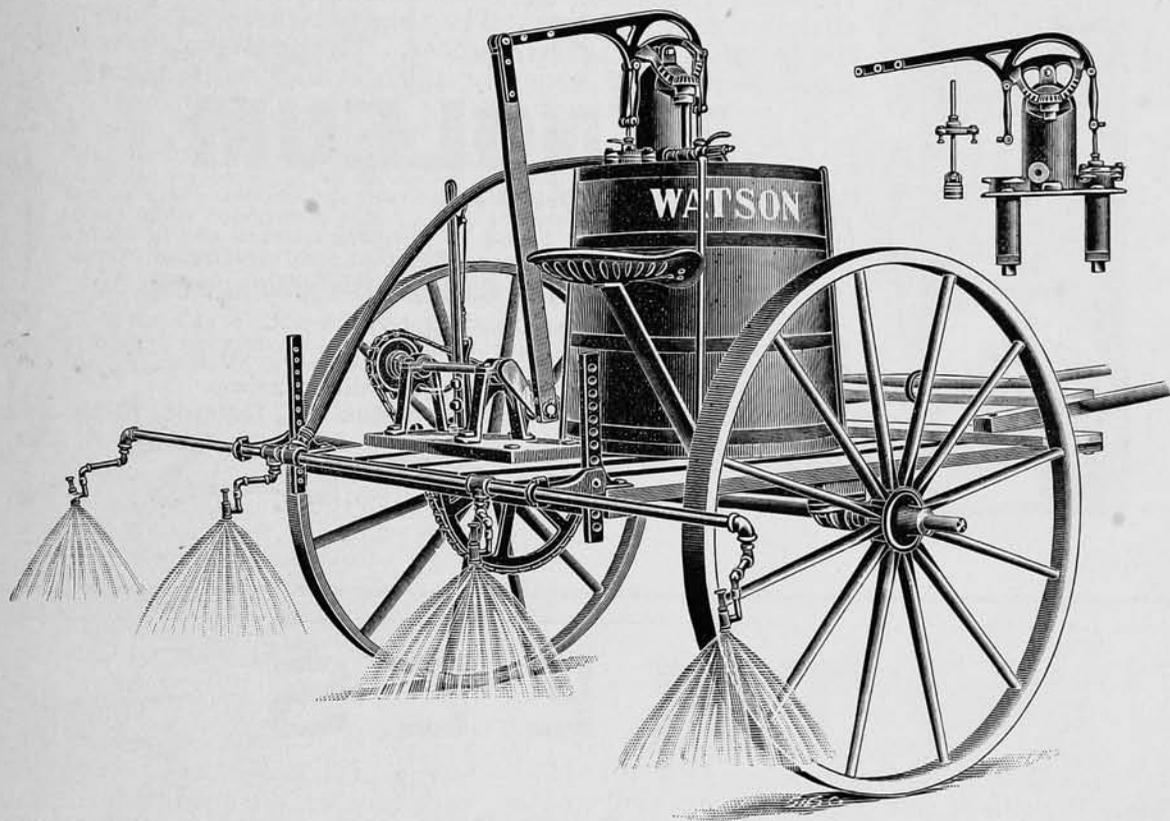
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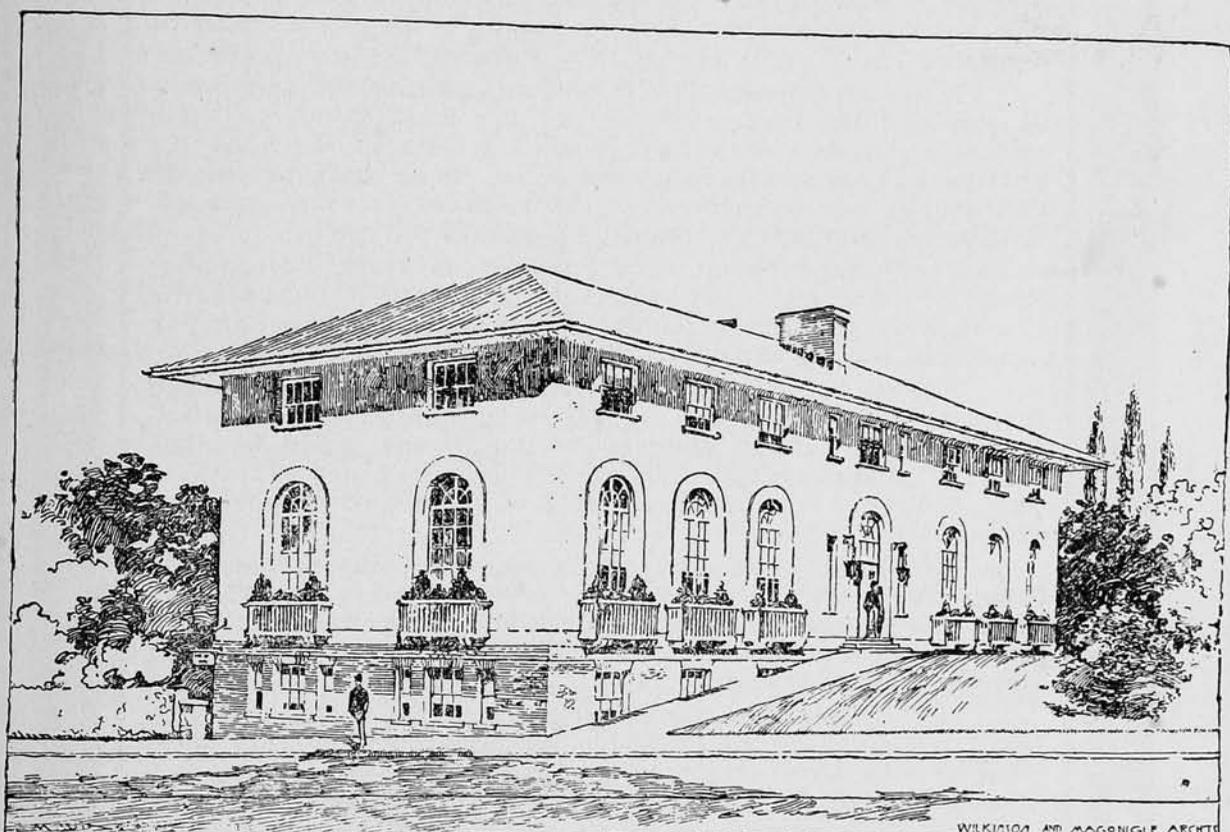
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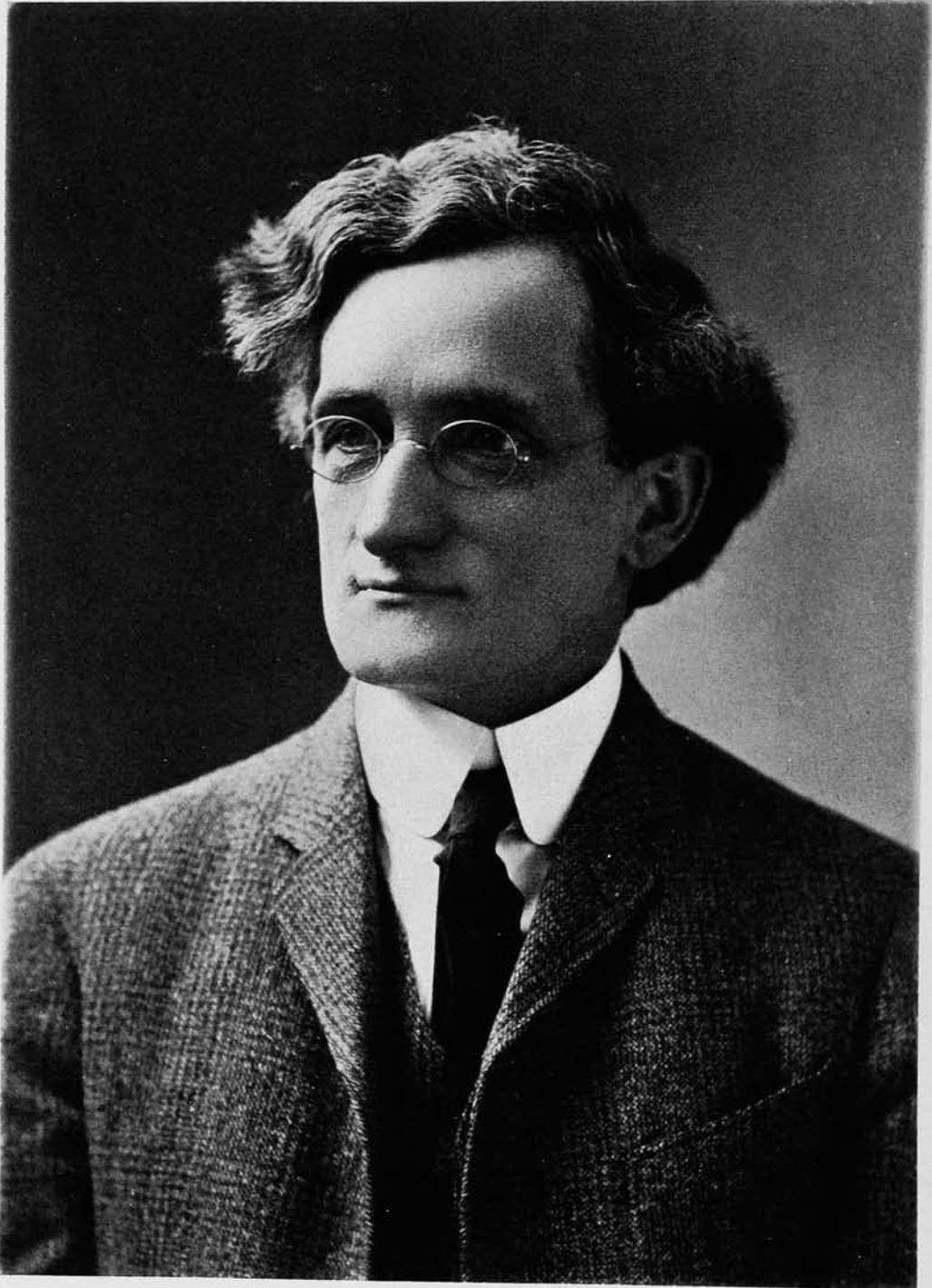
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THE CORNELL COUNTRYMAN

VOL. 2.

JUNE, 1905

NO. 9

THE CORNELL UNIVERSITY FARMS

By Thomas F. Hunt

Professor of Agronomy

I have been asked by the Editor to tell the readers of "The Countryman" something about the management of the Cornell University farms, more especially as it relates to the Department of Agronomy, since it is the policy to make the University farms useful to all departments in the College of Agriculture when possible, and especially to the departments of Animal Husbandry and Dairy Industry. In the management of the farms, these departments are consulted and their needs provided for so far as the limits of the farms and the appropriations will permit. It will, perhaps, be understood without stating that it is much easier to announce policies and to plan experiments than it is to carry them out, and that such announcement is no guarantee of the results to be accomplished. It will also be understood that, so far as the Department of Agronomy has any policy, it is only a part of that larger policy of the Director of the College of Agriculture which is to promote and to better country living.

There are four farms belonging to the University more or less disconnected, less rather than more with our present system of roadways. A more inconvenient arrangement of an equal amount of arable land cannot be well imagined. While the topography of the land is not such as to ever make the arrangement ideal unless adjacent lands should be purchased still by means of bridges and the building of some "good roads" it would be possible to greatly improve the present arrangement. The four farms are known as the Home Farm, the Preswick Farm, the Mitchell Farm, and the Behrend Farm.

The Home Farm, which for some years past has consisted of about 88 acres, has now been reduced for farm and experimental purposes to about 37 acres by the location of new Garden Avenue, the new buildings of the College of Agriculture and the Athletic field, the filter plant, and several dwellings thereon. About seventeen acres of what remains of this farm are arable. About three acres are admirably adapted to the raising of alfalfa and will be devoted to that crop, while the rest will for convenience and through necessity, be converted into pasture except about three acres just east of the new college buildings. Here crops will be raised for student study and experimentation until the land is needed as a site for other buildings of the College of Agriculture.

The Preswick Farm, which came into the possession of the University less than two years ago, contains 55 acres, about 50 of which is available at present for the use of the College of Agriculture. Nineteen acres of this land have been set apart for a three year rotation consisting of potatoes, first year; oats or winter wheat the second year (depending upon the time of the removal of the potatoes); clover, one crop, followed by buckwheat, the third year. This piece of land is naturally a moderately sticky clay soil, greatly in need of under-drainage and lacking in organic matter through years of sufficing farming. It is proposed to demonstrate the influence of a rotation indicated in restoring land of this description to a state of proper tilth and crop production. Since six or seven acres will be in potatoes each year, opportunity will

be offered for field experiments with this important New York state crop. On account of its topography it is deemed best to keep the rest of the farm in pasture and on 320 plats each one one-twenty-fifth of an acre, a complete study of the kind of grasses and the kind of fertilizers required to secure the best results on the hillsides of the State is being made.

The Mitchell Farm, 107 acres, was purchased in the spring of 1903. About 52 acres have been placed under cultivation, about two acres of which have been turned over to the



A GOOD TYPE OF MANGEL-WURZEL

Department of Horticulture for its comprehensive test of peonies, which is being made in connection with the American Peony Society. Twelve acres are in timber, while the rest is in pasture or waste land. Sixteen acres of arable land has been definitely set aside for field trials. On this area there are 850 separate plats; 414 in timothy, 97 in other grasses, 20 in alfalfa, 20 in clovers, 200 in roots, and 99 in oats, wheat, soy beans, cow peas etc. Beginning with the fall of 1903, 14,000 timothy plants each 30 inches apart, have been transplanted from pot-grown seeds and 9,000 are now living. Plats for 60 other species of grasses have been laid out, and by the time this article is printed there will be a grass garden containing over

4,000 individual plants, many of which are the progeny of selected parents. Here also experiments on the thickness of seeding, the size of the seed and the kind and amounts of fertilizers are in progress. It is the purpose of this department to study timothy from every standpoint. As illustrating the extent of this work it may be stated that during the season of 1904 on one block of about 9,000 individual timothy plants about 100,000 recorded observations were made. If the experiments now started are developed twenty additional acres will soon be required for definite experimental plats. To make it suitable for this work the area in question needs to be systematically underdrained.

The Mitchell farm has a good dwelling and rather poor, although serviceable, outbuildings. Here the Department of Animal Husbandry winters young stock, including Ayrshire, Guernsey, Holstein-Friesian and Jersey heifers, and 16 head of high grade Hereford, Angus, Galloway and Shorthorn steers.

The Behrend Farm, acquired in 1903, contains 36 acres of broken and partially timbered land, suited only for pasture, to which portions of it are well adapted.

All four farms contain timber, which offer opportunity for an intelligent study of farm forestry and all of them offer the landscape architect quite as much opportunity as they do the farmer. Little has been done so far, however, to make these areas attractive, although they possess immense possibilities. On account of lack of funds for this purpose even the dilapidated fences where existing on the newly acquired property have not been repaired, except where absolute necessity have required.

It may be interesting to compare the present farm area with that which existed in 1902. The Home Farm then consisted of 88 acres about 60 of which were arable. The Department of Agronomy now has under its charge approximately 225 acres of land belonging to the University, about 90 of which may be considered arable, but not more than 75 will be available

for cultivated crops. This gives more pasture for the keeping of live stock during the summer, but thereby increases the expenditure for feed to carry them through the winter. More extended field trials than formerly, amounting now to nearly twenty acres, from which little or no return can be expected, still further reduces the production of the arable land.

The purposes for which the University farms are managed are as follows:

(1) To add to existing knowledge concerning agriculture.

of New York as well as the North Atlantic States in general were especially adapted to the raising of trees and grass. The agriculture of the United States is just beginning to develop internally. With the increasing ease of inter-communication, this development is to be largely one of crop adaptation. Eventually, therefore, industries based upon trees and upon grass will flourish in this state to a relatively increasing extent. The problems surrounding trees concern the pomologist and the forester; grass concerns the agronomist. To study the grasses



Photo by Morgan

A BIRDSEYE VIEW OF THE TIMOTHY PLATS

(2) To teach existing knowledge of agriculture.

(3) To give students of agriculture opportunity for partial self-support.

(4) To obtain the largest financial return for the money expended consistent with the preceding aims.

(5) To make the University farms attractive.

In considering the choice of problems for agricultural research, and choice would need to be made even were the resources of the Department many times what it now is, it has seemed to the writer that the State

and other forage crops in their adaptation to the State of New York is, therefore, the prime problem which the Department of Agronomy has undertaken, recognizing, however, that it may be many years before the most fundamental questions are solved if, indeed, they are all capable of solution. The fact that New York State produces more hay than any other state in the Union, that she produces one-tenth of all the hay produced in the United States, that the hay crop has a greater money value than any other crop in New York State except possibly pasture, does not fully indi-

cate the value of the grass crop to New York agriculture, since probably the area in pasture, is approximately equal to that in meadow.

Another problem intimately connected with the development of the grass of the State is that of raising easily digested food in order to have a ration for domestic animals which is balanced as between its digestible and non-digestible nutrients, as well as between its digestible nitrogenous and non-nitrogenous nutrients. The problem as it affects New York State may be illustrated by comparing the concentrates and the roughage raised in the North Atlantic States and North Central States as given in the following table, on the authority of the Census for 1900.

| | North Atlantic | North Central |
|--------------------------------------------|----------------|---------------|
| All cereals except wheat, million tons | 4.4 | 69.2 |
| All hay and forage, million tons | 15.6 | 49.0 |
| Per cent of cereals except wheat | 22.00 | 58.5 |
| Tons cereals except wheat, per animal unit | .55 | 1.55 |
| Tons hay and forage per animal unit | 1.95 | 1.10 |
| Total tons food per animal unit | 2.50 | 2.65 |

It will thus be seen that while the Illinois or Iowa farmer raises an excess of concentrates and a relatively small amount of roughage, the New York and Massachusetts farmer raises a large amount of roughage and a deficiency of concentrates. Rather comprehensive field trials have been begun to determine whether some of the root crops may be raised as at least a partial substitute for the cereal grains, not as a substitute for roughage, since roughage is worth only about one-half as much per pound as the cereals, and since the New York farmer already raises roughage in excess of his requirements. Fortunately, extensive experiments in Denmark have shown that eliminating the element of succulence the dry matter of mangel-wurzels can be substituted

pound for pound for cereals in the production of milk, and where silage was not used these roots successfully displaced seven pounds of cereals (corn, barley, and rye) per cow per day in the production of milk. The reason of this may be understood by calling attention to the fact that roots are at least as easily digested as the cereal grains. It is not improper, therefore, to look upon mangel-wurzels and other roots as watered concentrates, although it must not be assumed that they are chemically precisely alike. A hint of what may be possible is shown by the results upon our trial grounds last season when the following pounds of dry matter per acre were obtained from sowings made during May.

| | Mini- | Aver- | Maxi- |
|----------------|-------|-------|-------|
| | mum | age | mum |
| Mangel-wurzels | 824 | 4726 | 10258 |
| Rutabagas | 2251 | 3074 | 4177 |
| Hybrid Turnips | 2512 | 3561 | 4714 |
| Carrots | 2715 | 3181 | 4617 |
| Cabbages | 5348 | 6206 | 7783 |

During the same season it is estimated that the amount of shelled corn produced per acre was 2,000 and of dry matter in maize silage 4,000 pounds. The season was probably especially favorable to the growth of roots and unfavorable to that of Indian corn.

Many difficult problems present themselves in connection with the raising and feeding of roots which there is not space to allude to here, but if it is found economically desirable to raise roots extensively, the adaptation of the varieties suited to our soil and climate will be necessary. At present much of our seed comes from Europe or is grown from successful European varieties. Since varieties of wheat adapted to England are entirely unsuited to America and even varieties best suited to Kansas and Nebraska are not best for New York, it is a fair hope, if not an inference, that we may be able to develop varieties of roots better suited to our soil and climate than any yet grown here.

The daily operations upon the farm are planned and carried out with a consideration of the needs of the students in farm practice. Students who elect the course in farm practice take part in the actual practices of preparing, planting, cultivating and harvesting. This retards the farmwork somewhat, but the spirit of instruction in farm practice is to do the work at the time when and in the manner in which it ought to be done for the purposes in mind. Opportunity is also

Third, the number of hours and the price per hour are recorded for each man and team for each operation.

Just as the College of Agriculture is primarily an educational institution so the chief work of the Department of Agronomy, and that on which the most time, thought, labor and money is expended is the imparting of information instead of extending the bounds of knowledge. The aim has been to apply sound pedagogical methods to the teaching of agronomy,



Photo by Morgan

A CLOSER VIEW OF TIMOTHY PLATS. PLANTS A LITTLE OVER ONE YEAR OLD

provided for the students in the courses of farm mechanics, farm management and field crops to obtain instruction.

Three methods of keeping records have been adopted. First a diary of operations and activities is kept. Second, the fields are numbered and named and the activities, operations, treatments, conditions and yields upon each field are recorded. These data are recorded upon a sheet bearing a map of the farm, thus any change of boundaries can be graphically noted.

to have education by agronomy as well as for agronomy and in agronomy, to study things as well as to study about things, recognizing that "telling is not teaching." To these ends practicums have been devised. Thus far they have been of the simplest and most elementary character, owing to the facilities at hand. With the new Agronomy Building, properly equipped, together with the University farms systematically developed for instructional purposes, it is hoped that reasonably sat-

isfactory courses may be offered to a limited number of students. At present the Department of Agronomy is charged with the responsibility for the instruction in rural engineering. The courses of study and the students pursuing them during the year 1904-5 have been as follows:

| | |
|----------------------------------------------|----|
| Post graduate students 1st term... | 8 |
| Post graduate students, 2d term... | 9 |
| Agronomy 11, Field Crops, 1st term | 73 |
| Agronomy 12, Farm Management, 2nd term | 59 |
| Agronomy 16, Farm Practice, 1st term | 17 |
| Agronomy 16, Farm Practice, 2nd term | 21 |
| Rural Engineering, 2nd term..... | 51 |
| Agronomy Winter Course | 90 |

Any discussion of the work of the Department of Agronomy would not be complete without some statement concerning the part taken in that educational effort of the College of Agriculture known as the Extension Work. Last year 16 different questions in Agronomy were offered to farmers for co-operative experiment. Two hundred and eighty-two distinct experiments were undertaken by farmers in forty-one counties of the State involving in the aggregate more than 900 plats. At the present writing 387 experiments have been registered for this season involving some 1150 plats. This

requires considerable traveling and much correspondence. It is estimated that 1500 personal letters were written by this department in answer to direct inquiries concerning farm problems during the past year. It may be necessary to add for the general reader, that this is but a small fraction of the correspondence of the College of Agriculture as a whole.

The work of the Department is carried out by the following persons:

John L. Stone, Assistant Professor of Agronomy, who has charge of the Extension Work and the Winter Course students in Agronomy.

John W. Gilmore, Instructor in Agronomy, who has charge of the course in rural engineering and in farm practice, and who has general supervision of the farm business.

Samuel Fraser, Assistant Agronomist, who has charge of the experimental work.

George W. Tailby, Foreman of the farm, who has immediate charge of executing all farm operations.

Miss Grace M. Stanyon, Stenographer.

The reader is not aware of the temptation that the writer has resisted of becoming personal with reference to those who are carrying forward the work of the Department, but it is certainly not inappropriate to say that few are aware of the arduous and unceasing labor that they are giving to it.

• THE FARMER

I hoe and I plow
I plow and I hoe,
And the wind drives over the main.

I mow and I plant
I plant and I mow,
While the sun burns hot on the plain.

I sow and I reap
I reap and I sow,
And I gather the wind with the grain.

I go and I come
I come and I go,
In the calm and the storm and the rain.

L. H. Bailey.

OUR NEW AGRICULTURAL HALL—WHAT IT MEANS

Being the addresses delivered at the breaking of the ground for the new buildings, May 1, 1905

ADDRESS OF HON. ANDREW D. WHITE

This work in which you now engage begins the realization of many dreams, and, chief among them all, one of forty years ago at the founding of this university.

That was a time when such dreams were not thought much of by the great majority of our fellow citizens.

humanity—strong and eloquent in every good cause and especially in behalf of the application of the science to agriculture, and of agricultural education. Whether in the Senate of this State or in public meetings or on boards of charity and education, he was never for an instant a demagogue, but always a faithful and fearless servant of right, reason, justice and rational progress. The tablet erected



Photo by Sheldon

HON. ANDREW D. WHITE REMOVING THE FIRST SHOVEL-FUL OF DIRT

But foremost among all the dreamers were two noble men; one being Ezra Cornell whose monument you see whenever you look about you on these hills or in the beautiful city which nestles below them—a true hearted American citizen, self-sacrificing, far-seeing, and devoted to the welfare of his fellow men.

The other was John Stanton Gould—a man of very different gifts from those of Mr. Cornell, but no less one of natures noblemen and an honor to

to his memory in yonder chapel is well deserved; the inscription it bears contains one of the most truly inspired verses in Tennyson's "*In Memoriam*," and it well sums up his great qualities.

I count it the especial honor of my life to have enjoyed the friendship of these two men and to have been allowed to aid them.

But there are others beside these two who well deserve to be recalled on an occasion like this. First of them, I may name three who aided in

ting the agricultural department of this university over those early obstacles and through those dark days of struggle, misapprehension, misrepresentation, and opposition. First of these, in order of time, was Professor Caldwell. He gained the respect of thinking people throughout the State by quiet, steady research and instruction in agricultural chemistry, and he won the love of his students by devotion to their welfare.

With him was Professor Law. Having been called to this country from Scotland, he secured at once universal respect by his mastery of veterinary science and by his energy, both in research and instruction, and he won a national reputation by services of vast value not merely to the State of New York but to the entire Union.

And next, one who came at a later period,—Professor Isaac P. Roberts. He it was who rescued the teaching of theoretical and practical agriculture in this State from discredit and even from ridicule,—who by long years of able instruction and hard work prepared public opinion for a realization of the earlier dreams of the founders of this University, and who paved the way for these culminating events which, we may well hope, will make those old dreams completely real.

Nor should the services rendered by a younger man be forgotten. He was first a student and afterward an instructor in this University and is at present a professor in the State University of Ohio,—William R. Lazenby. He it was who at Elmira, at the time when the fortunes of agricultural instruction here were just beginning to improve, met the convention of the hostile agriculturists of the State, singly and alone, convinced them that they were unjust in condemning us unseen and unheard, brought them to the university, showed them what we had done, were doing, and were hoping to do, and finally so enlisted their interest and sympathy that, although "they came to scoff, they remained to pray," and instead of passing resolutions, as they had intended, con-

demning the university, they, after thorough investigation of the agricultural department, passed resolutions applauding it and condemning the State legislature for its negligence of the agricultural interests of the State, and especially of our agricultural college. Never was a more admirable service rendered just at the nick of time.

But there are others who must not be forgotten here and now, and one especially, the present Dean of the agricultural college,—Professor Liberty Hyde Bailey. His services in the recent struggle for justice to agricultural education are fresh in your memories, and the wonderfully beautiful and valuable work he has done here and throughout the country needs no eulogy of mine;—his services are well known to all of you.

And it would be rank injustice to close these proceedings without hearty recognition of the services rendered by Dr. Schurman, the President of the University. For his clearness in stating and his eloquence in enforcing the doctrines on which this institution rests, and his assertion of the truths of our history against the calumny we all owe him admiration and gratitude.

From this college, founded after so long a series of noble efforts, we may well hope much. It marks a new era in agricultural education in this part of the world,—an era of better appreciation of the services which science can render agriculture and of the value of agricultural education and training in the highest sense.

But much, very much, remains to be done, and you, ladies and gentlemen, students of the agricultural college of the State of New York and of Cornell University, have an especial duty in this matter. Every good stroke of work done by any one of you in this building, for which you are now preparing the foundations, is a service not only to yourselves but to the College and to the whole commonwealth. You are to make or mar the reputation of this institution. Your duties do not end here. You are to go out from it to uplift agricultural research and instruction, to win thereby, I

trust, among all men more and more respect for the agricultural profession, more and more belief in the principles of this State Agricultural College and of Cornell University, in whose charge it is placed. My hope and belief is that your work here will realize still further the dreams of our founders and that which you accomplish on this hill and after leaving it will most efficiently aid in making this college and the institution with which it is connected respected and cherished by the people of the State and of the nation.

ADDRESS OF DIRECTOR BAILEY

We are assembled for the purpose of beginning the construction of a building. Students, teachers, the University—all are interested in the ceremonies which we now celebrate. It is an auspicious day. I hope that we all realize the significance of this day and its ceremonies; for I verily believe that the work started this May-day of 1905 will have most far-reaching effects.

We are at the beginning of a movement and an epoch. We are doing more than to consecrate the starting of a building. I am most of all impressed with the significance of the enterprise that we now inaugurate. The meaning of this building I wish briefly to express.

I. This building is but the visible head of an edifice the foundations of which lie in the esteem and good favor of the people of the Empire State. Only an enterprise whose roots run deep into effective service for mankind is really great or has in it the elements of stability and permanency.

II. This structure that we begin, establishes one more bond of effective union between the State Government and the intellectual and physical welfare of the people. It means that the State stands ready with its funds to aid in developing the indigenous resources of the soil. It means that the great country-life interests are to be developed in a new way on the basis of a high social order.

III. This building is to stand on the top-most height of this great University, overlooking the fairest landscape of hill and valley and lake. It consecrates this University anew to mankind and to all the problems that confront all the people. It is one more epoch in the emancipation of education. Yonder bells, chiming their sweet melodies, will chime for men of all minds, in all professions and trades and occupations, men in the city and village and hamlet and field, students in one great brotherhood whose one common watchword is "Aspiration."

IV. It is worth while to remember how this building is builded. When sixteen years ago I came to Cornell University, it was hoped that the home of the College of Agriculture would be builded within one or two years. Year by year that hope has been deferred. As the hopes were deferred our needs grew; and it seemed as if the realization of these hopes became thereby more and more remote. Men have offered money if other men would organize and energize educational institutions. States have asked what they might do in the aiding of agricultural education. But nothing was offered to the College of Agriculture of Cornell University. The educational enterprises connected with it have originated inside; and the beginning of the foundations of this building are laid in hard labor and in sleepless nights; they are built on human lives.

And all this great structure that we are now to build, to be the largest on the Cornell University campus, occupying its fairest site and overlooking all the other structures, carrying with it all the effort and the anticipations of years, is builded for young men and women.

KIND WISHES FROM PROFESSOR ROBERTS

This Earth upon which is to be reared a building for the promotion of Scientific Agriculture is the nursing-mother of mankind. Upon its products we depend, by its fertility we are fed; from its breast come fruit and flower and to its refuge re-

turn alike animal and man. That it may be developed by skill and cherished by instructed intelligence, I also cast a shovel-ful of its soil in token that we dedicate this spot to the welfare of the farmer, the State and the nation; with reverence and intelligent thanksgiving that out of the issues of this day may come Abundance with Peace, and Labor with Honor.

ADDRESS OF ORA LEE, JR.

At last the time has come toward which we have been looking so anx-

and friends and all we have done was to applaud them and thus show that we were with them and willing to do what we could for the good cause. But now that part of the work is finished and it seems fitting that we as farmers and tillers of the soil should be the ones to draw the plough and do the first actual manual labor in the construction of the building which their efforts have made possible and towards the completion of which we are all looking forward with so much hope. Some day we will be



Photo by Sheldon

DIRECTOR BAILEY GUIDING THE PLOW AT THE TURNING OF THE FIRST FURROW

iously. For a long time we watched the struggle in Albany which finally terminated in the appropriation of funds for the building of a Hall of Agriculture here at Cornell. That we are not lacking in appreciation of what has been done was, I think, amply proved last spring on the day of our banquet. Now the time has come to do something toward the actual construction of the buildings of which we have dreamed so long.

Until now the efforts for this building have all been made by our faculty

proud to come back and see the buildings we began and helped to build.

But let us not lose sight of the fact that but for the untiring efforts of a few men we would not be assembled here to-day, and especially are our thanks due to our Dean, who was the most persistent of them all. For years it was realized that sooner or later we must have a building of our own, but not until last year was the matter taken up in earnest and then our friends in Albany took care that we got what we deserve.

ADDRESS OF NORMAN RATCHFORD, '05

We have come together this morning to break ground for our new agricultural building and to rejoice because the governor of the state has given us our own. We have come together to offer thanks that the period of suspense is over, and that the dream of the past is a reality of the present. At this time all the students rejoice and offer hearty congratulations for the successful work of President Schurman, Dean Bailey, and Professor Roberts. I say we rejoice this morning because this one furrow we have plowed marks a new era for the agriculture of New York State. On this very soil are to be cultivated the finest products of all nations, and the fruits thereof shall be sent to the uttermost parts of the earth to gratify a most urgent demand. On this very soil new thoughts and new ideas will be raised concerning plants, animals, and the welfare of man.

At the present time there is a great rural awakening. The rural districts have taken on a new and quickened life in consequence of the recent teachings and applications of science. Agriculture no longer rests upon experience alone, but upon scientific laws. These laws are numerous and intricate and are woven into a complex fabric which clothes the science of agriculture. We are now able to understand the principles which a few years ago seemed hopelessly obscure, and which perhaps seemed to lie outside the sphere of investigation.

The present time is an epoch of new thoughts. Agriculture has developed into clear and correct thinking. Every one's thinking power has a relation to the knowledge he has already acquired. Then it is evident that we should acquire knowledge to solve the questions of agricultural pursuits. Old writings have been dropped, and now remain as history of the past, because they have not been based on scientific principles. We have forgotten the long tedious classifications of genera, and now consider what is the economic

influence of plants or animals upon our welfare. The erection of this Agricultural building is an example of this epoch of new thought, and will be a new incentive and a new inspiration to greater and nobler efforts from both professors and students. I express the best wishes of the class of 1905 for the future welfare and prosperity of this new institution of learning.

ADDRESS OF H. E. ROSS, '06

The occasion is certainly one of great rejoicing among us. We have all waited long and patiently to celebrate just such an occasion as this, but never before have we had the opportunity, and now that the opportunity has come, we intend to make the most of it.

The erection of our new Hall will mean so much to each one of us who is in any way connected with the college of Agriculture. In the first place only the faculty themselves can tell how much it will mean to them, and they only can say how hard it has been to carry on the work with their forces so scattered, and with the lack of buildings and equipments. Then we as students have none the less felt the need of a new building. The members of one class have scarcely known the members of another because of the lack of a central meeting point.

The Agricultural students of the class of 1906 will probably not directly enjoy the privileges and benefits of the new building. We are glad, however, that we could help celebrate the signing of the Appropriation Bill, and we are glad that we could be present to-day and help break ground for our new building. But above all we do rejoice that future students in Agriculture will have buildings and equipment with which to work.

And so in the name of the Agricultural class of 1906, I say three rousing cheers for our faculty, three more for our new Hall of Agriculture and those who made its erection possible, Cornell forever and the Agricultural College of Cornell forever! and ever! and ever!

The Cornell Countryman

C. S. WILSON, Editor

| | | | |
|----------------------|---|---|--------------------|
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JUNE, 1905

Bailiwick

On the cover design of the *Countryman* this issue we reproduce a picture of Bailiwick, Director Bailey's summer home on Cayuga Lake. Bailiwick is on the west shore of the lake about six miles down from Ithaca. Here also is Director Bailey's farm of about 47 acres, 30 of which are in orchard. The place was bought primarily as a summer home—a place of recreation for himself and family during the summer months. It is necessary for him to

tend to it and thus it acts imperatively to take him from the cares of the office.

The farm also offered him an excellent opportunity to try some of the problems, in a commercial way, which he has wanted to work out. First, he desired to see if pedigree stock or the choice of scions from carefully selected parents was of any commercial value. Therefore his apple trees are top worked. Second, he wanted to know if there was any profit in dwarf apples. For this purpose he has planted a large orchard of dwarf trees.

The wall of the house is built of rough stone taken from the neighborhood. This is an illustration of the fact that the farmer can use the material around him for building a habitation for himself. His purpose is to make the house a part of the farm—indigenous to it, and not a structure which would give the impression of a city residence transported to the country. It is a place for the study of nature.

STUDENTS TAKING DEGREES AT THE COLLEGE OF AGRICULTURE, CORNELL UNIVERSITY, 1905

Candidate for the Degree of Ph. D.



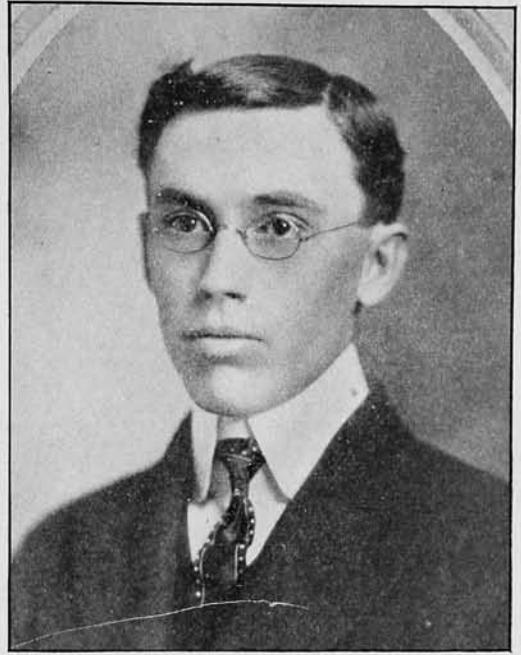
GEORGE FREDERICK WARREN

Mr. Warren grew up on his father's nursery and fruit farm in Nebraska. He graduated at the Univ. of Neb. in 1897, and then taught in the public schools of that state for five years, serving as teacher of science, principal of a high school and superintendent of city schools. During the summers he taught elementary agriculture and nature-study in teachers' institutes, which subjects he also taught last summer at Cornell. Last year he was fellow in agriculture and editor of the *Cornell Countryman*.

Immediately after commencement he goes to New Jersey to take up his work as horticulturist at the New Jersey Experiment Station, Rutgers College.

Candidates for the Degree M. S. in Agr.

Mr. Coit was born in 1880 at San Antonio, Texas. He attended the public school at Salisbury, N. C., and the military school at Lenoir, N. C. Four years manager of market garden, Dallas, Tex. Was graduated B. Agr. from N. C. A. & M. College in 1903. Instructor in Hort. Home Correspondence Schools. Elected Editor Cornell Countryman for '05-'06. Elected Fellow in Agriculture for '05-'06. Mr. Coit is a member of the Gamma Alpha, Cosmopolitan Club, Lazy Club, and Agricultural Association.



JOHN ELIOT COIT

Mr. Curtis was born at Burlington, Wisconsin, in December 1878. He attended the city and high school of Oberlin, Ohio, and was graduated from Cornell in 1901. He worked two years on the farm, writes his master's thesis on Native Trees of Ithaca in Winter, is a candidate for Ph. D., and will spend the summer term as instructor in nature-study at Chautauqua. Mr. Curtis is a member of Gamma Alpha and Alpha Zeta and is alumni editor of Cornell Countryman.

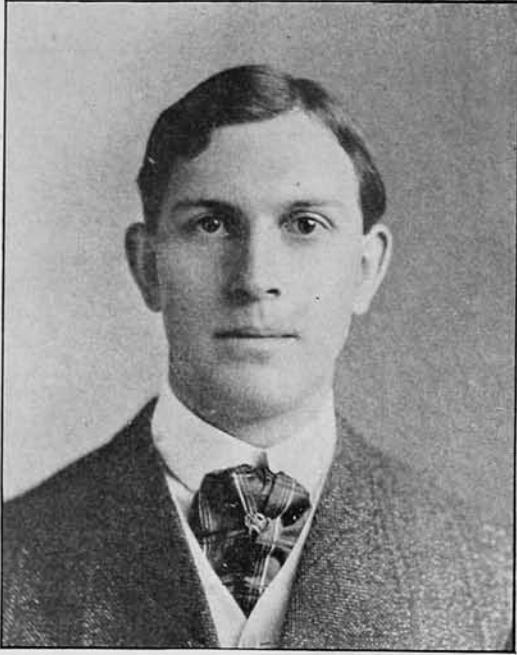


RALPH WRIGHT CURTIS

Mr. Fraser was born near Manchester, England. He graduated from the Agricultural and Horticultural School, Holmes Chapel, in 1898 and for two years was an assistant to the principal of this school. Mr. Fraser has spent the last five years in this country, three as agriculturist at the School of Practical Agriculture, Briarcliff Manor, N. Y., and two at Cornell, first as instructor in agronomy and afterwards as assistant agronomist. He is author of "The Potato."

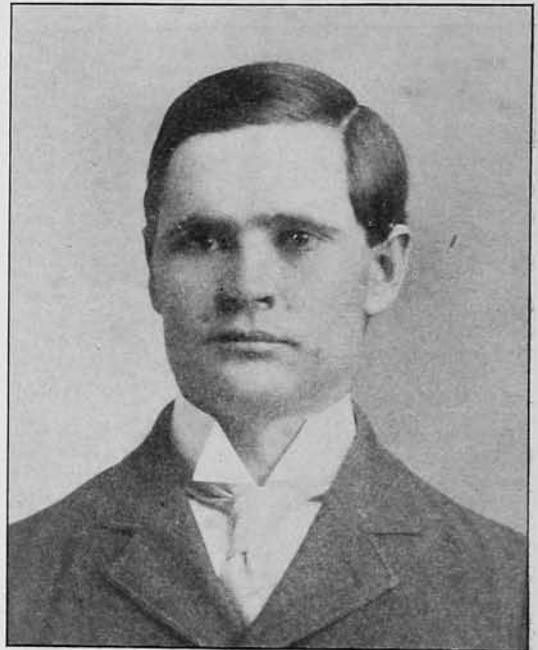


SAMUEL FRAZER

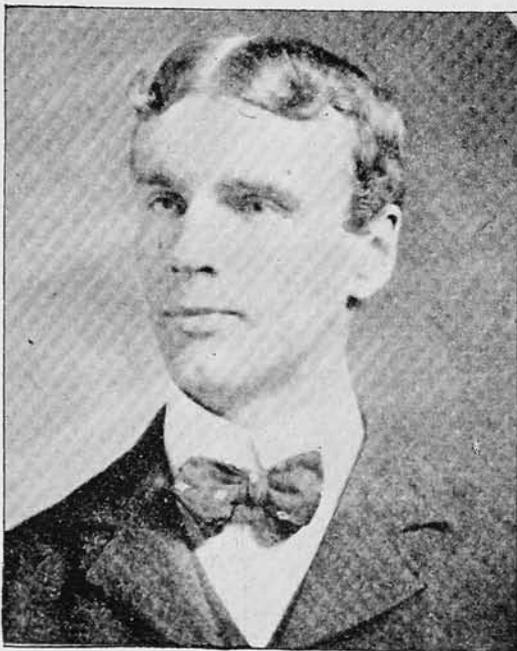


ARTHUR WITTER GILBERT

Mr. Gilmore was born in White county, Ark., in 1872. He attended the Fort Worth High School and graduated from Cornell in 1898. He taught in the Agricultural School at Wu-chang, China, and at the outbreak of the Boxer trouble he returned to Cornell by Java, India and Europe. He went to Honolulu in 1900, but later returned to Cornell as instructor in agronomy and superintendent of the University Farms.



JOHN WASHINGTON GILMORE



GEORGE WHEELER HOSFORD

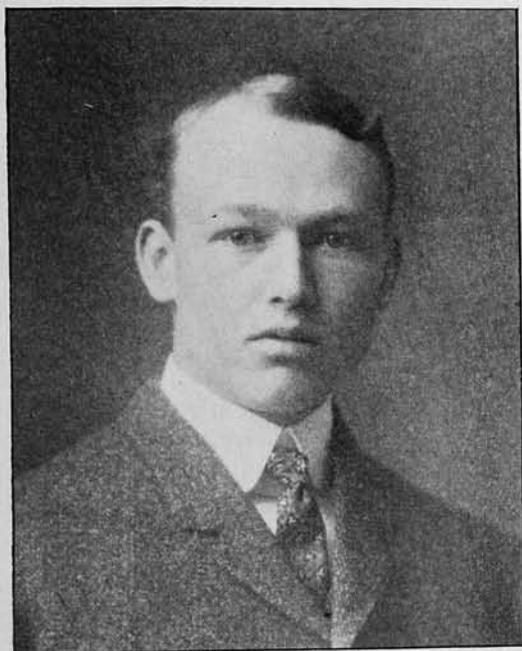
Mr. Gilbert was graduated from the Brookfield High school in 1901. He received his B. Sc. at the Massachusetts Agricultural College in 1904 and Phi Kappa Phi the same year. He won the Grinnell Prize for general excellence in Agriculture; was president of the Senior class and the College Y. M. C. A. at college. Mr. Gilbert was a member of the Shakespearean club and one of the commencement speakers.

Mr. Hosford is from Mexico, Oswego county, N. Y. He received his early training on the farm and later attended the Mexico Free Academy. He entered the Cornell Agricultural College in 1898. In the spring of his Junior year he taught an Agricultural school in Pennsylvania. Mr. Hosford graduated in 1902 and has since been engaged in teaching Agriculture at the Hampton Institute, Hampton, Va.

Mr. Quiroga was born on the farm. He was graduated from the National Normal School de San Luis, 1893, and from the National School of Professors at Buenos Aires 1896. During 1898 and 1899 he was Professor of Spanish in the National Normal School of San Luis and was also inspector for the State. In 1900 he was sent by Argentina to study agriculture in this country. He received B. S. A. from Ohio State University, was elected to Signia X, and since (February, 1904) has been a graduate student at Cornell.



MODESTO QUIROGA



CHARLES SCOON WILSON

Mr. Wilson was born in 1879 at Hall's Corners, N. Y. At the age of seventeen he entered the Canandaigua Academy where he was graduated in 1900. The same fall he entered the arts department at Cornell University and was graduated A. B. in 1904. Since then he has been doing graduate work in the Horticultural Department. Mr. Wilson was born and brought up on a fruit farm and expects to make horticulture a life work.

Mr. Woglum was born on the farm at North Bay, Oneida county, N. Y., in 1882. He was educated in the district grammar and High schools of Oneida county and entered the Cornell College of Forestry in 1901. He later graduated in Arts with the class of 1904, specializing in botany and entomology. His Master's thesis is written under Professor Comstock. Mr. Woglum is a member of Gamma Alpha and Sigma Xi.



RUSSELL SAGE WOGLUM

Walter S. Thornber also takes his M. S. in Agr. For picture and write-up see Countryman for April, 1905.

Candidates for the Degree B. S. in Agr.



CHARLES ARONOVICI

Mr. Aronovici was born in Botosani, Roumania, in 1882. He entered the Gymnasium of Botosani, where he took the degree of B. L. He spent one year in Paris University where he gained experience in teaching French and German. Mr. Aronovici arrived in America in December, 1900, and taught mathematics and languages in the Agricultural School of New Jersey, from which he later graduated.



GEORGE WENDELL BUSH

Mr. Bush prepared for college at the Newark Valley High School and the Oswego Free Academy, being graduated from the latter in 1901. While in the Newark Valley High School he won the silver medal for oratory and debate, and was chosen to speak at the Tioga County oratorical contest. In the fall of 1901 he entered Cornell where he has made a specialty of dairy husbandry, animal industry and agronomy.



LEE ARTHUR CHASE

Mr. Chase was born at Gloversville, N. Y., Feb. 12, 1881. After graduating from the Gloversville High school he taught one term before entering Cornell in 1901. He has given considerable attention to chemistry and during his junior and senior years has devoted much time to agricultural analysis, which he intends to follow up as a profession.

Mr. Cox was born in Canton, Ohio, studied for two years in the Arts college of Western Reserve University and entered Cornell in 1903. He has worked on farms during the summer and has also had business training in banking and commercial traveling. His special interest is in horticulture and entomology and after a year's experience in the field he expects to return for graduate work.

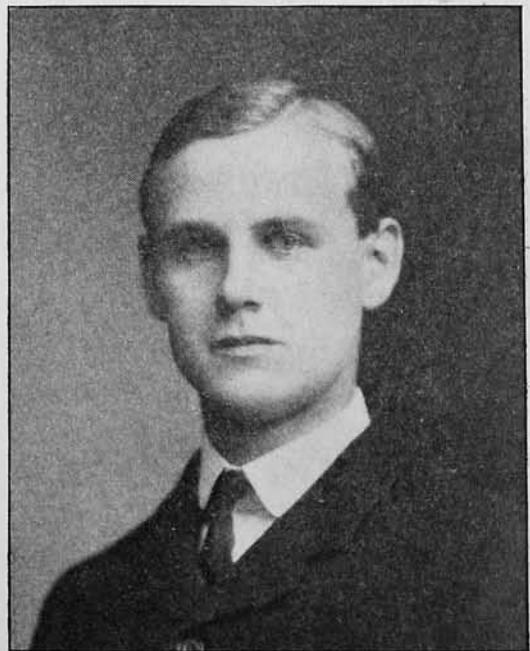


HERBERT RANDOLPH COX



LAWRENCE GREEN DODGE

Mr. Dodge was born at Wenham, Massachusetts, in 1882. He spent four years in the district school, five years in the Beverly High School and four years at Harvard College where he received his A. B. degree in 1904. While a student at Harvard he gave considerable attention to scientific studies and during the past year at Cornell his work has been in Agronomy, Horticulture, Animal Industry and Chemistry.



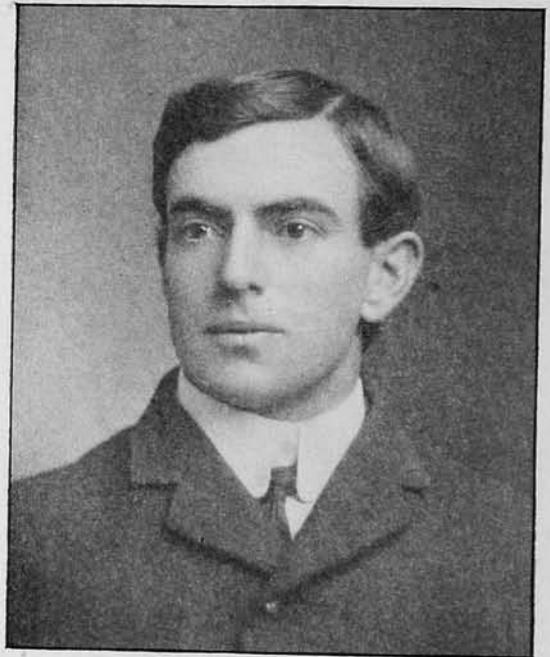
WILLIAM ROBERT DUNLOP

Mr. Dunlop received his early training in the Fayetteville schools and entered Cornell in the fall of 1901. He has devoted most of his time to dairy husbandry and expects to follow this line of work in the future. During the last two or three years he has visited many of the largest and best equipped dairy plants in New York, New Jersey and Pennsylvania. Last year his entire summer's vacation was spent at the Walker Gordon Laboratory Co., Plainsboro, N. J.



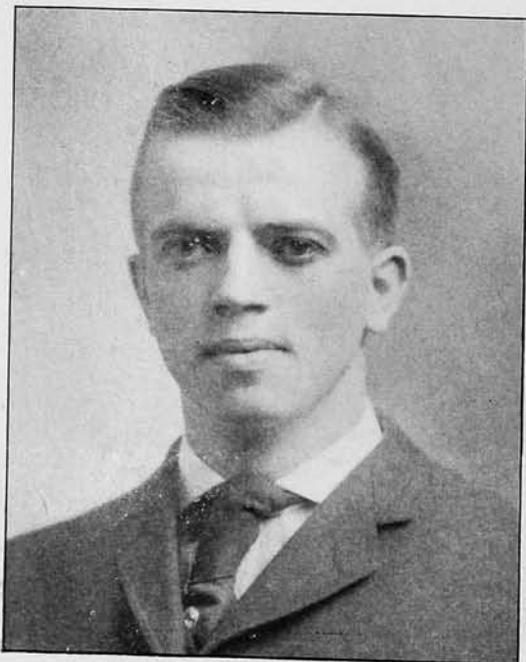
LESTER CARMAN GRIFFITH

Mr. Griffith was born at East Rockaway, New York, in 1881. Most of his life has been spent in a suburban country home. He was graduated from the South Side High School in 1900 and then took a post-graduate course. For two years he was in the New York State College of Forestry and at its unhappy ending, took up landscape architecture. During the past year he has given special attention to the landscape treatment of railroad property.



JAMES GARFIELD HALPIN

Mr. Halpin was born on a farm near Odessa, N. Y. He was graduated from Cook Academy, at Montour Falls, N. Y., in both the classical and scientific courses, and entered Cornell with advanced credit in the fall of 1901. He has specialized in poultry husbandry and during the past year has been president of the Poultry Association. Mr. Halpin expects to return to his father's farm and engage in dairying and general stock raising.



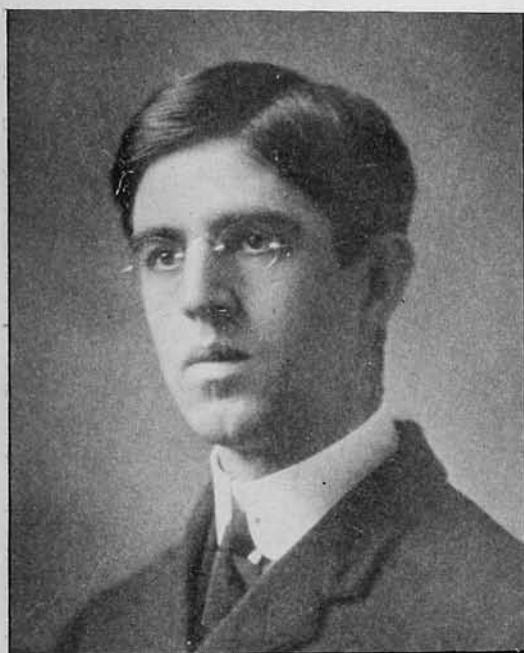
HANS WELLER HOCHBAUM

Mr. Hochbaum was born in Chicago in 1881. He studied in the North Division High School and worked four years with Mr. Emil Buettner of Park Ridge, Ill., a wholesale grower of cut flowers. He entered Cornell in 1901 and during his entire course has specialized in horticulture, paying particular attention to floriculture and landscape design. Mr. Hochbaum expects eventually to go into the commercial culture of carnations and other cut flowers.

Mr. Hungerford was born on his grandfather's farm near Speedsville, N. Y., in 1883. He was graduated from the Ithaca High School in 1901, from the Latin Academic course, and entered Cornell the same year. While in the University he has been actively interested in his father's milk business in this city. When other work has not pressed too hard he has supervised several official butter records under the direction of Professor Wing.



JAY CLARK HUNGERFORD



HOWARD SCOTT LOOP

Mr. Loop was born at Northeast, Pa. He was graduated from the High School of that place and in the fall of 1901 entered Cornell University. Mr. Loop was brought up on a fruit farm and has made horticulture his specialty in college. Last winter at the New York State Fruit Growers' Association held at Geneva he won first prize in a student fruit-judging contest.



FLOYD JOHN PORTER

Mr. Porter was born Sept. 4, 1883, at Ithaca, N. Y. After graduating from the Ithaca High school he entered Cornell in 1901, specializing in agricultural chemistry. He holds the interscholastic record of putting the 12-pound shot, 46 feet 7 inches. He also holds the Cornell record of 45 feet $\frac{1}{2}$ inch, made at Philadelphia, May 26, 1905, when his Alma Mater won the intercollegiate meet for the first time in thirty years.



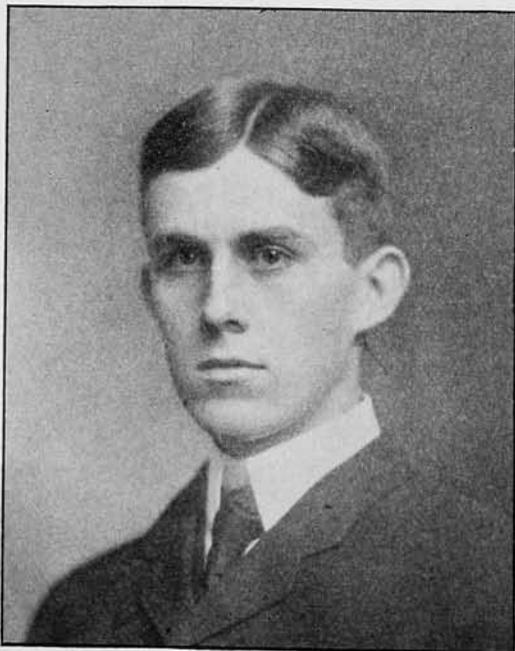
NORMAN RATCHFORD

Mr. Ratchford was born at West Nanticoke, Pa. After graduation from the public schools he taught three years in Plymouth township, Pa. In 1898 he entered the Wyoming Seminary, Kingston, Pa., and was graduated from the Latin Scientific course in 1900. In 1898 Mr. Ratchford became interested in a truck farm and ever since has spent his vacations on this farm.

Mr. Sawai was born at Ozu, Qyo Province, Japan. He graduated from the Doshisha Institute, Kyoto, came to America in 1898, and entered Cornell the following year. He found University life very hard for a penniless Jap. boy and in his third year was obliged to stay out because of lack of money. Two years later Mr. Sawai returned and now completes his work successfully with the class of '05.



ZENHICHI KITAGUN SAWAI



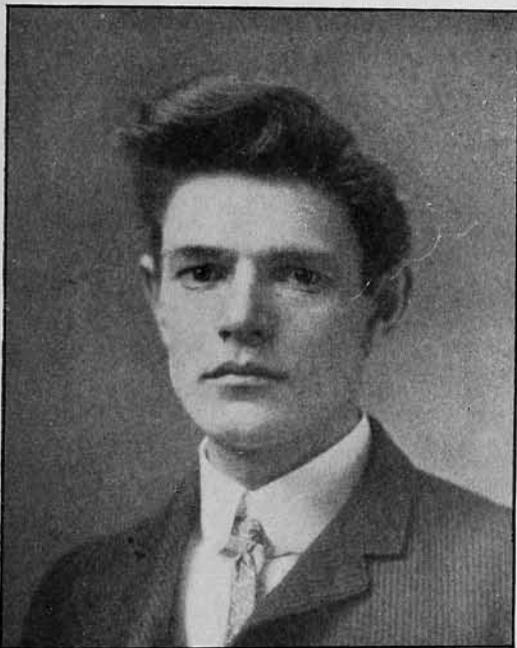
RAY CLINTON SIMPSON

Mr. Simpson was born at Vincennes, Indiana, in the year 1882. He attended the city schools, and later the Vincennes University, where in 1901, he was duly graduated. Mr. Simpson entered Cornell in 1902 and will take his B. S. A. degree this year. He has specialized in Horticulture and also to some extent in Soils. He is especially proficient in nursery and orchard work, having been raised to the business. The subject of his thesis is "Budding with Special Reference to the Cherry."

Miss Sock prepared at the Silver Creek Union School for the Fredonia Normal and was graduated, in the classical course, from the latter in 1897. Teaching was her forte and at this she spent one year in the district school at Smith's Mills, N. Y., and later three years in the second grade at Lindenhurst, N. Y. In 1901 she entered the Agricultural College at Cornell from which she expects to take a B. S. A. this June.



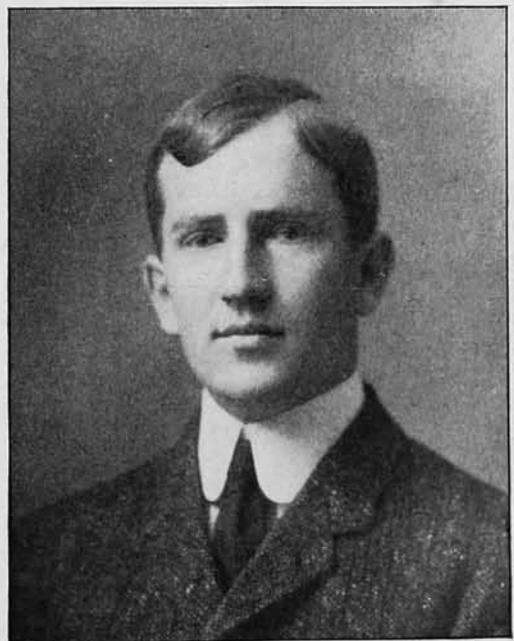
EMMA MARION SOCH



JAMES MALCOLM SWAINE

Mr. Swaine was graduated from Yarmouth Academy, Yarmouth, N. S., and later from the Provincial Normal School, Truro, N. S. After teaching for two years at Ohio, N. S., he entered the Truro Science School and School of Agriculture, from which he was duly graduated. He was later, for two years, principal of the St. Ninian St. High School, Antigonish, N. S., and entered Cornell in September, 1904, with the Senior Class.

Mr. Taylor was born on a farm near Leonard, Chester County, Pa., in 1881. After finishing his high school course at Friends Select School, Philadelphia, graduating with the class of 1901, he entered Cornell in the College of Civil Engineering with the class of '05. But having been born and reared in the country he could not resist the charms of rural life and changed to Agriculture after a taking a year and a half of Engineering.



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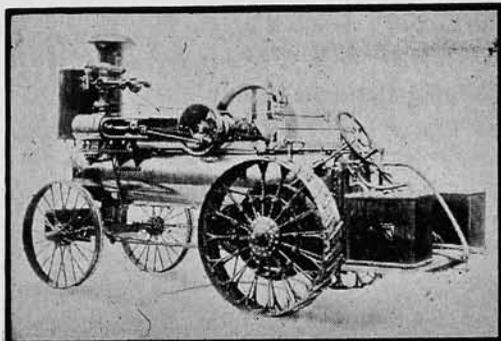
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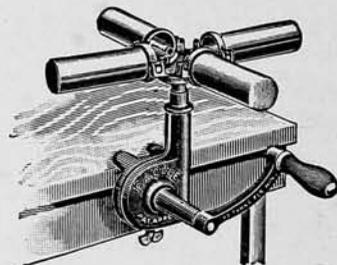
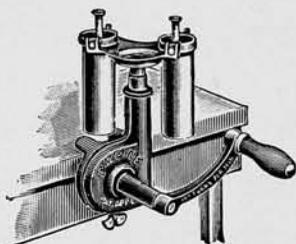
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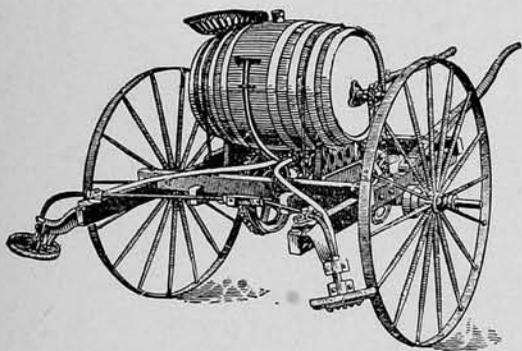
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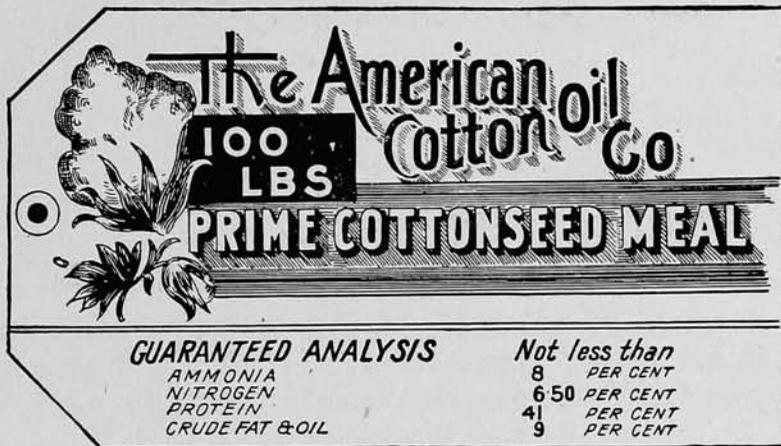
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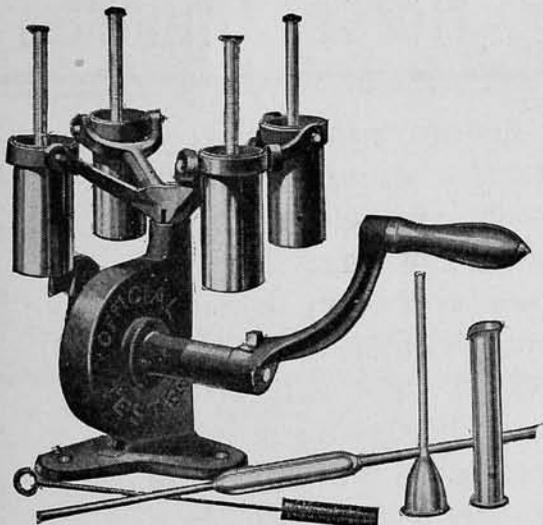
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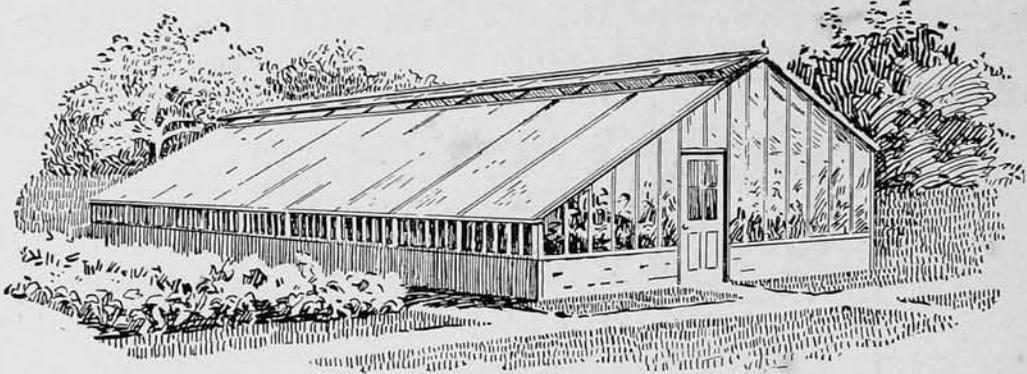
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