



STATION NEWS

A House Organ for Station Employees
Not for Publication Without Consent

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New York State Agricultural Experiment Station, Geneva

SPECIAL GARDEN PLANNED

That plot of land that has been plowed on the other side of Collier Drive across from Food Science is for a very special purpose. Plans are for the 50-foot x 100-foot area to be a very unique vegetable garden containing only varieties that were grown in New York State 100 and 200 years ago. Working on the project are Bob Becker, Morrie Vittum, Sam Braverman, and Pat Krauss. This garden is only one of several special projects planned for both the Bicentennial celebration of the country and also the Centennial celebration of the founding of the agricultural experiment station system in the United States. Other projects being planned are an open house and a centennial State Fair exhibit.

Growing in that vegetable garden next year will be (we hope) beets, carrots, cabbage, bush and pole beans, flint

corn, grain corn, sweet corn, melons, and squash. Wherever possible, the same cultural techniques will be used in planting and caring for these vegetables as a century and more ago.

We hope that this garden will provide an added treat for the more than 10,000 visitors who come to the Station each year to tour our facilities.

APPOINTMENTS

Mark Blume, a graduate of SUNY College of Environmental Science and Forestry at Syracuse, joined the Seed and Vegetable Sciences Department November 6 as an Experimentalist. Mark will serve as a seed technician, spending most of his time in the germination area. He has completed most of the requirements for a M.S. degree in plant pathology at Syracuse, is married, and has one child.

Dick Fox rejoined Seed and Vegetable Sciences November 6 as a Technical Aide. Dick will work with departmental research programs during the winter and will assist Bob Becker and county vegetable agents in field demonstration trials during the growing season. Dick is from New Hartford. He received an ASS degree from Morrisville in 1970 and a B.S. degree from Cornell with a major in Natural Resources, in 1972.

Judith Nedrow is a new Laboratory Assistant in Entomology working with Chuck Eckenrode. She will be assisting Chuck in rearing insects and other laboratory duties. She received her B.S. degree in Agricultural Cooperative Extension from Cornell's College of Agriculture and Life Sciences. Oh, yes, she is Dona Nedrow's sister. Judith's appointment is effective November 6.

Jan Fischbeck joined the Department of Food Science and Technology November 20 as a Chemical Analyst I. She is working with John Bourke and George Rickey, assisting in chemical analyses of feeds, fertilizers, and limes. Jan has her B.A. degree in biology from William Smith College. She lives in Geneva with her husband, James.

Also joining the Department of Food Science and Technology November 20 was Audrey Gardner and Barbara Reynolds. Both will be working with John Bourke and George Rickey. Audrey will be supervising and assisting in bacteriological testing of animal feeds. Barbara is assisting in biological testing of animal and pet foods. Audrey received her B.S. degree in medical technology from Rochester Institute of Technology. She lives in Newark with her husband, Tom, and two sons, Lance and Stephen. Barbara has an A.S. degree in math and science from Auburn Community College. She lives in Seneca Falls.

John Martini, Food Science and Technology has accepted appointment as Chemical Analyst II effective November 20. John works with John Bourke and George Rickey in supervising and assisting in chemical analyses of animal and pet foods. He joined the department in May 1973 where he worked with John Bourke in analyzing fruits and vegetables for pesticide residues. He has a B.S. degree in natural science from Boston College. John lives in Penn Yan with his wife, Ann. The couple has three children, Peter, Sarah, and Maeve.

COURTESY APPOINTMENT

Sam Braverman has been given a courtesy title of Associate Professor of Plant Introduction and of Plant Pathology. He formerly held the courtesy title of Associate Professor of Plant Introduction. Sam has been the Research Plant Pathologist for the USDA NE-9 Regional Plant Introduction Station at Geneva since 1957.

RESIGNATION

It was with deep regret that the Department of Seed and Vegetable Sciences accepted the resignation, on a physical disability basis, of A. Fenton Carruth. "Fent" joined the department July 16, 1953 as an experimentalist. For more than 22 years he served the department in many ways, assisting in projects in the fertilizer, irrigation, physiology, and plant breeding areas. His friendly manner and deep interest in people made him one of the most popular individuals at the Station. We hope that he will stop in frequently to say hello, and we wish him a rapid and complete recovery from the affliction that he is fighting.

MEETINGS AND SEMINARS

Mary Ann Boettger, Mike Dickson, Gary Harman, and Gerry Marx (Seed and Vegetable Sciences) and Bob

Becker (Extension) went to East Lansing November 4-6 to attend the National Pea Improvement Association and Bean Improvement Conference meetings.

Sandy Davis (Entomology) attended a Corn Commodity meeting at Rochester on November 6.

At the Entomoloquium of the Entomology Department on November 7, Ron Kuhr spoke on "Environmental Biology at the University of Guelph."

Haruo Tashiro (Entomology) was the speaker at the Entomoloquium on November 21. His topic was "Entomology in Hawaii."

Gerturde Catlin (Entomology) spoke to the students in Biomedical Photography at the Rochester Institute of Technology on November 13. Her subject was "Photography in Science Research." In her talk she gave the students pointers on how to perform as a photographer in an organization, including how to get and keep a photographic job.

Clara Splittstoesser (Entomology) gave a lecture at the November 24 Jugatae meeting at Cornell. Her subject was "Mechanisms of the Infective Process of *Bacillus popilliae* in the European Chafer, *Amphimallon majalis*." Included in the talk was a discussion of the mode of invasion by and host defense responses to milky disease bacteria in scarabaeid grubs.

Wendell Roelofs (Entomology) presented a seminar on his trip to the People's Republic of China. On November 14 he spoke on "People's Republic of China—Scenes, Societies, and Insects."

Ed Glass (Entomology) was in Washington, D. C. on November 20 and 21 attending a Pest Management Workshop meeting.

Henry Bennett of the New York State Fruit Testing Association will attend the Directors Meeting of the Dwarf Fruit Tree Association and the Michigan State Hort. Society meeting in Grand Rapids, Michigan on December 3 and 4.

Robert Musselman (Pomology and Viticulture) attended the NE-82 meeting on Air Pollution Effects on Vegetation in North Haven, Connecticut on November 4 and 5.

Donald Ourecky (Pomology and Viticulture) attended the NCR-22 Small Fruits meeting in Chicago on November 5 and 6.

Robert Pool and Jim Cummins (Pomology and Viticulture) attended the National Germ Plasm Repository Committee meeting in Minneapolis, Minnesota November 5-6.

Jim also attended the NE-14 Technical Committee meeting in Hadley, Massachusetts on October 16-17.

Nelson Shaulis, Don Crowe, and Otis Curtis (Pomology and Viticulture) attended the 37th Annual New York State Pesticide Conference at Cornell on November 10-13. Nelson presented a paper authored by Nelson Shaulis and D. E. Crowe entitled, "Glyphosate for Vineyard Weed Control." Otis presented a paper entitled, "Effects of Glyphosate on Apples."

The Long Island Vegetable Research Farm sponsored a tour of the Vineyard Laboratory in which Nelson Shaulis and Stan Howell were participants on November 10.

Dr. G. S. Howell presented a Horticulture Seminar on November 18. The title of his presentation was "Cold Hardiness of Grapevines."

Richard Smart, Ph.D. candidate in the Pomology Department at Ithaca, presented a Horticulture Seminar on November 4 entitled, "The Radiation Microclimate for Vineyards. I. Yield Expression II. Fruit Temperature." Dick left Ithaca on November 20 to return to his native Australia and will be accepting a position at Roseworthy College in Roseworthy, South Australia.

Recent speakers in the seminar course on "Current Topics in Diseases of Fruit Crops" in the Plant Pathology Department at Ithaca included Bob Gilmer, who spoke on "Recent Developments in Grape Virus Research in New York" on November 4, and John Gilpatrick, who gave a seminar on "Progress and Problems in Chemical Manage-

ment of Tree-fruit Diseases" on November 25.

Harvey Hoch (Plant Pathology) gave a talk on "Staining and Cytochemistry" in the Ithaca Plant Pathology seminar course, "Cytology of Plant Diseases" on November 13.

Jerry Uyemoto, Mike Szkolnik, Roger Pearson, Herb Aldwinckle, and Joe Preczewski (Plant Pathology) gave papers at the meeting of the Northeastern Division of the American Phytopathological Society at New Haven, Connecticut November 5-7. Dave Pieczarka, graduate student with George Abawi (Plant Pathology), senior-authored two papers on his work on root rot of beans caused by *Pythium* species. Jerry Uyemoto also chaired a session on Fungus Disease. Other plant pathologists attending the meeting included Rosario Provvidenti, Al Braun, Bob Seem, Harvey Hoch, and Jim Hunter and also Sam Braverman (Plant Introduction).

Plant Pathology Department members speaking at the New York State Pesticide Conference at Ithaca November 10-13 were Jim Hunter, Al Braun, Roger Pearson, Herb Aldwinckle, Mike Szkolnik, and John Gilpatrick. Bob Seem chaired the Fruit Diseases session.

Desmond Dolan (Plant Introduction) attended the ARS Germplasm meeting and the National Plant Germplasm meeting, both held in Minneapolis, Minnesota, on November 4-7.

Sam Braverman attended the National Pea Improvement Association meeting, Michigan November 4 where he presented a paper, "The Multiplication, Evaluation, and Preservation of Pea Germplasm in the Plant Introduction Program."

John Oughterson (Plant Introduction), USDA Safety Officer for the Geneva location, attended the recent NAA Safety meeting held at University Park, Pennsylvania. John reported that Geneva is meeting its safety requirements satisfactorily.

Desmond Dolan attended the Plant and Entomological Sciences Technical Advisors Conference held in Beltsville, Maryland on November 11-13.

Malcolm Bourne (Food Science) attended the Second Advance Seminar in Food Technology for Latin America held in Bogota, Colombia October 29-November 6. Malcolm gave a lecture entitled, "Textural Parameters in Fabricated Foods."

A delegation from the Food Science and Technology Department met in Ithaca on November 17 with key people from the Ralston-Purina Company, led by Vice-chairman of the Board (and past Secretary of Agriculture) Clifford Hardin. Included in the group to report on our research activities were Terry Acree, Malcolm Bourne, Ross Hackler, Y. D. Hang, Willard Robinson, and Gil Stoewsand.

"The Role of Fiber in the Diet" was the title of a symposium co-sponsored by the Western New York Section of the Institute of Food Technologists and the Institute of Food Science, Cornell University. The symposium was held in Rochester November 13. Geneva attendees included Gil Stoewsand, John Babish, Mark Banner, I. El Rawi, Malcolm Bourne, Muhamed Ismail, Ross Hackler, Don Splittstoesser, Bob LaBelle, Reg Walter, and Don Downing who coordinated the symposium.

Terry Acree and Richard Nelson visited the LaBatt Brewers of Canada, Ltd., London, Ontario on November 4-5 and attended a special seminar held there in connection with their wine research program.

John Stamer (Food Science) attended a Food Microbiology Research Council meeting held in Chicago, Illinois November 4-7.

John Bourke (Food Science) attended the fall meeting of the IR-4 Technical Committee held at Rutgers University on November 18 and 19.

VISITORS

Hisashi Shirasawa, an engineer from Kikko Foods, Japan, spent 2 weeks in the Food Science and Technology

Department studying fruit processing with Jim Moyer and Jerry Van Buren. On November 3, two other representatives of the company, M. Yemaguchi, the managing director, and Junichi Uno, from the research laboratories, visited the department. Kikko Foods is a subsidiary of Kikkoman Shoyu Co., Ltd., "the General Foods of Japan." Our visitors brought greetings from Drs. Sugimoto and Fuskushima, who between them spent 4 years in Food Science from 1966-1970.

Dr. H. K. Palta and Dr. (Mrs.) Asha Palta of Panjab University and presently at the Botanical Institute, University of Dusseldorf, West Germany, visited with Anwar Khan (Seed and Vegetable Sciences) on November 8 to discuss his research. They also visited with Dick Robinson.

Dr. Wen-hsiung, associate professor of plant pathology at the University of Hawaii, visited the Plant Pathology Department to discuss mutual interests with several staff members. On November 4, he gave a seminar on "Development and Promotion of Biological Control of *Phytophthora* Root Rot of Papaya in Hawaii."

Dr. Peter Vig from Hungary was a recent visitor to the Department of Pomology and Viticulture.

Earth Science classes from Midlakes High School visited the Vegetable Research Farm weather station on November 17 and 19. They were ably guided by Gerry Gibbs.

STORK NEWS

Carol and Marvin Harris are the proud parents of a daughter, Jennifer Laurel, born October 26. Marvin is now a member of the Department of Entomology, Texas A. & M. University, College Station, Texas.

Congratulations are extended to John and Ann Martini (Food Science) on the birth of their daughter, Elizabeth Ann, on November 14.

SYMPATHIES

We extend our sympathy to George Fryer on the recent death of his wife, Marjorie.

We were saddened to learn of the death of Dr. Harold Conn. He was Chief in Research in bacteriology until his retirement May 1, 1948.

We also extend our sympathy to Peg Bosch on the loss of her father, James Hefferon. "Jim" was a former employee of the Station.

SHORT COURSE STATISTICS LECTURES

Short course statistics lectures are due to begin about the first week in January. John Barnard will be the lecturer with guest lectures by Morrie Vittum and John Bourke. Further information as to exact date of the first lecture, place, and times will be posted very soon on your department bulletin boards.

UYEMOTOS RETURN

Jerry, Susan, and Holly Uyemoto recently returned from their sabbatical leave spent at Davis, California and Bozeman, Montana. Jerry is giving a seminar on his sabbatical research on December 4 in the Entomology-Plant Pathology Laboratory seminar room at 3:15 p.m.

HEALTH

George Slate is presently a patient in Clifton Springs Hospital and Clinic.

Wilma Spangle is at home recuperating from recent surgery at Clifton Springs Hospital and Clinic. It will be several weeks before she returns to her job in Seed and Vegetable Sciences, Sturtevant Hall. If any of her friends here at the Station would like to send her a card or note, her address is P. O. Box 2, Seneca Castle 14547.

CLASSIFIED

Wanted to buy: Used black and white or color TV. Sue Dwyer 787-2228.

LIBRARY CORNER

Book Shelving and Returns

The increasing number of books and journals which are missing both from the Main Library and the Entomology-Plant Pathology Library have led us to revise, or at least clarify, the Library's position on shelving books and return of books to the Library.

Please leave books and journals which you have signed out and are returning to the libraries in either the wire basket on the round table in the Main Library or on the window ledge of the Librarian's office in the Entomology-Plant Pathology Library.

Please leave books and journals which have been used in the Entomology-Plant Pathology Library, but not signed out, on the large rectangular table in this room, and those materials used in the Main Library on any table in the reading room or stack section of the Library.

PLEASE DO NOT RESHELVE ANY JOURNALS OR BOOKS. Anything shelved even one or two books away from its correct position is essentially lost. It is easier for the Library staff to shelve all of these materials than it is to locate a book which has been misplaced on the shelves.

Also, books, pamphlets, etc. which are being donated to the Library should be left on the desk in the Librarian's office in the Entomology-Plant Pathology Library or given to the Librarian in the Main Library. We ask that you not stick them indiscriminately on a shelf somewhere in either Library—these materials should be cataloged so that others have access to them through the card catalog.

It is not the Library's intention to make it more difficult to use library materials. We are attempting merely to provide better access to these books and journals for library users. Thank you for your help.

Missing

Audus. THE PHYSIOLOGY AND BIOCHEMISTRY OF HERBICIDES. Call number 632.95 Au2.

DesCars, A. A TREATISE ON PRUNING FOREST AND ORNAMENTAL TREES. Call number 634.9 D45.

Rauch. JAM MANUFACTURE, 2d ed. Call number 664.152 R19.

Hedrick, U.P. MANUAL OF AMERICAN GRAPE GROWING. Call number 634.8 H35.

Please do not return these missing books to the shelves, but rather to the Librarian's office, so that they may be loaned to people searching for them. Thank you.

Bibliography of Electrophoresis

As a supplement to our 1975 subscription to the JOURNAL OF CHROMATOGRAPHY, the BIBLIOGRAPHY OF ELECTROPHORESIS 1968-1972 AND SURVEY OF APPLICATIONS has been sent to us. Call number is 544.9205 J82.

In Time for Christmas

It is a rare book that combines social history and recipes, but a new 324-page volume entitled FOOD ON THE FRONTIER, MINNESOTA COOKING FROM 1850 to 1900 WITH SELECTED RECIPES has both in good measure. It offers detailed information on how pioneer women coped with the everyday problems of cooking, canning, drying, pickling, and preserving in extremes of temperature the foodstuffs that nourished settlers' families. More than 275 recipes from Minnesota's 19th-century cookery guides are sprinkled throughout the text. If "Toad-in-the-Hole," parsnip stew, grandmother's Graham Bread, plum catsup,

venison roasts and johnnycakes tempt your palate, this book can be ordered from the Minnesota Historical Society Order Department, 1500 Mississippi Street, St. Paul, Minnesota 55101. Price is \$6.50 paper cover and \$10.50 for hard cover, with a \$.50 handling and postage charge.

New in the Library

POSTHARVEST BIOLOGY AND HANDLING OF FRUITS AND VEGETABLES. Edited by Norman F. Haard and D. K. Salunkhe. Avi, 1975. Call number 664.81 P84.

The papers contained in this volume were originally presented at the Thirty-third Annual Meeting of the Institute of Food Technologists in Miami. The subject matter touches on biochemical control mechanisms in the postharvest cell, preharvest considerations, measurement of quality indices, and commercial handling of harvested fruits and vegetables. From this point of view the volume is comprehensive.

Callaham, L. I. RUSSIAN-ENGLISH CHEMICAL AND POLYTECHNICAL DICTIONARY, 3d ed. Wiley, 1975. Call number 540.3 C13 (Main reading room).

PHYSICAL ASPECTS OF SOIL WATER AND SALTS IN ECOSYSTEMS. Edited by A. Hadas and others. Springer-Verlag, 1973. (Ecological studies, v. 4). Call number 631.432 P56.

Papers from the symposium held in Rehovot, Israel, August 19-September 4, 1971, sponsored by the International Society of Soil Science. Both theoretical and practical aspects of soil techniques are considered here, and the subjects covered include the physical phenomena associated with the movement of water and ions in soil, the interactions of water with soil, evaporation from soil and plants, water requirements of crops, and the management of salinity.

Edwards, C.A. PERSISTENT PESTICIDES IN THE ENVIRONMENT, 2d ed. CRC Press, 1973. Call number 574.5 Ed9 (Entomology-Plant Pathology Library).

This review attempts to bring together much of the available comparative data on the amounts of residues in the environment. It is not exhaustive, but it shows where the largest residues are and how they are concentrated from the physical environment into plants and animals and from lower organisms into the higher trophic levels of food chains.

Murphy, Joanne S. and Janet R. Orr. OZONE CHEMISTRY AND TECHNOLOGY. A REVIEW OF THE LITERATURE: 1961-1974. Franklin Institute Press, 1975. Call number 665.89 M95.

Due to the scientific community's increased interest in ozone—its useful applications and its possibly harmful effects on life—the editors have brought together the collection of information on ozone which has been abstracted from over 4,000 scientific journals over the past 13 years. Included with the references are overviews written by leading ozone researchers which give perspective and depth to the subject matter.

CLIMATES OF NORTH AMERICA. Edited by Reid A. Bryson and F. Kenneth Hare. Elsevier, 1974. (World survey of climatology, v. 11). Call number 551.62 W89.

The unique distribution of land, sea, and mountains produces a distinctive climatic pattern, but while the climatic contrasts are not greater than may be found elsewhere, the weather variability which goes into the makeup of North American climates is maximized by the geography. The focus of this volume is on the general circulation and the terrain, and the book contains many analyses of factors and parameters not found in previous general treatments, such as airstream analyses and maps of precipitable water distribution.

FOOD: POLITICS, ECONOMICS, NUTRITION AND RESEARCH. Edited by Philip H. Abelson. American Association for the Advancement of Science, 1975. Call number 338.19 F73.

For the past 3 years the world has witnessed a critical period of serious shortfalls in worldwide crop production and soaring prices of agricultural commodities—events that precipitated a new wave of alarm concerning world food prospects. Articles included in this compendium are authored by a broad spectrum of scientists specializing in agriculture and nutrition and provide a provocative reassessment of the period of crisis just past and a realistic look at our options for the future.

Nobel, Park S. INTRODUCTION TO BIOPHYSICAL PLANT PHYSIOLOGY. Freeman, 1970. Call number 581.1 N66.

The first three chapters of this book present the physical description of water relations and ion transport involving plant cells. The second part of the book deals with the interconversion of various forms of energy. The text is extensively cross-referenced so that particular aspects can be selected for consideration. The main emphasis is on concepts that are important for a broad biological understanding of processes, particularly *in vivo*.

Zimmermann, Martin H. and Claud L. Brown. TREES, STRUCTURE AND FUNCTION. Springer-Verlag, 1971. Call number 582.1604 Z6.

This book is devoted largely to those aspects of structure and function which are peculiar to trees. It attempts to close part of the existing gap in the knowledge of organismal plant physiology. Basic processes such as photosynthesis, respiration, metabolism and nutrition are not handled here; however, problems relating to certain aspects of dormancy and nutrition are discussed along with other functional aspects. The text emphasized the relationships between structure and function.

International Symposium on Recent Advances with Pyrethrum the Natural Insecticide, University of Minnesota, 1972. PYRETHRUM, THE NATURAL INSECTICIDE. Edited by John E. Casida. Contributors: Norman B. Akesson and others. Academic Press, 1973. Call number 632.951 (Entomology-Plant Pathology Library).

Phrethrum is an ecologically sound, natural insecticide with a long history of safety and effectiveness. This book reviews the chemistry, toxicology, pharmacology, and applications of pyrethrum and evaluates the extent to which it meets today's changing concepts of the ideal insecticide.

Quispel, A. ed. THE BIOLOGY OF NITROGEN FIXATION. American Elsevier, 1974. (Frontiers of Biology, v. 33). Call number 631.847 Q4.

Nitrogen is one of those more abundant molecules which are essential to life, but, in its free atmospheric form, is relatively useless to biological organisms. Its importance to plant growth, however, has led to an ever increasing amount of research being made into how plants fix atmospheric nitrogen, and this volume has been written to review and highlight these recent advances. The first part of the book examines the biological aspects of nitrogen fixation, dealing with the various organisms which are capable of this feat. The second part explains our current biochemical and genetical knowledge and draws important comparisons between different systems with regard to their prerequisites for nitrogen fixation.

PLANT CARBOHYDRATE BIOCHEMISTRY: Proceedings of the Phytochemical Society Symposium, Heriot-Watt University, Edinburgh, Scotland, April, 1973. Edited by J. B. Pridham. Academic Press, 1974. Call number 581.19294 P69.

This volume sets out to review the current progress in our understanding of the metabolism of plant carbohydrates.

The papers presented here cover the following topics: characteristics of a primary carboxylating mechanism; relationship between gluconeogenesis and carbohydrate oxidation in higher plants; plant polyols; aspects of sucrose metabolism; nature and function of higher plant α -galactosidases; structure and function of plant glycolipids; aspects of the enzymic degradation of starch; starch metabolism: synthesis versus degradation pathways; primary cell wall and central control of elongation growth; sites of synthesis of the polysaccharides of the cell wall; relation of plant enzyme-catalyzed β -(1,4)-glucan synthesis to cellulose biosynthesis *in vivo*; biosynthesis of pectin and hemicelluloses; biosynthesis of algal polysaccharides; chemical and biochemical aspects of fungal cell walls; and glycoproteins of higher plants.

Moriarty, F., ed. ORGANOCHLORINE INSECTICIDES: PERSISTENT ORGANIC POLLUTANTS. Academic Press, 1975. Call number 632.95042 M82 (Entomology-Plant Pathology Library).

This book represents an attempt to indicate the general principles which will help to predict and control events, and to pinpoint the important gaps in our knowledge. While the range of topics covered is wide—from analytical chemistry to possible legal and economic restraints, with the major emphasis being placed on biological effects and responses—attention is restricted to persistent organic pollutants, and in particular to the organochlorine insecticides which are by far the most studied. The ideas that are proposed will, however, apply to a far wider range of pollution problems.

BIOSYNTHESIS AND ITS CONTROL IN PLANTS: Proceedings of the Phytochemical Society Symposium, University of Kent at Canterbury and Sittingbourne Laboratories, Shell Research Limited, Sittingbourne, Kent, March 1972. Edited by B.V. Milborrow. Academic Press, 1973. Call number 581.1929 B52.

Contents: metabolic control in higher plants; aspects of the regulation of amino acid biosynthesis in bacteria; amino acid biosynthesis and its control in plants; regulation of ribosomal RNA synthesis; plant cell cultures: their potential for metabolic studies; ethylene and protein synthesis; biosynthesis of gibberellins; stereochemical aspects of enzyme action; control of fatty acid biosynthesis in plants; hormones and carbohydrate metabolism in germinating cereal grains; synthesis of chloroplast enzymes; regulatory mechanisms in the photocontrol of flavonoid biosynthesis; non-protein amino acids of plants: concepts of biosynthetic control.

Nehrling, Arno and Irene. THE PICTURE BOOK OF ANNUALS. Hearthsides Press, 1966. Call number 635.931 N31 (Seed Lab Library).

Nehrling, Arno and Irene. THE PICTURE BOOK OF PERENNIALS. Hearthsides Press, 1964. Call number 635.932 N31. (Seed Lab Library).

Hassler, John W. PURIFICATION WITH ACTIVATED CARBON. Chemical Publishing Co., 1974. Call number 662.93 H27.

The book deals with all facets of activated carbon, from its manufacture to its regeneration. The theoretical aspects of the phenomenon of adsorption, its application to industrial and environmental problems and the practical economy of these operations are topics treated comprehensively in the book. The author also describes its uses in manufactured goods such as paints, chewing gum, and reclaimed rubber.

NEW PROTEIN FOODS: TECHNOLOGY. Edited by A.M. Altschul. Academic Press, 1974. Call number 664.64 N21.

This first volume in the food science and technology series deals with the new protein technologies which affect the utilization of conventional protein foods. For

example, it looks at the fortification of cereals with amino acids to improve their protein impact; probes the new technologies for increasing the protein content of bread; examines new roles for legume seeds; analyzes the problems and new possibilities in marketing meats and poultry; surveys the burgeoning field of textured vegetable proteins; analyzes trends of protein technologies in Japan; and discusses the legal aspects of the introduction of new protein technologies.

NUTRITIONAL IMPROVEMENT OF FOOD LEGUMES BY BREEDING. Based on proceedings of a symposium sponsored by PAG, held at the Food and Agriculture Organization, Rome, Italy, 3-5 July 1972 and PAG Statement 22: "Upgrading human nutrition through the improvement of food legumes." Compiled and edited under the supervision of Dr. Max Milner. Wiley, 1975. Call number 663.3 N95.

This book provides in-depth analyses of what must be done to increase the production and improve the deficiencies of food legumes by genetic means. It underscores the food and nutrition problems of developing countries, where the need for better protein nutrition is greatest, and it emphasizes the priorities for increased productivity in terms of usefulness to governments, industry, and research scientists.

THE BIOLOGICAL EFFICIENCY OF PROTEIN PRODUCTION. Edited by J.G.W. Jones. Cambridge University Press, 1973. Call number 574.1 B52.

This volume reports the proceedings of a symposium held at the University of Reading in 1971, the main purpose of which was to consider the relative biological efficiency of alternative methods of protein production by both plants and animals, at the level of the tissue, the individual and the population, in a variety of environments. Introductory chapters set out the reasons for the concern about protein production and what meanings should be attached to the term biological efficiency, and economic and social aspects of protein production are considered.

White, Philip L. and Diane Robbins. **ENVIRONMENTAL QUALITY AND FOOD SUPPLY.** Futura Publishing, 1974. Call number 630.1 W58.

This book evolved from the Symposium on Environmental Quality and Food Supply sponsored by the Council on Foods and Nutrition and the Council on Environmental, Occupational and Public Health of the American Medical Association. Distinguished authorities in areas of food and resource chemistry, by-product recovery, pollution control, food production and processing, agriculture, soil science, consumerism, legislation, environmental engineering, pesticides, health science, and toxicology discussed their special concerns about the quality of the environment in relation to maintaining a safe and nutritionally adequate food supply.

Pielou, E.C. **ECOLOGICAL DIVERSITY.** Wiley, 1975. Call number 574.5 P61.

Ecological diversity has been an area of increasingly intensive studies in the past two decades. This book is the first that deals solely with the subject in an authoritative and comprehensive fashion.

Metcalf, Robert Lee and William Henry Luckman. **INTRODUCTION TO INSECT PEST MANAGEMENT.** Wiley, 1975. Call number 632.7 M56 (Entomology-Plant Pathology Library).

Pest Management is the ecological approach to pest control. Hence, this book uses a total systems approach that evaluates and integrates biological, chemical, and natural control factors into a unified program where economic damage is avoided and adverse effects on environmental quality are minimized.

ADVANCES IN APPLIED MICROBIOLOGY, v. 19, 1975. Call number 660.28449 Ad9.

Contents: culture collections and patent depositions; production of the same antibiotics by members of different genera of microorganisms; antibiotic-producing fungi; current status of nomenclature; significance of nucleic acid hybridization to systematics of actinomycetes; current status of nomenclature of antibiotic-producing bacteria; microorganisms in patent disclosures; microbiological control of plant pathogens; microbiology of municipal solid waste composting; nitrification and denitrification processes related to waste water treatment; the fermentation pilot plant and its aims; the microbial production of nucleic acid-related compounds; synthesis of L-tyrosine-related amino acids by β -tyrosinase; effects of toxicants on the morphology and fine structure of fungi.

Martin, James. **INTRODUCTION TO TELEPROCESSING.** Prentice Hall, 1972. Call number 621.38 M36.

Martin, James. **DESIGN OF REAL-TIME COMPUTER SYSTEMS.** Prentice Hall, 1967. Call number 651.8 M365.

Griffin, D. M. **ECOLOGY OF SOIL FUNGI.** Syracuse University Press, 1972. Call number 589.204 G87 (Entomology-Plant Pathology Library).

As soil receives most of the world's pollution, any increased knowledge of soil ecology is likely to be of value. The first part of this book provides a critical introduction to the background facts and concepts in the ecology of soil fungi. Reference is made to the nature and distribution of material in soil, and the significance of soil organisms other than fungi is discussed. The nature of fungal communities is described, and the phenomenon of fungal survival of substrate composition and microbial interactions is reviewed. The second part analyzes the physical ecology in greater detail. The influences of a wide range of factors, including temperature, pH, water potential, solute diffusion, and gaseous concentrations and diffusion rates are examined.

Rothery, Brian. **THE ART OF SYSTEMS ANALYSIS.** Prentice Hall, 1971. Call number 658.4 R74.

Strobel, Howard. **CHEMICAL INSTRUMENTATION; A SYSTEMATIC APPROACH.** Addison-Wesley Publishing Company, 1973. Call number 543.08 St8.

Woodroof, Jasper Guy and Bor Shiun Luh. **COMMERCIAL FRUIT PROCESSING.** Avi, 1975. Call number 664.8 W86.

Contents: history and growth of fruit processing; fruit harvesting, handling and storing; fruit washing, peeling, and preparation; seasonal suitability of fruits for processing; factors affecting microflora in processed fruit; canning; freezing; dehydration; brining cherries and other fruits; other methods of fruit processing; flavor and color of fruits as affected by processing; composition and nutritive value of raw and processed fruits; grades and standards for raw and processed fruits; storage life of canned, frozen, dehydrated and preserved fruits; plant sanitation and waste disposal; consumption trends and prospects.

ADVANCES IN ENZYMOLOGY, v. 43, 1975. Call number 612.015 N75.

Coulson, Kinsell L. **SOLAR AND TERRESTRIAL RADIATION.** Academic Press, 1975. Call number 551.5 C83.

The major emphasis in the book is on radiation instrumentation. Included is underlying theory which makes the book useful in understanding the basic radiative processes in the atmosphere.

Merkel, James A. **BASIC ENGINEERING PRINCIPLES.** Avi, 1974. Call number 620 M54.

Streets, Rubert B. **THE DIAGNOSIS OF PLANT DISEASES. A FIELD AND LABORATORY MANUAL EMPHASIZING THE MOST PRACTICAL METHODS FOR RAPID IDENTIFICATION.** University of Arizona Press, [fourth printing], 1975. Call number 581.2 St8 (Entomology-Plant Pathology Library).

Library).

Rapid and accurate diagnosis of plant disease is necessary before timely and proper measures can be suggested for control or prevention. In this edition, the text has been revised to include additional techniques, illustrations, and references. Important added topics are mycoplasma diseases, aerial infrared photography, injury to plants by air pollutants, how to get meaningful pictures, and more differential media for isolation of pathogens.

Mai, W. F. PICTORIAL KEY TO GENERA OF PLANT-PARASITIC NEMATODES, 4th ed., revised. Cornell University Press, 1975. Call number 595.182 M28 (Entomology-Plant Pathology Library).

This pictorial key is intended primarily for the use of students and others who wish to identify nematodes. The descriptive key, the accompanying photographs, the generic descriptions, and a paragraph or more listing the characteristics of genera will aid such users in learning to differentiate plant-parasitic nematodes from other types of nematodes that also occur in soil and plant tissue and to identify the plant-parasitic nematodes as to genus. Included in the key are all genera having one or more species proved to be parasitic to plants.

Leniger, H.A. and W.A. Beverloo. FOOD PROCESS ENGINEERING. Reidel, 1975. Call number 664 L54.

This book deals with theoretical and practical aspects of food process engineering in a general way. The principles of food process engineering are explained, using the concepts of processes and operations. The special character of food process engineering, as distinct from chemical engineering is stressed continually and those aspects in which food process engineering differs most strongly from chemical engineering are discussed most extensively.

Agrios, George N. PLANT PATHOLOGY. Academic Press, 1969. Call number 581.2 Ag8. (Entomology-Plant Pathology Library).

The first part of this book deals with general considerations of disease, the disease cycle, parasitism, and pathogenicity. This is followed by a presentation of the mechanisms by which pathogens cause disease and the mechanisms by which plants resist disease. The second part of the book deals with the infectious diseases caused by fungi, bacteria, parasitic higher plants, viruses and nematodes, and with the noninfectious diseases caused by environmental factors. The diseases caused by each type of pathogen are discussed comprehensively as a group and subsequently individually in detail.

U.S. Department of Agriculture. YEARBOOK OF AGRICULTURE, 1975. USDA, 1975. Call number 353.81 Y3 1975 (basement annex).

The Yearbook marks the 1975 centennial of the State Agricultural Experiment Stations. This Yearbook describes past achievements of the experiment stations, tells of their ongoing research into current problems that affect our lives, and peers into the future at rocks in the path and surmises how they may be dug out.

RHIZOCTONIA SOLANI, BIOLOGY AND PATHOLOGY. Based on an American Phytopathological Society Symposium on *Rhizoctonia solani* held at the Miami meeting of the Society, October, 1965. Edited by J.R. Parmeter, Jr. Univ. of California Pr., 1970. Call number 589.24 R34 (Entomology-Plant Pathology Library).

This volume, which includes over 1,000 references, is an attempt to organize present knowledge of this important pathogen into a comprehensive, condensed treatise and to clarify some of the confusion and disagreement on its taxonomy, nomenclature, biology, and pathology.

ENVIRONMENTAL DYNAMICS OF PESTICIDES, edited

by Rizwanul Haque and V.H. Freed. Plenum, 1975. Call number 574.5 En8 (Entomology-Plant Pathology Library).

Examining the behavior of chemicals in air, water, soil, and the biota, leading investigators from academic, industrial, and governmental laboratories discuss such topics as modeling in the environment; photochemical behavior; adsorption, leaching, and breakdown; vapor loss; interaction with biological macromolecules; and detoxication of pesticides by the biota.

LACTIC ACID BACTERIA IN BEVERAGES AND FOOD. Proceedings of a symposium held at Long Ashton Research Station, University of Bristol, 19-21 September 1973. Edited by J. G. Carr, C.V. Cutting, and G.C. Whiting. Academic Press, 1975. (Fourth Long Ashton Symposium). Call number 664.024 L11.

"The microbiological and resulting physical, chemical, and organoleptic changes that occur in fermentation and drying of foods are very important to mankind...I believe this is the first time that scientists from several countries have assembled to discuss various food products and the microorganisms and enzymatic changes that occur." These comments by the doyen of this subject, Carl Pederson, were from his concluding remarks at this symposium. One chapter in the section on acidified foods, "Recent developments in the fermentation of sauerkraut" was presented by John Stamer. Other participants from the Station present at the conference were Yong Hang and Don Splittstoesser.

U.S. Department of Agriculture, Committee on Land Use. PERSPECTIVES ON PRIME LANDS. Background papers for seminar on the retention of prime lands, July 16-17, 1975, sponsored by the USDA Committee on Land Use. USDA, 1975. Call number 353.81 C70 (basement annex).

Colombia. Ministerio de Education Nacional. ANALES DEL SEMINARIO AVANZADO DE TECNOLOGIA DE ALIMENTOS. Bogota, D.E., Colombia, 27 de junio al 6 de julio de 1973. Call number 664 Anl. (Gift of Malcolm Bourne, a participant at the seminar).

Ternes, Alan, ed. ANTS, INDIANS, AND LITTLE DINOSAURS. A celebration of man and nature for the 75th anniversary of *Natural History* Magazine. American Museum of Natural History, 1975. Call number 500.9 T27.

As well as containing articles on animals and insects, fossils, and the search for man's origins, native Americans and natives of other countries, this book deals with the energy crisis, famine, and the Green Revolution, and the future prospects of life on earth.

International Symposium on the Newer Trace Elements in Nutrition, Grand Forks, N.D., 1970. NEWER TRACE ELEMENTS IN NUTRITION. Ed. by Walter Mertz and W.E. Cornatzer. Dekker, 1971. Call number 612.3924 In8.

The first section of this book deals with the history and philosophy of trace element research and the mechanism by which the trace element interacts at the molecular level with the various components of metabolism. Subsequent chapters treat chromium, selenium, vanadium, nickel, zinc, and tin. The last part deals with new developments in trace analysis in biological materials: emission spectroscopy, gas liquid chromatography, and spark-source spectrometry.

Rao, Potluri and Roger Miller. APPLIED ECONOMETRICS. Wadsworth, 1971. Call number 330 R18.

RESIDUE REVIEWS, vol. 57, 1975. Call number 615.9 G95. ANNUAL REVIEW OF PLANT PHYSIOLOGY, vol. 26, 1975. Call number 581.082 An7.

Kern, Frank D. A REVISED TAXONOMIC ACCOUNT OF GYMNOSPORANGIUM. Penn. State U. Pr., 1973. Call number 589 K45 (Entomology-Plant Pathology Library).

This is the only existing authoritative taxonomic account of the species of fungi commonly known as cedar-apple

rusts. This presentation of seventy-three species of *Gymnosporangium* and related forms includes valid names, nonvalid names, and geographical distribution.

PHENOLOGY AND SEASONALITY MODELING. Edited by Helmut Lieth. Springer-Verlag, 1974. (Ecological studies, v. 8). Call number 574.5 P52.

Miller, L.P. PHYTOCHEMISTRY. Vol. I. THE PROCESS AND PRODUCTS OF PHOTOSYNTHESIS. Van Nostrand Reinhold, 1973. Call number 581.192 M61.

Weast, Robert C., ed. HANDBOOK OF CHEMISTRY AND PHYSICS, 56th ed. Chemical Rubber Company, 1975. Call number 540 H66.

COVER PHOTOGRAPH

Meet Goofy, the latest addition to the Krauss household. She's about three months of age and likes nothing better than to go for a ride in one of the kids' parka hoods. How good can a dog's life get?

WEATHER				
	Max.	Min.	Rain, Melted Snow, etc.	Snow, Ice Pellets, Hail
November 1	45	30		
2	60	44	.02	
3	62	52	.02	
4	67	57	.06	
5	65	51		
6	63	37		
7	69	46		
8	68	55		
9	70	46		
10	67	52	.12	
11	67	41	.17	
12	54	37		
13	49	41	.77	
14	44	30	.04	tr.
15	35	28	.01	tr.
16	47	34		
17	47	31		
18	63	37		
19	60	47		
20	64	36		
21	61	37	.03	
22	50	33	.08	tr.
23	41	29		
24	40	27		
25	42	23		
26	36	28	.01	.1
27	42	32	.08	
28	45	33	.10	
29	42	25	.01	
30	46	29	.10	