

# CORNELL UNIVERSITY OFFICIAL PUBLICATION

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Volume XIX

Number 19

## Announcement of Winter Courses

New York State  
College of Agriculture

1928-29

Ithaca, New York  
Published by the University  
June 15, 1928

# CALENDAR, 1928-29

Nov. 7	Wednesday	Registration in winter courses, beginning at 9 a. m., at the office of the Secretary, Roberts Hall.
Nov. 8	Thursday	Instruction begins in winter courses.
Nov. 19	Monday	Fee cards issued at office of the Secretary.
Nov. 24	Saturday	Last day for payment of fees at office of the University Treasurer, Morrill Hall.
Nov. 29-Dec. 1		Thanksgiving recess.
Dec. 22	Saturday, 1 p. m.	Instruction ends.
Jan. 7	Monday, 8 a. m.	Instruction resumed.
		} Christmas recess.
Feb. 11-16		Twenty-second Annual Farm and Home Week.
Feb. 15	Friday	Instruction ends in winter courses.



NEW YORK STATE COLLEGE OF AGRICULTURE

WINTER COURSE STAFF

Livingston Farrand, A.B., M.D., L.H.D., LL.D., President of the University.  
Albert Russell Mann, B.S.A., A.M., D.Sc., Dean of the College of Agriculture.  
Cornelius Betten, Ph.D., D.Sc., Director of Resident Instruction.  
Carl Edwin Ladd, Ph.D., Director of Extension.  
Olin Whitney Smith, B.S., Secretary.  
Willard Waldo Ellis, A.B., LL.B., Librarian.  
George Wilson Parker, Managing Clerk.  
Charles Arthur Taylor, B.S., Specialist in Extension Service.  
Anson Wright Gibson, B.S., Associate Secretary, Former Student Relations.

Charles Loring Allen, Ph.D., Assistant Professor of Animal Husbandry.  
Floyd Edward Andrews, Foreman in Poultry Husbandry.  
Winfred Enos Ayres, Extension Assistant Professor of Dairy Industry.  
Mortier Franklin Barrus, Ph.D., Extension Professor of Plant Pathology.  
Harold Eugene Botsford, B.S., Extension Professor of Poultry Husbandry.  
James Duncan Brew, M.S., Extension Professor of Dairy Industry.  
Earl Louis Brunett, D. V. M., Assistant Professor of Poultry Diseases (Veterinary).  
Harry Oliver Buckman, Ph.D., Professor of Soil Technology.  
Frank Pores Bussell, Ph.D., Extension Professor of Plant Breeding.  
Nathaniel Chadwick, B.S., Instructor in Rural Engineering.  
Herbert Press Cooper, Ph.D., Assistant Professor of Field Crops.  
Ralph Wright Curtis, M.S.A., Professor of Ornamental Horticulture.  
George Abram Everett, A.B., LL.B., Professor of Extension Teaching.  
Richard Bayles Farnham, B.S., Instructor in Floriculture.  
Karl Hermann Fernow, Ph.D., Extension Assistant Professor of Plant Pathology.  
Cedric Hay Guise, B.S., M.F., Assistant Professor of Forest Management.  
Axel Ferdinand Gustafson, Ph.D., Extension Professor of Soil Technology.  
Goldan Orlando Hall, Ph.D., Assistant Professor of Poultry Husbandry.  
Earle Volcart Hardenburg, Ph.D., Professor of Vegetable Gardening.  
Merritt Wesley Harper, M.S., Professor of Animal Husbandry.  
John Frederick Harriott, Ph.D., Assistant Professor of Farm Management.  
Edwin Shepherd Harrison, B.S., Instructor in Animal Husbandry.  
Charles Ernest Hayden, A.B., D.V.M., Assistant Professor of Veterinary Physiology (Veterinary).  
Arthur John Heinicke, Ph.D., Professor of Pomology.  
Glenn Washington Herrick, B.S.A., Professor of Economic Entomology.  
Gustave Frederick Heuser, Ph.D., Professor of Poultry Husbandry.  
Robert Byron Hinman, M.S., Assistant Professor of Animal Husbandry.  
John Carl Huttar, B.S., Instructor in Poultry Husbandry.  
Lewis Edward Longley, M.S., Instructor in Floriculture.  
Laurence Howland MacDaniels, Ph.D., Professor of Pomology.  
Thomas Joseph McInerney, M.S.A., Assistant Professor of Dairy Industry.

Dean Richmond Marble, B.S., Instructor in Poultry Husbandry.

Robert Grove Maxwell, B.S., Instructor in Animal Husbandry.

Lua Alice Minns, M.S.A., Instructor in Floriculture.

Richard Alan Mordoff, Ph.D., Professor of Meteorology.

George Eric Peabody, M.S., Assistant Professor of Extension Teaching.

Joseph Pullman Porter, B.S., M.S.A., M.L.D., Assistant Professor of Ornamental Horticulture.

Walter Van Price, Ph.D., Professor of Dairy Industry.

Myers Peter Rasmussen, Ph.D., Assistant Professor of Marketing.

James Edward Rice, B.S.A., Professor of Poultry Husbandry.

Byron Burnett Robb, M.S.A., Professor of Rural Engineering.

Louis Michael Roehl, B.S., Assistant Professor of Farm Shop.

Harold Ellis Ross, M.S.A., Professor of Dairy Industry.

Elmer Seth Savage, Ph.D., Professor of Animal Husbandry.

Leland Spencer, Ph.D., Professor of Marketing.

Hugh Charles Troy, B.S.A., Professor of Dairy Industry.

Edward Albert White, B.Sc., Professor of Floriculture and Ornamental Horticulture.



# NEW YORK STATE COLLEGE OF AGRICULTURE

## THE WINTER COURSES

The winter courses will begin on November 7, 1928, and will close on February 15, 1929. Instruction will begin at 8 a. m. on November 8. The Thanksgiving Day recess includes November 29 to December 1 and the Christmas vacation extends from December 22, at 1 p. m., to January 7, at 8 a. m.

Correspondence concerning these courses and other instruction in the College of Agriculture may be addressed to The Secretary, College of Agriculture, Cornell University, Ithaca, New York.

The winter courses have been part of the regular work of the College of Agriculture since 1893, when a general course was established. Certain lines of work soon became grouped into more or less fixed professional courses for persons desiring to specialize in these fields. As a result, there are now six courses listed:

1. General Agriculture.
2. Dairy Industry.
3. Poultry Husbandry.
4. Fruit Growing.
5. Flower Growing.
6. Vegetable Crops.

What is listed as the course in general agriculture is intended primarily for those who are engaged in general farming or who expect to take up farming. It is not a fixed curriculum; it is a large offering of elective units of work (pages 14-19) out of which the student may choose the combination most suited to his needs, with due regard to making a workable time schedule. The professional courses (numbers 2-6) are combinations arranged for those specializing in certain fairly well-defined lines of agriculture. The student is asked to submit his choice of studies before the courses open, and after his arrival he may discuss any remaining problems with his faculty adviser.

It is advised that students plan to spend at least two winters at the College, in the first winter taking general courses in agriculture, and in the second winter specializing in the subjects in which they are particularly interested. The large number of elective subjects in the course in agriculture makes it possible for students to register in that course for several years without duplication of specified subjects of study. Even those planning to take the professional courses will do well to take preliminary work in general agriculture, and suggestions toward this end will be found in connection with the description of some of the special courses.

The College of Agriculture conducts each year various schools and conferences for the training of special groups. Attention is called to such a course for cow-testing-association supervisors given January



21 to February 2. Inquiries regarding the course may be addressed to G. W. Tailby, jr., Department of Animal Husbandry, New York State College of Agriculture, Ithaca, New York.

In addition to these twelve-weeks courses, opportunity is offered to persons interested in the marketing and handling of cabbage and potatoes or in rural engineering, to come to the College for a period of one or more weeks and devote their time exclusively to such studies. Information concerning these courses is given on pages 31 to 34.

#### EXPENSES

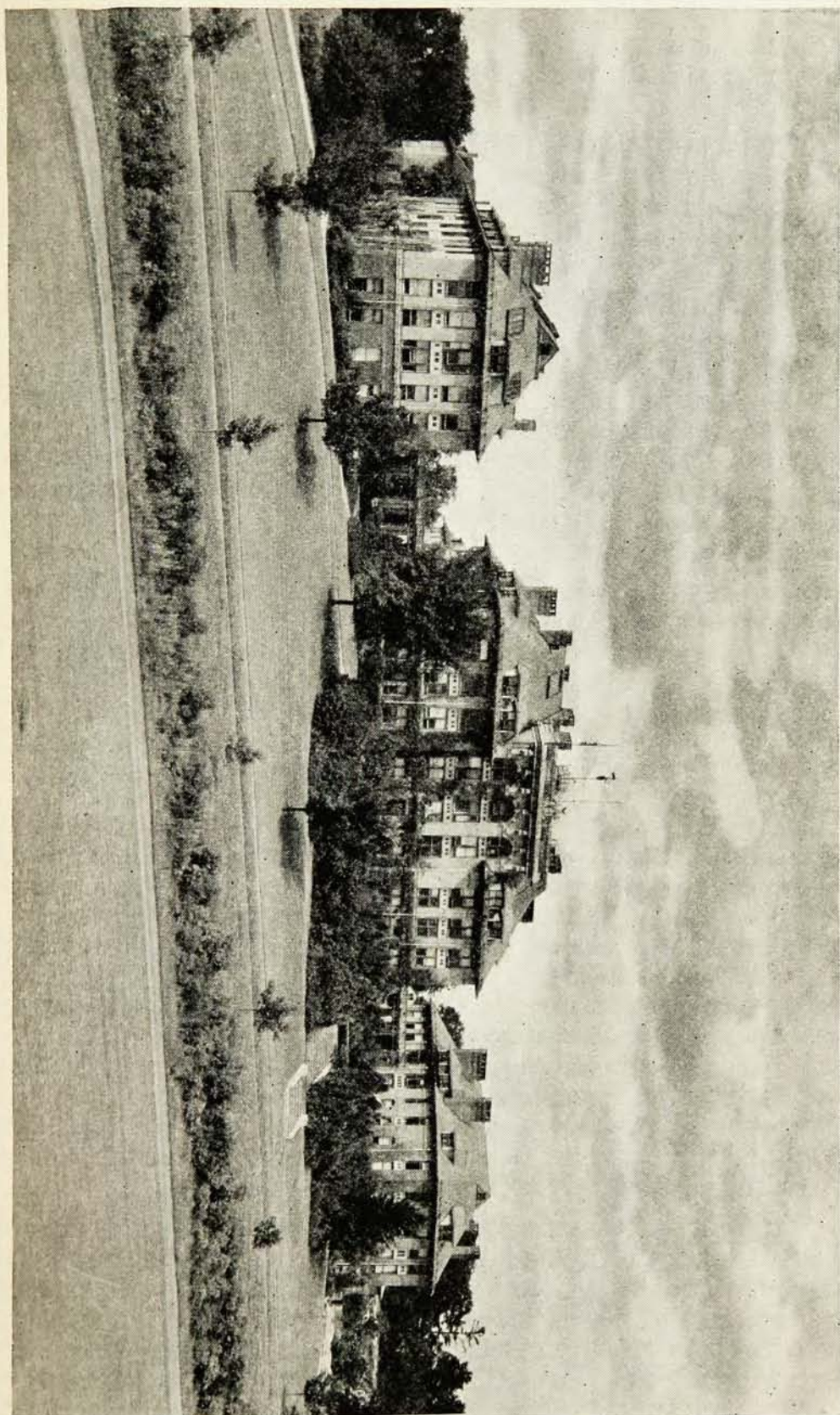
Tuition is free to those who are and have been residents of New York State for one year previous to registration. Nonresidents pay a tuition fee of \$25. In case of withdrawal for reasons satisfactory to the Comptroller and the Registrar of the University, which reasons should be stated in writing, a student may have a refund of a portion of any tuition paid by him; in such case he is charged ten per cent of the term's tuition for each week or fraction thereof between the first registration day and the date of his certificate of withdrawal as issued by the College. This rate applies also to students registering for a part of the term only, as for the second period of the professional course in dairy industry.

There are a number of fees and incidental expenses, which are detailed under the description of each course, but practically the only large expense is the cost of living in Ithaca and the railroad fare to and from Ithaca. Satisfactory table board can be procured in Ithaca, within five to fifteen minutes walk of the campus, for from \$7 to \$9 a week. Comfortable rooms near the place of boarding may be engaged at about \$3.50 a week for each person when two persons occupy the same room, and from \$4 to \$5 when one person occupies the room. The cost of books need not be more than \$10, but it has been the experience of winter-course students in the past that they wish to buy a number of books to take home, and it would be well, if possible, to allow at least \$15 for this item. Statements made by students in previous years show that \$225 or \$250 is a reasonable amount to allow for total expense exclusive of clothes and travel. By careful management this may be reduced somewhat; but it is best not to stint too much, since too great economy is likely to lessen the value of the course.

The laboratory fees and the expenses of observation trips are mentioned in the descriptions of the courses in the announcement; students are also liable for breakage due to carelessness on their part.

**INFIRMARY FEE.** Students in the winter courses are required to pay an infirmary fee of \$3. In return for the infirmary fee, any sick student is, on his physician's certificate, admitted to the infirmary, and is given, without further charge, a bed in a ward, board, and ordinary nursing, for a period not exceeding two weeks. Extra charges are made for private rooms, special food, and special nurses. If a sick student who has not received two weeks service during the course is





ROBERTS HALL, THE ADMINISTRATION BUILDING OF THE COLLEGE OF AGRICULTURE  
Roberts Hall is the headquarters for the Winter Courses



unable to gain admittance to the infirmary, by reason of lack of accommodation, he is entitled to a refund of the fee. The infirmary has no medical staff; students employ their own physicians among practitioners in Ithaca or elsewhere.

A WILLARD STRAIGHT HALL MEMBERSHIP FEE of \$3 is required, at the beginning of the term, of every winter-course student. Its payment entitles the student to a share in the common privileges afforded by the operation of Willard Straight Hall, subject to regulations approved by the Board of Managers of the Hall.

This requirement does not apply to students who attend the special winter courses for periods not exceeding six weeks.

**FEE CARDS.** All the winter-course students must call at the office of the Secretary of the College of Agriculture on November 19, at which time the fee cards will be issued with tuition fee, infirmary fee, and laboratory fees charged. The cards must be presented at the Treasurer's office in Morrill Hall and payment made not later than 1 p. m., Saturday, November 24.

**SELF-SUPPORT.** In the past, a few students have been obliged to earn money during the course. This is never advisable unless absolutely necessary. It is much better to borrow the necessary money or to postpone the course of study until another year than to be thus handicapped during the limited time spent at the University. All energy should be concentrated on the work of the course.

#### SCHOLARSHIPS AND PRIZES

**BEATTY AGRICULTURAL SCHOLARSHIPS.** By the will of the late Harrison L. Beatty of Bainbridge, New York, the income of about \$5900 is devoted to three equal scholarships in the winter courses to be known as the Beatty Agricultural Scholarships. For the session of 1927-28 three scholarships of \$100 each are available. These scholarships are to be awarded to residents of Chenango County, one of whom shall be a resident of the town of Bainbridge. In making the award, equal consideration will be given to education and practical experience. Competitive examinations are held annually in Norwich and Bainbridge, New York, in the last week of September; the exact dates are to be announced to those applying for the examinations. The applications must be sent to the Secretary of the College of Agriculture, Ithaca, New York, by September 1.

**THE JEWISH AGRICULTURAL SOCIETY** of New York instituted, in 1908, a system of free scholarships to enable the children of Jewish farmers to attend the short winter courses offered by the agricultural colleges in the States in which they reside. The scholarships are awarded by competition, which consists in the writing of a brief essay on an agricultural topic. Children of Jewish farmers living and working on the farms of their parents are eligible to compete for these scholarships. The number of scholarships is not limited. For the



New York State College of Agriculture at Cornell University, a number of these scholarships have been awarded each year since their establishment. Application should be made to the Jewish Agricultural Society, 174 Second Avenue, New York City.

THE DOCTOR LEWIS R. MORRIS SCHOLARSHIPS are offered for the first time this year by Doctor Lewis R. Morris, of Otsego County, to the most outstanding 4-H Club members in the towns of Butternuts, Laurens, New Lisbon, Morris, Edmeston, Pittsfield, or Otego, in Otsego County. These two scholarships are for \$200 and \$100, the award to be made at the Morris Fair, at Morris, New York. The recipient must have done two years of Club work, and the awards will be based on the records of Club work and stories about the recipient's work. Applications for these scholarships should be made to Mr. F. H. Isbell, District Superintendent of Schools, Morris, New York.

THE OTSEGO COUNTY FAIR ASSOCIATION SCHOLARSHIP of \$100 is offered by the Otsego County Fair Association to a 4-H Club member residing in the towns of Cherry Valley, Springfield, Roseboom, Middlefield, Maryland, Worcester, Westford, Decatur, Hartwick, Richfield, Otsego, Exeter, Millford, Unadilla, Oneonta, Burlington, or Plainfield, in Otsego County. The recipient must have been a graduate from a high school, in 1928. The award will be made at the Otsego County Fair. Applications should be made to the secretary of that association.

THE NEW YORK STATE JOINT STOCK LAND BANK SCHOLARSHIPS are five in number, and are for \$50 each, to be awarded on the basis of proficiency in the 4-H account project. Applications should be made to Mr. W. J. Wright, State Club Leader, at the New York State College of Agriculture, Ithaca, New York.

THE GRANGE LEAGUE FEDERATION EXCHANGE SCHOLARSHIPS are two in number, and are for \$50 each. These scholarships are available to members of the 1928 4-H Dairy Clubs. Application for these scholarships must be made to Mr. W. J. Wright, State Club Leader, at the New York State College of Agriculture, Ithaca, New York, on or before September 20. Awards will be made by the Grange League Federation Exchange on the advice of a committee consisting of the State Club Leader, a representative of the Department of Animal Husbandry of the New York State College of Agriculture, and a representative of the Grange League Federation Exchange.

INDIAN SCHOLARSHIPS. A limited number of scholarships are offered to Iroquois Indians. For particulars, apply to the Indian Agricultural Society of your reservation, or to the Indian Extension Staff, College of Agriculture, Ithaca, New York.

PRIZES. The various winter-course clubs compete every year for the Morrison Trophy Cup, the contest ordinarily being a series of debates. There is also a silver cup offered by Mrs. Florence M. Nevin as a prize for proficiency in public speaking.



## ADMISSION

A satisfactory certificate of vaccination is required of all students and is considered satisfactory only if it certifies to a successful vaccination within five years or certifies that at least three unsuccessful attempts have been made within the same period. This requirement does not apply to students who attend the special unit courses for periods not exceeding six weeks.

The winter courses are business and occupational courses, not academic; hence there are no examinations for admission. However, in order that the student may be able to make the best use of the instruction it is necessary that he should have had a good common-school education. Winter-course students are sometimes seriously handicapped in their work by being deficient in arithmetic and in English. Persons who are planning to take a winter course are advised to review these subjects before coming to Ithaca.

Applicants for admission to the winter courses should, by way of preparation, read carefully some of the best books, bulletins, and other literature on the subject to which their attention will be chiefly directed while at Cornell University.

Women who expect to attend one of the winter courses should correspond with the office of the Dean of Women, Ithaca, New York, in regard to rooms and accommodations. All women students registered in any of the winter courses are under the supervision of the Dean of Women during the period of the courses.

**AGE.** All the courses are open to both men and women of at least eighteen years of age. There is no limit to the age above eighteen; some of the best winter-course students have been mature men and women, owners of farms or managers of dairy or poultry plants.

**APPLICATION.** This circular contains an application blank for admission to the winter courses and a schedule sheet for courses to be taken. Both of these should be made out in full and forwarded to the Secretary at once by any person who is considering, even though indefinitely, attending any one of the winter courses. The filing of an application for admission does not constitute an obligation to attend, and applications may be withdrawn at any time.

Any one who has graduated from the common schools of the State, or who has an eighth-grade certificate, should be able to do the winter-course work satisfactorily. When making application, candidates for admission should give a description of their school training and, if possible, should send a certificate or a statement from the teacher of the school last attended.

Applicants for the professional course in poultry husbandry must have had at least six months active and consecutive work on an approved farm or poultry plant. A statement signed by the employer stating the kind, amount, and quality of work done, must accompany the application for admission.



ARRIVAL AT ITHACA. Students who desire advice concerning lodgings and boarding places are invited to come directly to the College of Agriculture on their arrival in Ithaca. It is desirable that all housing arrangements should be completed before registration day.

### REGISTRATION

On Wednesday, November 7, beginning at 9 a. m., all students must report for registration at the office of the Secretary of the College of Agriculture, Roberts Hall. After registering here, students will go at once to the headquarters of their particular winter course or to their faculty supervisor, as assigned. The headquarters of the several professional winter courses are as follows:

Course in dairy industry, Dairy Building, department office; course in poultry husbandry, Poultry Building, room 325 (third floor); course in fruit growing, East Roberts, room 109 (first floor); course in flower growing, Roberts Hall, room 222 (second floor); course in vegetable crops, Poultry Building, room 253 (second floor). Students in the course in agriculture will be assigned to their faculty supervisors at the time of their registration.

STUDY CARDS. After the student has registered he may not change his schedule of courses in any respect, except on the recommendation of the head of the winter course concerned or of his faculty supervisor, and with the approval of the Secretary. The schedule sheet, which the applicant fills out in advance, may subsequently be changed at the request of the applicant, and is not to be confused with the study card, which is made out when the student registers.

### METHODS OF INSTRUCTION

Instruction in the winter courses is given by lectures, by such practical work (laboratory practice) in the various agricultural operations as can be conducted at that time of the year, and sometimes by trips or excursions to points of special interest.

THE LECTURES are given in large part by the regular staff of the College of Agriculture. So far as possible, collected material is used for illustrating the subjects; when this is impossible, lantern views are often used. Free discussion by the students of the subject under consideration is encouraged. Further opportunity for general discussions is afforded in the meetings of the winter-course clubs.

The winter-course students are welcomed at the various addresses given by eminent men before the University in general.

PRACTICAL WORK is made a special feature in the winter courses. The student is expected to perform all the various operations as carefully as if he were working at home as a practical farmer. In the courses in dairy industry and poultry husbandry, the instruction is in large part practical, and the students have an opportunity of becoming familiar with all the essential operations in these enterprises. In the courses in agriculture, fruit growing, flower growing, and vegetable



gardening, there is necessarily a smaller amount of practical work; advantage is taken, however, of the greenhouses, the barns, and the laboratories, in demonstrating to the students some of the operations that would naturally be conducted in the summer season. Whenever possible, the aim is to make the practical work take up as large a part of the student's time as do the lectures.

EXCURSIONS to points of special interest have been made a feature of the course in poultry husbandry. Such excursions are conducted in other courses also whenever practicable.

The word *hour* in the following schedules means one lecture of one hour each week, or one period of two and one-half hours of laboratory or practice each week during the term.

### CERTIFICATES

Students who complete a schedule of at least fifteen hours with grades of D or better will be given certificates of record. Students desiring such certificates must notify the Secretary's office before the close of the course.

### THE CITY AND THE UNIVERSITY

Ithaca is situated in Tompkins County, at the head of Cayuga Lake. It is a city of about seventeen thousand inhabitants. It is reached by the Lehigh Valley and the Delaware, Lackawanna and Western Railroads. There are, in addition, auto bus lines between Ithaca and Syracuse, Auburn, Elmira, and other neighboring cities. The University stands on a plateau about four hundred feet above the lake. The officers of instruction and administration at Cornell University number nearly eight hundred. The campus and farms cover 1436 acres.

The buildings of the University are more than thirty-five in number, providing quarters for the several colleges of the University. These are Agriculture, Architecture, Arts and Sciences, Engineering, Graduate School, Law, Medicine, Veterinary Medicine, and Home Economics.

The New York State College of Agriculture at Cornell University occupies buildings erected by the State subsequent to 1904. These buildings are large and well equipped, and afford an attractive home for the College.

### SOCIAL AND RELIGIOUS ADVANTAGES

Every year the students in each of the several winter courses have formed clubs. The societies meet once a week and debate subjects of special interest, discuss various problems, sing college songs and indulge in other forms of social enjoyment. Every winter-course student is urged to attend these meetings.

The winter-course students are welcomed at the meetings of the Agricultural Association, the Dairy Club, the Poultry Association, the Round-up Club, and the other organizations of students in the



College. The meetings of these societies are devoted to discussions of live agricultural subjects and to the promotion of friendship among the students.

Religious services, provided for by the Dean Sage Preachership Endowment, are conducted in Sage Chapel throughout the college year, by eminent clergymen selected from the various religious denominations. These services are supplemented by the Cornell University Christian Association, a voluntary organization of students and professors formed for their own religious culture and the promotion of Christian living in the University. The Christian Association has its home in Barnes Hall. It has a permanent secretary. Several church denominations are represented at Cornell by special pastors who also serve as secretaries of the Christian Association and have offices at Barnes Hall. These, with the executive secretary and the hostess, constitute the staff of the Christian Association. The Association has a carefully selected Biblical library and comfortable reading and recreation rooms. Courses in Bible study are conducted throughout the year, and special courses are provided for students in the winter courses.

In addition to the Young Men's Christian Association there is a flourishing Young Women's Christian Association, with quarters in Barnes Hall.

The students of the University are welcomed by the numerous churches in the city of Ithaca at all their services.

### POSITIONS

The College does not promise to find positions for students registered in any of its courses, but it has opportunity to recommend students for a large number of positions. Some students who have completed a winter course have obtained an increase in salary in the following season sufficient to pay the entire cost of the course. Such results, while of course not guaranteed, show that there are excellent opportunities for trained men.

A student desiring a recommendation from the College must fulfill the following conditions: (1) He must be of good character; (2) his previous record must be good; (3) his work in the winter course must be satisfactory.

In the case of the course in dairy industry, previous experience in a well-conducted dairy plant is strongly advised for those who expect the College to recommend them for positions.

In the case of the course in poultry husbandry, it is recommended that persons inexperienced in the handling of poultry spend at least a year in acquiring practical knowledge of the business before entering this course. Students who have not previously had a considerable amount of farm or poultry experience cannot, as a rule, be recommended to positions of responsibility until they have spent a season on an approved poultry farm. This is particularly true for the better positions in which managers or superintendents are wanted to take charge of poultry farms.



## DESCRIPTION OF THE WINTER COURSES

## 1. COURSES IN AGRICULTURE

Most of the young men who come for a winter course expect to engage in general farming or hope to obtain positions as superintendents of farms on which diversified agriculture is practiced. It is for these that the general course in agriculture is especially designed. Persons who plan to specialize, and whose experience justifies it, will register in one of the professional courses or groups.

Whether or not the student plans to take one of the professional courses outlined hereinafter (pages 19-34), he is advised to attend more than one winter course and should definitely plan the work ahead for two years. Since a large number of winter-course students desire to prepare themselves to operate dairy farms, the following two-years program is suggested for them, though the second year may be modified in the light of the student's experience.

## FIRST YEAR

	<i>Hours</i>
Agricultural Economics and Farm Management 1 (page 14).....	2
Agricultural Economics and Farm Management 2 (page 14).....	3
Agronomy 2 (page 15).....	3
Agronomy 4 (page 15).....	4
Animal Husbandry 1 (page 15).....	3
Animal Husbandry 2 (page 15).....	3

## SECOND YEAR

	<i>Hours</i>
Agricultural Economics 10 (page 15).....	3
Dairy Industry 8 (page 16).....	4
Meteorology 1 (page 17).....	2
Rural Engineering 1 (page 18).....	3
Veterinary Medicine 1 (page 18).....	1
Optional (chosen in line with the student's major interest).....	5

Similar combinations may be made by the student himself, and the one determined upon may be submitted in his application. No student may take less than twelve or more than eighteen hours without special permission, and sixteen hours is as much as the average student can carry satisfactorily.

## AGRICULTURAL ECONOMICS AND FARM MANAGEMENT

1. **Farm Records and Accounts.** Two hours a week. Lecture, W 3. Roberts 292. Laboratory, M 10-12.30. East Roberts 232. Assistant Professor HARRIOTT. Farm inventories; cash accounts; income-tax reports; single-enterprise cost accounts; complete farm cost accounts; other farm records. Special emphasis is given to the interpretation of results and their application in the organization and management of farms. Laboratory fee, \$2.

2. **Farm Management.** Three hours a week. Lectures, M F 3. Roberts 292. Laboratory, S 10-12.30. Farm Management Building 102. Mr. ———. Farming as a business; types of farming; balance and size of business; rates of production; farm layout; building arrangement; ways of starting farming; choos-



ing and buying a farm; use of capital and credit; planning, organization, and management of specific farms. Laboratory fee, \$2.

10. **Marketing.** Three hours a week. Lectures, T Th 8. Roberts 292. Laboratory, Th 3-5. Marketing Building. Professor SPENCER.

Margins and costs involved in marketing milk, apples, potatoes, cabbage, and other products; reasons for differences in costs of individual dealers and of co-operative associations; when to sell potatoes, cabbage, and other products; how to economize in buying farm supplies; status of cooperative marketing in New York State; cooperative laws; financing associations engaged in different types of business; business policies of the more important associations.

144. **Marketing.** Without credit. Lectures and discussions, F 9, 12. Farm Management Building 102. Course in charge of Professor SPENCER.

Lectures on marketing by nonresident persons including the executives of both private and cooperative business organizations.

## AGRONOMY

2. **Soil Fertility.** Three hours a week. Lectures, M W Th F 2. Caldwell 100. Professor BUCKMAN and Extension Professor GUSTAFSON.

An elementary course dealing with those physical, chemical, and biological properties of the soil that have special practical applications. The use of lime, manures, and fertilizers will be an important phase of the work.

4. **Field Crop Production.** Four hours a week. Lectures, M W F 8. Caldwell 143. Laboratory, Th 11-1. Caldwell 250. Assistant Professor COOPER.

A course dealing with the principal field crops grown in New York State. Cultural methods, crop rotations, fertilizer practices, soil and climatic adaptation, and the better varieties of the important crops are considered. Laboratory fee, \$1.

## ANIMAL HUSBANDRY

1. **Feeds and Feeding.** Three hours a week. Lectures, M W 9. Animal Husbandry Building B. Practice, T 11-1. Professor SAVAGE and Mr. HARRISON. The principles and practices of compounding rations and of feeding farm animals.

2. **Principles of Breeding Dairy Cattle.** Three hours a week. Lectures, T Th 9. Animal Husbandry Building A. Practice, W 11-1. Assistant Professor C. L. ALLEN and Mr. MAXWELL.

Origin and development of the dairy breeds of cattle; care and management of the dairy herd; milk production; practice in judging and scoring.

3. **Swine.** Credit, one and one-half hours. Lectures, second six weeks of the winter course, T Th 11. Animal Husbandry Building. Practice, W 2-4.30. Animal Husbandry Pavilion. Assistant Professor HINMAN and assistants.

Types of swine, with their adaptations and breeds; the care and management of the farm herd; fattening for market; housing; range and forage crops; practice in judging, with carcass work.

4. **Sheep.** Credit, one and one-half hours. Lectures, first six weeks of the winter course, T Th 11. Animal Husbandry Building. Practice, W 2-4.30. Animal Husbandry Pavilion. Assistant Professor HINMAN and assistants.

Selection, breeding, feeding, and management of the farm flock throughout the year; the breeds, with their special features; fattening lambs and wethers; simple features of sanitation and building; wool grading.

5. **Beef Cattle.** Credit, one and one-half hours. Lectures, second six weeks of the winter course, T Th 10. Animal Husbandry Building. Practice, F 1-3. Animal Husbandry Pavilion. Assistant Professor HINMAN and assistants.

Breeds of beef cattle, with adaptations of each; the place of beef cattle in mixed farming; the management of a breeding herd throughout the year; selection, buying, feeding, and marketing of feeders; judging animals on foot and as carcasses.

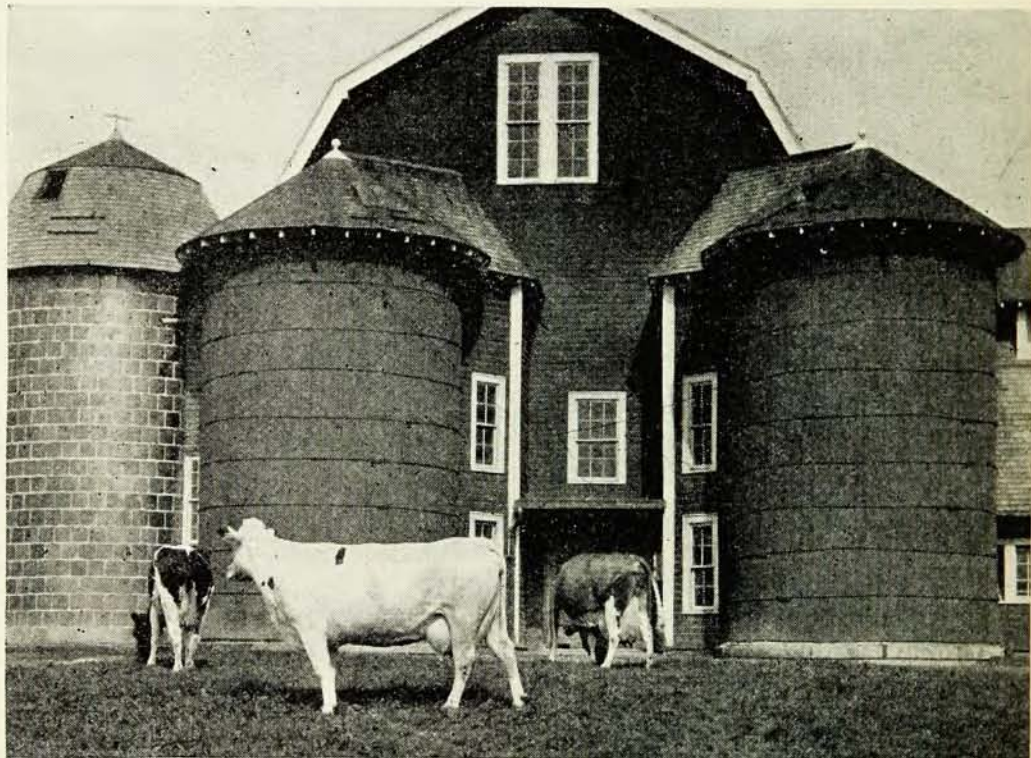


6. **Horses.** Credit, one and one-half hours. Lectures, first six weeks of the winter course, T Th 10. Animal Husbandry Building. Practice, F 1-3. Animal Husbandry Pavilion. Professor HARPER and assistants.

Breeding, feeding, and care of farm work horses; breeds of draft horses, their characteristics and adaptations; judging; common unsoundnesses.

### DAIRY INDUSTRY

*Students wishing to specialize in the manufacture of dairy products should enroll in the professional dairy course outlined on pages 19 to 23.*



A MODERN COW BARN HOUSES THE COLLEGE HERD

The herd has been carefully bred and selected for nearly half a century

[8. **Farm Dairying.** For students in general agriculture only. Four hours a week. Lecture and recitation, F 3-5. Dairy Building 120. Laboratory practice, S 8-1. Dairy Building 209 and 133. Professor ———.] Not given in 1928-29.

Composition and secretion of milk; the Babcock test for fat in milk and its products; the care and handling of milk; the manufacture of farm dairy products, including the operation of cream separators, the making of butter, starters, some of the farm cheeses, and ice cream; dairy arithmetic; ice harvesting; judging dairy products; scoring dairy barns. Laboratory fee, \$5.

### ENTOMOLOGY

1. **Injurious Insects.** Two hours a week. Lectures, T Th 3. Roberts 292. Professor HERRICK.

The common insect pests of farm, garden, orchard, and greenhouse, and of farm animals are discussed, and measures of control are carefully considered. Specimens of the insects discussed, together with examples of their work, are shown to members of the class whenever possible. Opportunity is given for questions and discussions, with the hope of clearing up obscure points and the various phases of the problems. The lectures and discussions are illustrated by lantern slides and by charts.



## EXTENSION TEACHING

1. **Oral Expression.** Two hours a week. Lectures and discussions, M W 4. Roberts 131. Criticism by appointment, daily, 8-1 and 2-5. Professor EVERETT and Assistant Professor PEABODY.

Practice in oral and written presentation of topics in agriculture, with criticism and individual conferences on the technic of public speech. The course is designed to acquaint students with parliamentary practice, to encourage interest in public affairs, and to train for effective self-expression in public. Open to all students in the winter courses.

(Special training will be given to competitors for the winter-course prize-speaking contest and debate. Competition is open to all winter-course students.)

## FLORICULTURE AND ORNAMENTAL HORTICULTURE

3. **Planning and Planting Rural Properties.** Four hours a week. Lectures and practice, M F 2-5, W 10-1. Caldwell 400. Assistant Professor PORTER.

A discussion of the principles underlying simple arrangements and planting in home grounds, school grounds, and village-improvement work.

The course will consist of lectures to illustrate fundamental principles, and of practice and field trips to observe land conditions; making small surveys; preparing simple plans; learning the common plants, and utilizing them in planting practice. Laboratory fee, \$1.50.

4. **Woody Plant Materials.** Two hours a week. Lecture, T 9. Practice, T 10-1. East Roberts 7. Professor R. W. CURTIS.

A brief study of the characteristics and requirements of trees, shrubs, and vines for landscape planting.

6. **Gardening and Garden Flowers.** Three hours a week. Lectures, M W F 8. Countryman Building. Miss MINNS.

A course designed to study the methods of propagation and growing of outdoor annuals and herbaceous perennials. Studies will be made, so far as possible, of individual garden problems. The culture of outdoor roses, asters, peonies, phlox, iris, and bulbous plants will be considered.

## FORESTRY

1. **The Farm Woodlot.** One hour a week. Lecture, M 10. Fernow 210. Three field trips or laboratory periods will be arranged. Assistant Professor GUISE.

This course is designed to present certain phases of forestry that are of value in farm work. The course covers the methods of identifying the principal trees of this region; the care of the woodlot, including tree planting for timber and wind-breaks; thinning; cutting mature timber; methods of measuring the amount of standing and felled timber; protection from fire and other enemies; preservative treatment of posts; the making of maple sugar.

## METEOROLOGY

1. **Elementary Meteorology.** Two hours a week. Lecture, M 9. Laboratory, W 9-11. East Roberts 341. Professor MORDOFF.

This course is designed to present the more essential phases of meteorology and climatology and their relations to agriculture. Some time will be spent in studying the principles and methods of practical weather forecasting from weather maps and local observations.

## PLANT BREEDING

1. **Plant Breeding.** Three hours a week. Lectures and discussions, M 9-11 and F 9. Fernow 212. Extension Professor BUSSELL.

The better-known facts of variation and heredity will be considered. Methods of practical plant breeding, including selection and hybridization will be discussed. A portion of the time will be devoted to practicums. Greenhouse material will be used in acquainting the student with methods and results of breeding work.



## PLANT PATHOLOGY

**1. Plant Diseases.** Three hours a week. Lecture, S 9. Roberts 292. Practice, T or W 11-1, and Th or F 10-1. Bailey West Basement. Extension Professor BARRUS and Extension Assistant Professor FERNOW.

A course designed to give the student a better understanding of the nature and cause of plant diseases and how these are related to intelligent control. Certain typical diseases of economic importance will be studied in detail and the student will then be given the opportunity of applying what he has learned to the study of diseases in which he is especially interested. Laboratory fee, \$1.50; breakage deposit, \$3.

## POMOLOGY

**2. General Fruit Growing.** Four hours a week. Lectures, M T W Th 8. East Roberts 108. Professor MACDANIELS or Professor HEINICKE.

This lecture course is designed for students who desire a general knowledge of fruit growing. It covers practically the same topics as course 1 in fruit growing (page 27), but includes no laboratory work.

## POULTRY HUSBANDRY

**11. Farm Poultry.** Four hours a week. Lectures, M T Th 4-5. Poultry Building 375. Laboratory practice, T 10.30-1. Poultry Building 300. Professors RICE and HEUSER, Extension Professor BOTSFORD, Assistant Professor HALL, and Messrs. HUTTAR and MARBLE.

A discussion of the domestic breeds of poultry; hatching and rearing; the principles of breeding, feeding, and management; marketing; diseases of poultry; poultry houses; related matters. Laboratory fee, \$3.

## RURAL ENGINEERING

**1. Farm Mechanics.** Three hours a week. Lectures, T Th 2. Dairy Building 218. Practice, Th or S 10-1. Rural Engineering Laboratory. Professor ROBB and Mr. CHADWICK.

A course dealing with knots and splices of ropes; shafts, pulleys, belts, pulley speeds and belt lacing; gasoline engines; pumps and water systems; care and adjustment of farm machinery. Laboratory fee, \$2.

**5. Farm Shop Work.** Two hours a week. Lectures, demonstrations, and practice, T F 10-1. Rural Engineering Laboratory. Assistant Professor ROEHL and Mr. CHADWICK.

Practice in carpentry, saw filing, tool sharpening, fitting handles, soldering, and cold-metal work. Study will be made of the plan and interior arrangement of the farm shop and of the selection, care, and use of the tools necessary for farm construction and general repair work. Laboratory fee, \$2.

## VEGETABLE CROPS

**2. General Vegetable Growing.** Three hours a week. Lectures, T Th 4. Poultry Building 325. Laboratory, S 8-10.30. Vegetable Greenhouses. Professor HARDENBURG.

This course is designed for students who desire a general knowledge of vegetable growing in the home garden and especially for those interested in the more extensive production of a few special vegetable crops on the general farm. The lectures deal with the planning and general management of the vegetable garden, soils and fertilizers, growing early plants, choice of varieties, and special requirements of the more important vegetables. Laboratory work consists chiefly in plant growing in the greenhouse, seed testing and seed identification, and variety studies. Laboratory fee, \$1.50.

## VETERINARY MEDICINE

**1. Diseases of Dairy Cattle, and Veterinary Hygiene.** One hour a week. Lecture, F 9. Veterinary College, Small Lecture Room. Doctor HAYDEN.



NEW YORK STATE COLLEGE OF AGRICULTURE AT CORNELL UNIVERSITY  
APPLICATION FOR ADMISSION TO WINTER COURSES

Remove this application without separating the pages  
Print name clearly, using pen and ink or typewriter

Name of applicant *IN FULL*.....  
Last name.....First name.....Second name.....

Permanent home address (number and street, or R. F. D.).....

Place.....County.....State.....

Date of birth, month.....day.....year.....

Nationality.....Married.....Date of this application.....

Name and address of parent or guardian, or person to be notified in case of serious illness or accident.....

.....

School or college attended (Indicate clearly the type of school or course).....  
Name of school.....Place.....Period of attendance.....

.....

.....

.....

.....

Have you received any degree or certificate?.....What?.....Where and when?.....

OVER



What has been your practical experience in farm work and in the special work covered by the winter course in which you are registering?.....

What has been your residence and occupation during the past five years?.....

Occupation 1924..... Place..... State.....

Occupation 1925..... Place..... State.....

Occupation 1926..... Place..... State.....

Occupation 1927..... Place..... State.....

Occupation 1928..... Place..... State.....

What church do you attend?.....

REFERENCES\*.—I am personally acquainted with the above applicant, and know.....to be of good moral character, industrious, studious, and physically and otherwise capable.

Name..... Name.....

Position..... Position.....

Address..... Address.....

\*Two endorsements are necessary, and should be preferably by your teacher and your pastor or a public official, not a member of your own family. These persons should sign the application themselves.

NOTE.—The applicant must answer ALL the questions asked on both sides of this application blank. When the blank has been answered in full, mail it to Olin W. Smith, Secretary, College of Agriculture, Cornell University, Ithaca, New York.



Name..... Last name..... First name..... Middle name.....

### SCHEDULE OF SUBJECTS

**IMPORTANT:—**Before filling out the blanks on this page, make out a form such as is given on the reverse side.

Indicate by a check mark (✓) the one of the following six courses in which you desire to register. Do not check more than one course.

- |                        |                      |                    |
|------------------------|----------------------|--------------------|
| 1. General Agriculture | 3. Poultry Husbandry | 5. Flower Growing  |
| 2. Dairy Industry      | 4. Fruit Growing     | 6. Vegetable Crops |

If you desire to specialize in either the professional course in dairy industry or the professional course in poultry husbandry, it is not necessary for you to fill out the remainder of the blanks on this page.

If you are registering in any of the other four courses, write here the number and the name of each subject that you desire to take, using the number given in the catalogue. Example: No. 2, Subject **Agricultural Economics and Farm Management.** Without special permission, no student is allowed to take less than twelve or more than eighteen "hours" of work. For definition of "hour," see page 12.

No.....	Subject.....
No.....	Subject.....
No.....	Subject.....
No.....	Subject.....
No.....	Subject.....
No.....	Subject.....
No.....	Subject.....
No.....	Subject.....
No.....	Subject.....
No.....	Subject.....
No.....	Subject.....
No.....	Subject.....

After filling out this schedule completely according to directions, mail it, with your application for admission, to Olin W. Smith, Secretary.  
(OVER)



TIME SCHEDULE

Before filling out the previous page the applicant should make sure, by means of a form similar to the one shown below, that the subjects he desires do not conflict in time. Most of the courses offer options in laboratory periods, so that, with the exercise of care, one can generally arrange to include the subjects desired.

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
8-9						
9-10						
10-11						
11-12						
12-1						
1-2						
2-3						
3-4						
4-5						
5-6						



This course includes a discussion of the commonest diseases of dairy cattle, the prevention and cure of these diseases, ventilation of stables, and general questions of animal hygiene.

## 2. COURSE IN DAIRY INDUSTRY

The course in dairy industry is intended especially for persons who plan to operate commercial dairy plants, and students expecting to enter this field professionally should register in this course. The work of the course requires the student's entire time. This course is not intended for persons who plan to follow dairy farming. Neither is it intended for persons preparing to occupy positions as herdsman, or as testers in advanced registry work. Students wishing to qualify themselves for such work should take dairy industry course 8, animal husbandry courses 1 and 2 (page 15), and such other subjects as may be recommended by the faculty adviser.

A meeting of all winter-course students in dairy industry will be held at four o'clock on the afternoon of registration day, November 7, in the Dairy Building, room 119.

In addition to the general expenses listed on page 6, students in dairy industry must meet the following charges:

### SPECIAL EXPENSES

Laboratory fee, to pay in part for materials used and to cover laundry and breakage..... \$35.00

(Less than the full term: First period only, \$20; second period only, \$7.50 for each manufacturing subject taken.)

Books.....\$15.00-\$25.00

One suit of overalls, about..... \$ 3.00

Two white suits, with caps, about..... \$ 8.00

One rubber apron, about..... \$ 1.00

Waterproof footwear is necessary for work in the dairy laboratories. Books, notebooks, and the special clothing listed above can be purchased in Ithaca.

### METHODS OF INSTRUCTION

Instruction is given largely by means of actual practice in the different kinds of dairy work. This is supplemented by lectures, recitations, and reading assignments in dairy literature. Brief written examinations, and informal discussions of topics previously assigned for study, are frequently introduced.

The term is divided into two periods, the first occupying the six weeks preceding the Christmas recess, and the second including the time from the reopening of College after the Christmas recess until the close of the term. The first period is devoted to acquiring a knowledge of those subjects fundamental to a study of any dairy manufacturing process. On this foundation the student, during the latter half of the course, develops his understanding of the various factors involved in the actual making or processing of dairy products.





A BACTERIOLOGY LABORATORY  
The laboratories of the Dairy Department afford excellent facilities for studying the bacteria in milk



## FIRST PERIOD

November 7 to December 15, inclusive

The following lecture and practice courses are required during the first half of the term:

**200. Testing and Composition of Dairy Products.** Credit three hours. Professor TROY and Assistant Professor McINERNEY.

This course includes the composition and secretion of milk; the Babcock test for fat in milk and its products, acid tests, salt tests, moisture tests; use of the lactometer; calculating milk solids; some of the simple tests for preservatives and adulterations. A thorough drill will be given in making all these determinations. The testing laboratory is furnished with all necessary equipment.

A limited amount of laboratory practice in the analysis of dairy products by the Mojonnier method will also be given. Special attention will be paid to the use of chemical balances and other laboratory apparatus.

**201. Dairy Bacteriology.** Credit two hours. Professor BREW and Mr. ———.

The course considers the relation of bacteria to dairy work, their action on milk and its products, and methods of controlling their growth.

Studies are made of the various bacteria commonly found in milk. Exercises are given in plating samples, counting organisms, and making microscopic examinations. Practical application of cultural methods will be made through the preparation and development of starters such as are used in butter- and cheese-making, in the preparation of cultured milk drinks, and the like.

This work is intended to acquaint the student with the important part played by bacteria in dairy products, rather than to train him in scientific procedure.

**202. Dairy Chemistry.** Credit one hour. Professor TROY.

The elementary principles of chemistry are explained in order that the student may better understand the composition of dairy products and the chemical changes connected with and influencing dairy operations.

**203. Dairy Arithmetic.** Credit one hour. Professor ———.

A thorough drill is provided in such problems as are constantly arising in all kinds of dairy work and in the keeping of factory accounts.

**204. Dairy Mechanics.** Credit three hours. Extension Assistant Professor Ayres and Mr. ———.

Students receive practice in the firing, care, and operation of boilers, and in the care and operation of steam engines, cream separators, refrigeration machinery, and other dairy equipment. Practical work is also given in the installation of shafts and pulleys, pipe fitting, belt lacing, and soldering.

## ELIGIBILITY FOR THE SECOND PERIOD

During the last half of the term, laboratory courses in the manufacture of various dairy products will be conducted as listed subsequently.

Any student whose work in the first period has been of satisfactory grade, may enroll in any of the courses offered which do not conflict as to time.

These courses are open also to former students who have satisfactorily completed the work of the first half, and who wish to return and obtain additional training in dairy manufacturing lines.

This privilege is extended also to persons who may already have received training elsewhere equivalent to the work of the first half of this course. Such persons will be expected to pass an entrance examination covering the subjects listed in the first half, as evidence



of their fitness for admission; and a complete understanding between the candidate and the dairy department should be accomplished by correspondence before any move is made toward coming to Ithaca.

Fees covering enrollment of those not registered for the first half of the term are stated on pages 6 and 19.

#### SECOND PERIOD

The following elective courses are offered, subject to the requirement that at least five students register for any desired course.

No student may take more than three subjects, as the work of any one course will occupy his entire time during the period scheduled.

#### January 7 to 19 inclusive

**205. Market Milk.** Credit three hours. Professor Ross and Mr. \_\_\_\_\_.

This course covers the sanitary construction of dairy barns; score cards for dairy barns and market milk; food value of milk; standardizing milk and cream; legal standards for milk and cream; dairy utensils; the general production and handling of clean milk.

The laboratory work includes bottling; milk pasteurization; different methods of cooling milk; clarification; standardization of milk and cream; judging milk and cream for sanitary quality; the use of the sanitary score card in judging dairy barns and dairy plants.

#### January 21 to February 2 inclusive

**206. Condensed and Powdered Milk.** Credit three hours. Professor PRICE and Mr. \_\_\_\_\_.

This course considers the principles and practices of making condensed and powdered milk. Students will make sweetened condensed, evaporated, and superheated milk; and powdered whole milk, skimmilk, and buttermilk.

The laboratory is equipped with two types of condensing pans, sweetened-condensed-milk coolers, copper- and glass-lined jacketed hot wells, homogenizer, filler, sterilizer, and shaker; and the necessary equipment for laboratory work connected with condensing.

**207. Cheese.** Credit three hours. Professor PRICE.

Instruction will be given in the principles underlying the making of the common types of both hard and soft cheeses; the commercial possibilities of these products and the marketing methods will be discussed. The making and use of starters, the judging of cheese, and the construction and equipment of cheese factories will also be considered.

The students will make a variety of these cheeses, including Cheddar, cream, bakers', cottage, club, and the like.

The cheese room is equipped with all necessary apparatus, and all work is performed by students under direction of the instructor. Every detail of the methods employed is carefully observed and recorded by them on blank forms provided for the purpose.

#### February 4 to 16 inclusive

**208. Butter.** Credit three hours. Assistant Professor AYRES and Mr. \_\_\_\_\_.

This course deals with the principles involved in butter-making processes, and the practices followed in modern creameries.

Training is given in judging and grading cream; standardizing acidity of cream; pasteurization; and the manufacture of butter from both sweet and ripened cream. This involves also the making and use of starters, and a study of cream-ripening methods.

Practice in scoring and grading butter is included, and consideration is given to the marketing of the finished product.



209. **Ice Cream.** Credit three hours. Professor PRICE and Mr. ———.

The subject matter covered in the lectures consists of the successive steps in the making of ice cream; it will include, also, allied subjects, such as types of machines; refrigeration; quality of materials used; marketing; business management; factory construction and equipment.

The laboratory is equipped with both hand and power freezers. There are three types of power freezers, one using ice for freezing and hardening, and two using mechanical refrigeration. Various kinds of ice cream are made, including custards and puddings. In the laboratory the student becomes familiar with the actual commercial business.

### 3. COURSE IN POULTRY HUSBANDRY

The winter course in poultry husbandry is one of the means by which the College of Agriculture attempts to meet the needs of farmers. The course is intended also to assist in supplying the large and growing demand for trained poultrymen to take charge of poultry plants owned by others. Although it is manifestly impossible in twelve weeks to give full preparation for so exacting a business as poultry keeping, this course will start the student in the right direction, enable him to avoid many mistakes, and offer him facts and principles of value gleaned from the lifelong experience, study, and observation of others. Persons expecting to take up poultry raising professionally should register in the course in poultry husbandry, not in the course in agriculture. Applicants must furnish satisfactory evidence of having had at least six-months experience in working on an approved farm or poultry plant.

Prospective students who have not had experience may well plan to take a preliminary year in general agriculture, spending the intervening period in work on a poultry farm. The following is suggested as a program for the preliminary year, though it may in some instances be well to substitute vegetable gardening in place of pomology:

Agronomy 2 (page 15) . . . . .	3
Agricultural Economics and Farm Management 1 (page 15) . . . . .	2
Agricultural Economics and Farm Management 2 (pages 15) . . . . .	3
Pomology 2 (page 18) . . . . .	4
Poultry Husbandry 11 (page 18) . . . . .	4

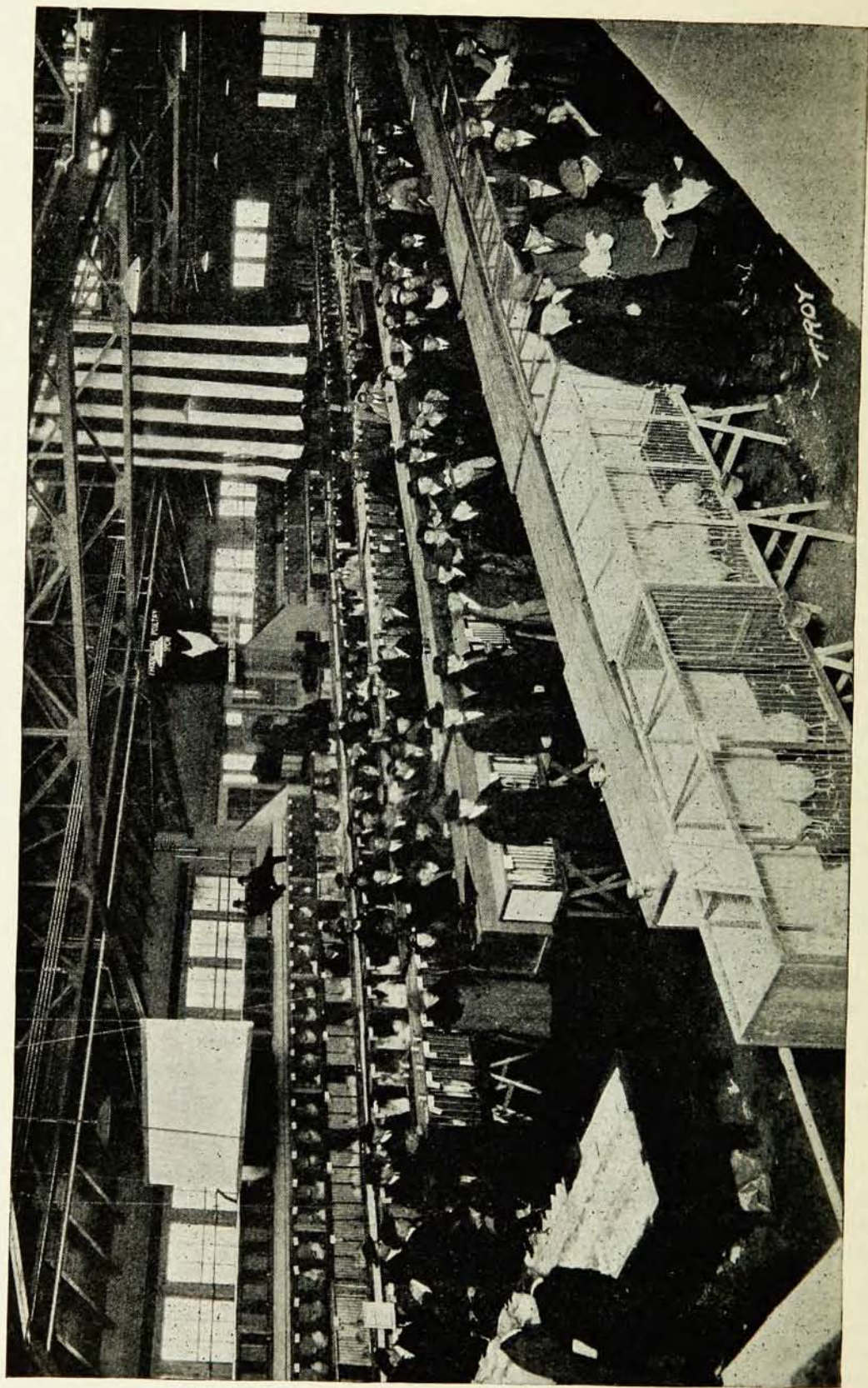
A meeting of all winter-course students in poultry husbandry with the staff of the department will be held at five o'clock on the afternoon of registration day, November 7, in Poultry Building 375.

#### SPECIAL EXPENSES

Laboratory fee (to pay in part for material used) . . . . .	\$12.00
General supplies . . . . .	12.00
Excursions . . . . .	50.00

Besides these expenses, about \$5 worth of books are usually bought and retained by the student. For the cost of board and other expenses, see page 6. If the prospective student owns a set of drawing instruments, drawing board, triangles, and rulers, he should bring them and thereby save part of the expense for general supplies.





THE NEW YORK POULTRY PRODUCTION SHOW IS HELD DURING THE WINTER COURSE SESSION



## REQUIRED SUBJECTS

Instruction in these courses will be given by Professors RICE and HEUSER, Extension Professor BOTSFORD, Assistant Professors BRUNETT and HALL, and Messrs. HUTTAR, MARBLE, and ANDREWS.

1. **Poultry Husbandry.** Six hours a week. Open only to students in the professional course. Lectures, M T W Th S 9, F 8.15, and by appointment. Poultry Building 375. Examination, W 2-4.

The lectures include discussions of subjects of special interest to poultrymen; opportunities in poultry husbandry; advantages and disadvantages of various types of poultry keeping; laying out and estimating the cost of poultry plants; poultry-farm management; history and characteristics of breeds; feeding for egg production and for flesh; feeding young chickens; incubating and brooding; principles of poultry-house construction; capons and caponizing; diseases; preparing eggs and poultry for market; marketing poultry products. Assignments for reading will be announced.

2. **Special Lectures.** Two hours a week. Open only to students in the professional course. T Th 4.45-5.45, and M W F 4.45-5.45 for a period of approximately two weeks. Poultry Building 375, and elsewhere by appointment.

A course of lectures, not limited to the subject of poultry husbandry, given by members of the staff of many of the departments of the College of Agriculture and of the Cornell Medical College and by men of experience outside of the University.

3. **Laboratory Practice.** Four hours a week. Open only to students in the professional course. T W Th F S 10-12.30; M F 2-4. Poultry Building 300.

This course includes the designing and drawing of plans for poultry buildings and colony houses; laying out poultry plants; selecting fowls for mating; killing, dressing, picking, and marketing poultry; testing, grading, and packing eggs; study of the formation and structure of the egg; anatomy of poultry; caponizing; study of poultry feeds, mixing rations; balancing rations; judging and scoring for fancy points and for production; sanitation.

5. **Flock Management.** One hour a week. Practice periods and extra time arranged by appointment. Practice, reporting three times daily (including Sunday) for four weeks 7.45-8.15, 12.30-1, 4-4.30.

Practice in record keeping and management of fowls for egg production and for fattening.

6. **Study of Poultry Literature.** One hour a week. Hours to be arranged. Library and outside reading. Reports by students and round-table discussions.

7. **Incubator Practice.** One hour a week. Practice, reporting three times daily (including Sunday) for four weeks, 7.45-8.15, 12.30-1, 4-4.30.

Practice in operating incubators, testing eggs, keeping records of incubation, and comparison of results.

8. **Brooder Practice.** One hour a week. Practice, reporting three times daily (including Sunday) for four weeks, 7.45-8.15, 12.30-1, 4-4.30.

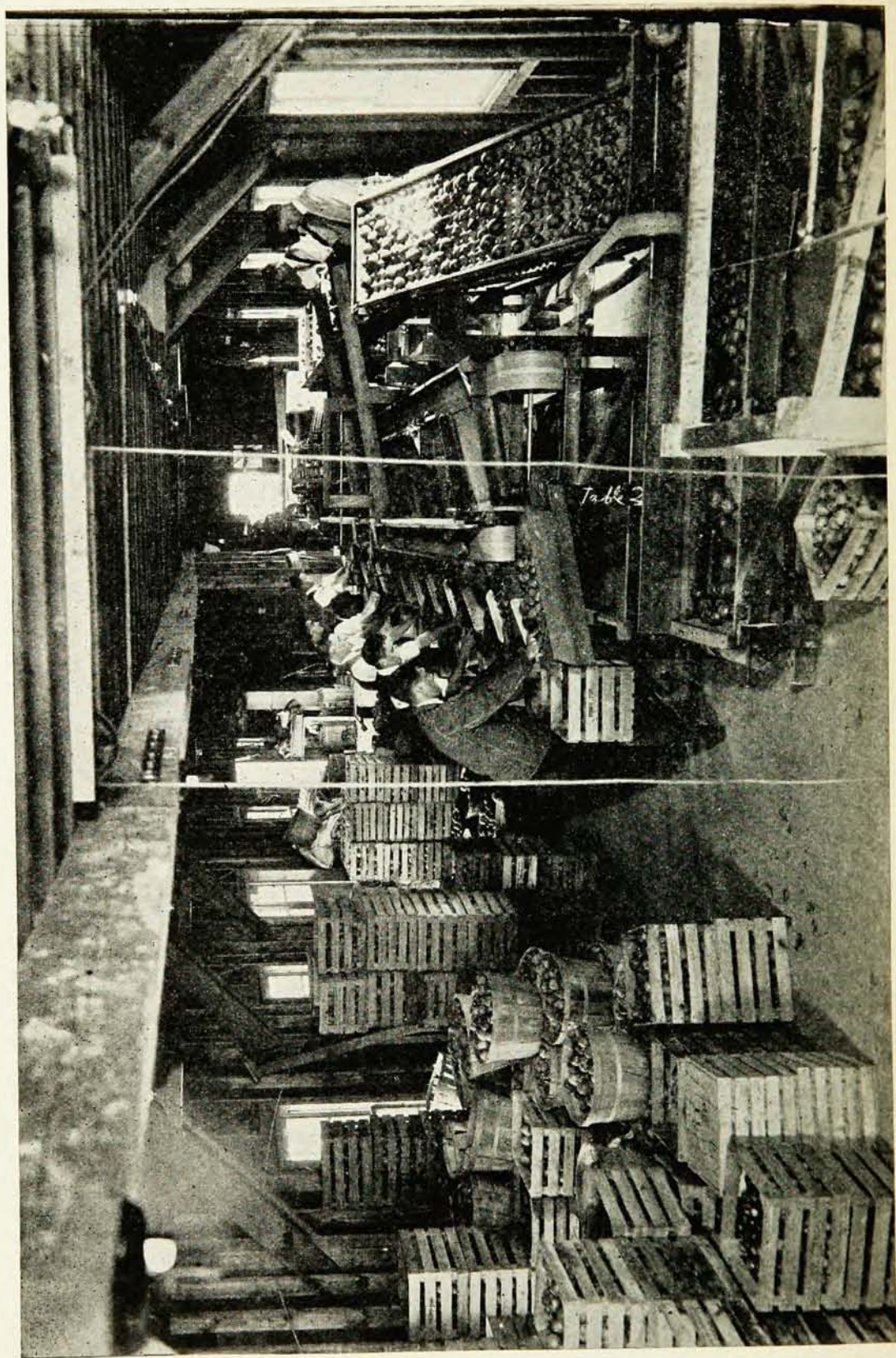
Practice in the management of a brooder and a flock of chickens; keeping of temperature, food, and growth records.

9. **Poultry Accounts.** One hour a week. Open only to students in the professional course. M, 10-12.30. Poultry Building 300.

Comparison of various methods of poultry-farm accounting, and practice in recording a set of transactions. A study will be made of the summarized results to determine the profit or loss in the various poultry-farm operations.

**Excursions.** One three-day trip will be taken, during the days immediately following the Christmas vacation, to visit successful New York State farms and the New York City markets. This trip is required, and every student must take it in order to receive full credit for the course. The total expense is approximately \$50.





LABORATORY WORK IN THE FRUIT PACKING HOUSE



#### 4. COURSE IN FRUIT GROWING

The course is intended to meet the requirements of persons engaged in commercial fruit growing. Lectures will cover the relation of the fundamental sciences to the various orchard operations, and a digest of experimental work bearing on fruit growing. Special emphasis will be placed on the interpretation of experimental work with reference to New York conditions. In the laboratory exercises each student will be given opportunity to perform all the orchard operations which the season will permit. The course should be of value to men who are preparing to become managers or foremen of fruit farms. Unless the student has had considerable previous experience, the course will not equip him for such a position.

Not more than twenty-five students can be admitted to this course unless some of the applicants have previously had the work in plant pathology.

##### REQUIRED SUBJECTS

Students planning to attend but one winter session are required to take the subjects that follow. Those without experience in fruit growing had best plan a two-years program.

1. **Commercial Fruit Growing.** Six hours a week. Lectures, M T W Th 8. East Roberts 108. Practice, W F 10-1. East Roberts 108. Professor MACDANIELS OR Professor HEINICKE.

This course includes a study of varieties and methods of propagation; principles of budding and grafting; soils, and planting plans for the orchard; cultivation; cover crops, fertilization, pruning, and thinning, as practiced in orchard management; picking, grading, packing, storing, and marketing fruit. The course considers the apple, pear, quince, cherry, plum, peach, grape, raspberry, blackberry, currant, gooseberry, and strawberry. Laboratory fee, \$2.

	<i>Hours</i>
Plant Pathology 1 (page 18).....	3
Entomology 1 (page 16).....	2
Agronomy 2 (page 15).....	3
Agricultural Economics and Farm Management 2 (page 14).....	3

Students who can possibly do so should supplement these courses with the following courses in general agriculture in a preliminary or in a succeeding session:

	<i>Hours</i>
Agricultural Economics and Farm Management 1 (page 14).....	2
Rural Engineering 1 (page 18).....	3
Vegetable Crops 2 (page 18).....	3
Poultry Husbandry 11 (page 18).....	4
Meteorology 1 (page 17).....	2
Rural Engineering 5 (page 18).....	2

Those who have had little or no experience in fruit growing are advised to take this work in a preliminary winter course, substituting Pomology 2 (page 18) in their schedules for one of the subjects here listed. By so doing, they will get a needed introduction to the subject and be better able to judge whether they desire the laboratory course.

#### 5. COURSE IN FLOWER GROWING

New York is distinctly a flower-growing State. The financial interests of the industry are greater in this than in any other State in the Union. There is keen competition among flower growers, and



progressive young men realize that they must equip themselves with all the information possible if they are to make a success of the business. Two courses are offered for those especially interested in commercial floriculture, one in the production and the other in methods of distribution of cut flowers and ornamental potted plants. These, with other required subjects, should give the student a broad knowledge of the subject and equip him well for his work.

Interest in flower growing, however, is not confined to men engaged in the commercial industry. There is an increasing demand from amateurs for information regarding the culture of plants to be used about the home, in the ornamentation of rural public buildings, and the school grounds. Courses have been arranged with a view to meeting this demand. These courses are outlined on page 17. Those following are planned especially for persons who intend to engage in commercial floriculture.

### REQUIRED SUBJECTS

**1. Commercial Flower Production and Greenhouse Practice.** Five hours a week. Lectures, M 12, W 8, Th 11, F 8. Marketing Building. Practice, S 10-12.30. New Greenhouses. Professor WHITE and Mr. LONGLEY.

A study of the methods of growing standard florists' crops, such as roses, carnations, violets, sweet peas, orchids, and plants for bedding. So far as possible, laboratory practice in growing these crops will be given. The course is designed to familiarize the student with the ordinary work of the greenhouse. Laboratory fee, \$3.

### REQUIRED SUBJECTS

	<i>Hours</i>
Agronomy 2 (page 15).....	3
Plant Pathology 1 (page 18).....	3
Entomology 1 (page 16).....	2
Plant Breeding 1 (page 17).....	3

### ELECTIVE SUBJECTS

	<i>Hours</i>
Floriculture and Ornamental Horticulture 3 (page 17).....	4
Floriculture and Ornamental Horticulture 4 (page 17).....	2
Floriculture and Ornamental Horticulture 6 (page 17).....	3

**2. The Distribution of Cut Flowers and Potted Plants and the Management of Retail Flower Stores.** Four hours a week. Lecture and laboratory periods, M 2-6, Th 3-6, F 11-1. New Greenhouses. Occasional lectures by outside speakers, W 3. Caldwell 100. Mr. FARNHAM.

A course designed particularly for training young men and women to become expert store managers and assistants. All factors which concern flower store work, including business administration, purchasing of supplies, salesmanship, delivery, decorations, the artistic use of flowers, and similar topics, are discussed. Frequent lectures are given by practical men from various parts of the United States who have made a pronounced success in their special lines. Laboratory fee, \$5.

### REQUIRED SUBJECTS

	<i>Hours</i>
Floriculture and Ornamental Horticulture 1 (page 28).....	5
Floriculture and Ornamental Horticulture 4 (page 17).....	2
Floriculture and Ornamental Horticulture 6 (page 17).....	3
Plant Breeding 1 (page 17).....	3



## 6. COURSE IN VEGETABLE CROPS

With the rapid growth of cities and with vegetable food occupying a place of constantly increasing importance, the demand for vegetables has increased greatly during the past few years. An ever-increasing number of persons are looking to the growing of vegetables as a source of their income, particularly on specialized vegetable farms and in connection with other types of agriculture.



CLASS WORK IN A VEGETABLE GREENHOUSE

In view of this growing interest in vegetables, the Department of Vegetable Gardening offers the following course. This course is intended to meet the needs of persons who desire to obtain, in a short time, a fundamental knowledge of the principles and practices of commercial vegetable growing. The principles underlying successful vegetable production, storage, and marketing are discussed. Methods of applying these principles to different phases of vegetable gardening are described.

This course is designed especially for students who have had some farm experience. It should be of value to owners, and to those who plan to become managers or superintendents of specialized vegetable farms as well as to those who plan to grow or handle vegetables in a commercial way in conjunction with some other phase of agriculture, such as fruit growing or poultry husbandry.

Students without experience, but desiring some knowledge of either home or commercial vegetable gardening, will find the course described on page 18 suited to their needs.



## REQUIRED SUBJECTS

**1. Commercial Vegetable Growing.** Four hours a week. Lectures, M W F 4. Poultry Building 325. Laboratory, S 10.30-1. Vegetable Greenhouses. Professor HARDENBURG.

A comprehensive survey is given of the vegetable industry as conducted in New York State. The problems of the market gardener, the vegetable forcer, the truck grower, the muck-land farmer, and the producer of canning crops, are considered. Lectures are given on the principles of production and handling of vegetables under New York State conditions.

The laboratory work includes exercises in plant growing, vegetable-variety studies, hotbed and coldframe construction and management, and the grading and handling of important vegetable crops. Members of the class who desire may participate in a one-day excursion to Rochester, in January, to visit vegetable greenhouses and packing houses; cost, about \$9. Laboratory fee, \$1.50.

Unless taken in a previous winter course, the following subjects should be included in the student's schedule:

	<i>Hours</i>
Agronomy 2 (page 15).....	3
Entomology 1 (page 16).....	2
Plant Pathology 1 (page 18).....	3

At least one of the following courses should also be taken:

Agricultural Economics and Farm Management 1 (page 14).....	2
Plant Breeding 1 (page 17).....	3
Rural Engineering 1 (page 18).....	3
Meteorology 1 (page 17).....	2

Those who expect to combine fruit growing with vegetable crops should take the four required courses listed and should add Pomology 1 (page 27). Similarly, those interested in poultry should add Poultry Husbandry 5, 7, 8, and 11 (pages 25 and 18).

A two-years program in vegetable crops and fruit growing may be arranged as follows:

## FIRST YEAR

	<i>Hours</i>
Agronomy 2 (page 15).....	3
Agricultural Economics and Farm Management 1 (page 14).....	2
Pomology 2 (page 18).....	4
Vegetable Crops 2 (page 18).....	3
Rural Engineering 1 (page 18).....	3

## SECOND YEAR

	<i>Hours</i>
Vegetable Crops 1 (page 30).....	4
Plant Pathology 1 (page 18).....	3
Fruit Growing 1 (page 27).....	6
Entomology 1 (page 16).....	2

The three lines of work, vegetable crops, fruit growing, and poultry husbandry, may also be brought together in a two-years program, as follows:

## FIRST YEAR

	<i>Hours</i>
Agronomy 2 (page 15).....	3
Vegetable Crops 2 (page 18).....	3
Poultry Husbandry 11 (page 18).....	4
Poultry Husbandry 5, 7, 8 (page 25).....	3
Pomology 2 (page 18).....	4



## SECOND YEAR

<i>Either</i>	<i>Hours</i>
Vegetable Crops 1 (page 30).....	4
Pomology 1 (page 27).....	6
Plant Pathology 1 (page 18).....	3
Entomology 1 (page 16).....	2
<i>Or</i>	
Poultry Husbandry 1, 2, 3, 6, 9 (page 25).....	14
with one of the following:	
Rural Engineering 1 (page 18).....	3
Agricultural Economics and Farm Management 2 (page 14).....	3

## SPECIAL UNIT COURSES

## HANDLING AND MARKETING POTATOES AND CABBAGE

Farmers and others interested in the problems incident to the proper handling and marketing of farm produce may enroll for either one or two weeks of intensive practical study of these problems. Special attention will be given this year to both subject matter and practice relating to potatoes and cabbage. These one-week courses will be given independent of each other, and persons may register for either or both courses.

These courses are intended for any one interested in the handling and marketing of these commodities—for growers, shippers, inspectors, buyers, county agricultural agents, teachers, and the like.

January 7 to 11 inclusive

**Handling and Marketing Potatoes.** Professors HARDENBURG and RASMUSSEN.

January 14 to 18 inclusive

**Handling and Marketing Cabbage.** Professors HARDENBURG and RASMUSSEN.

Lectures and discussions will accompany the practice laboratories. The problems concerned in the handling of these commodities will include the study of varieties and commercial types, United States grades, preparation and grading for market, storage principles and construction, factors affecting market quality, packing and containers, car-loading, shipping-point inspection, and inspection reports.

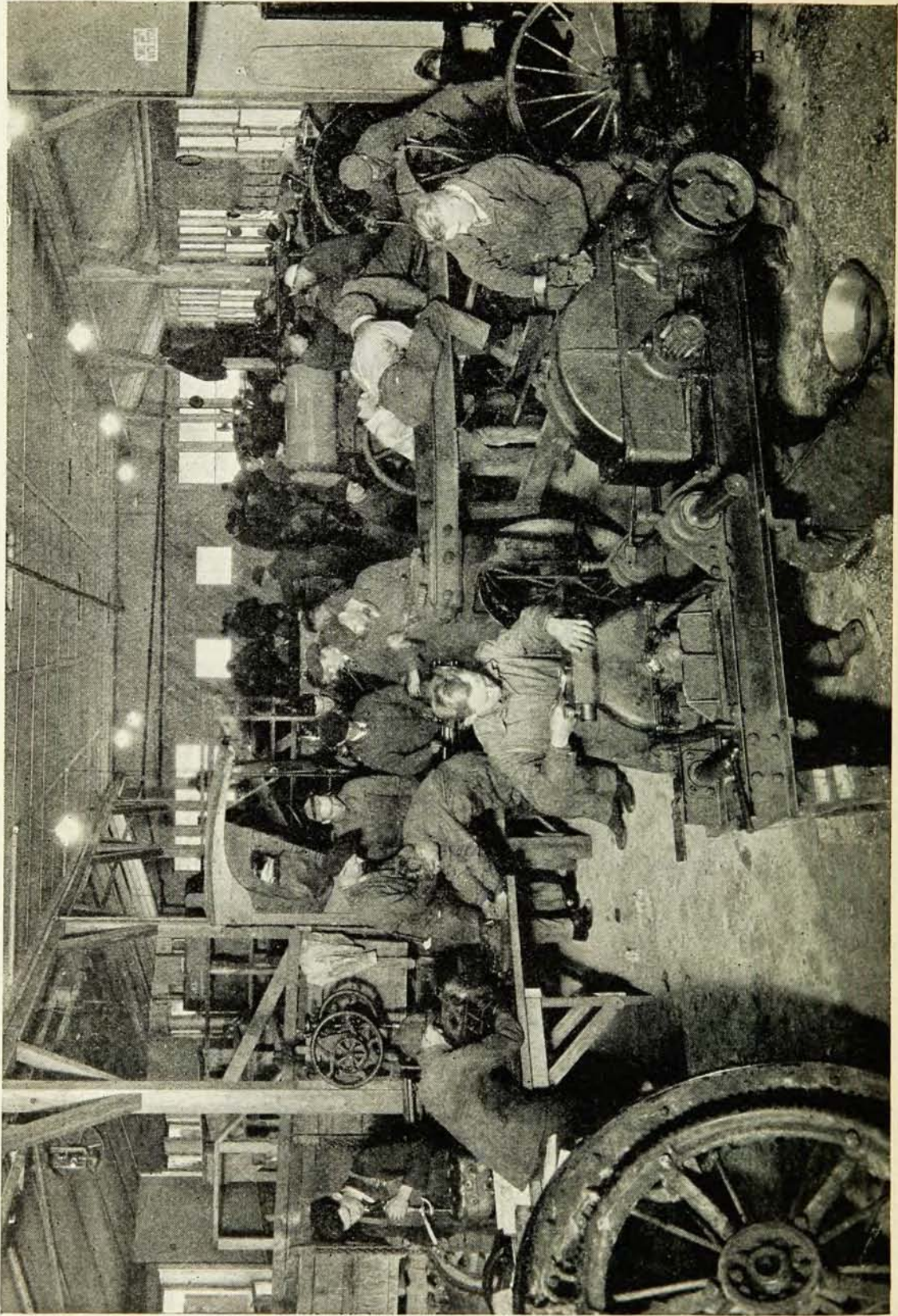
Marketing problems to be discussed will include competition, distribution, methods of buying and selling, how to use crop and market reports, market preferences, marketing costs, relation of grade to price, and so forth.

## RURAL ENGINEERING

Requirements for admission to the course in rural engineering are the same as for the twelve-weeks winter courses. A laboratory fee of \$5 will be required.

This course is designed to meet the needs of those who wish to come to the New York State College of Agriculture and study only work in farm mechanics. One may start this course with the opening





RURAL ENGINEERING LABORATORY  
Students have an opportunity to learn to repair and adjust farm machinery in the shops of the Department of Rural Engineering



of the general Winter Course or he may start any Monday thereafter until January 21, and continue as long as he desires until Farm and Home Week.

It is expected that one registering in this course will have in mind a definite problem or problems which he wishes to study. Each subject may be studied as long as desired, at the end of which time a new subject may be taken up.

It is understood that while a student is registered in this course he is expected to be at work from 8 a.m. until 5 p.m. daily, except Saturday when the laboratory closes at noon.

All of the subjects listed are under the direct supervision of Professor Robb and Mr. Chadwick, assisted, at times, by other members of the staff.

**Farm Carpentry and Tool Sharpening.** This course includes study and practice in planning and laying out structures, in writing bills of material, and in cutting and erecting frames and rafters. Arrangements may be made so that the student may make for himself a set of whippletrees, a hay rack, or a small portable building.

It is recommended that a student bring with him as many as possible of his own tools to sharpen, to put in new handles, and to otherwise condition.

**Harness.** In harness work the student will learn to cut and prepare straps from a side of leather, to stitch leather, to select and put in buckles, and to use repair parts suitable for different kinds of repair jobs. A student must bring with him a harness in need of repair, if he desires practice in overhauling and reconditioning a harness.

**Gas Engines.** The purpose of this course is to familiarize the student with the principles of operation of gas engines. He will also learn to fit bearings and to grind and time valves. In order to get the most out of the work a student should bring with him a small one-cylinder engine to completely overhaul.

**Dynamite and Explosives.** Dynamite and explosives will be studied by actual practice in blasting stumps and stones, and in blowing out ditches. This work must be done before cold weather sets in.

**Farm Blacksmithing.** Farm blacksmithing will include horseshoeing and such forging as is needed to be done on a farm. Practice will be given in making, sharpening, and tempering cold chisels, punches, and other tools, and in welding and shaping iron.

**Knots, Splices, and Hitches.** The student will learn to splice a hay rope and to tie some of the knots that are useful on a farm.

**Soldering.** This course will include a study of the principles of soldering and the preparation and use of fluxes. Practice will be given in fitting and timing a soldering copper and in soldering various metals.

**Plumbing, Pumps, and Water Systems.** The student will learn to plan and install water systems. In installing such systems, he will practice cutting and fitting pipes and placing fixtures. He will also learn to operate and repair pumps.

**Concrete.** This course includes a study of concrete and its uses. Practice will be given in concrete construction, including the calculation of the amount of materials needed for a specific job and the testing of sand. This work is best done before the weather gets too cold.

**Power Transmission.** Calculation of the speed of a pulley, the size of pulley needed in any definite place, the length and width of belt needed for a job, and how to lace a belt, are the subjects studied in this course. Practice will be given in putting up line shafting, in fitting pulleys, and in setting machinery.



**Tractors and Trucks.** A tractor or a truck may be completely overhauled. Instruction and practice will be given in reseating and timing valves, in scraping and fitting bearings, and in timing ignition. Opportunity will be given to rebore and hone cylinders and to fit piston rings where needed. The College will furnish tools, a place to work, and small supplies; it does not furnish the tractor or the truck to work on, or the repair parts used.

It is suggested that if, for example, a student has a truck and his neighbor has a tractor, that the student load the tractor in the truck and take it to Ithaca. As many as six men may work with one tractor and one truck.

**Farm Machinery.** In addition to the machinery already mentioned, a student may bring with him any farm implement which is out of repair, such as riding cultivator, drill, mowing machine, or any other piece of farm equipment from a pitch fork to a grain binder.







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This series of pamphlets is designed to give prospective students and other persons information about Cornell University. No charge is made for the pamphlet unless a price is indicated after its name in the list below. Requests for pamphlets should be addressed to the Secretary of the University at Ithaca. *Money orders should be made payable to CORNELL UNIVERSITY.*

The prospective student should have a copy of the

*General Circular of Information*

and a copy of one or more of the following Announcements:

*Announcement of the College of Arts and Sciences.*

*Announcement of the College of Engineering.*

*Announcement of the Law School.*

*Announcement of the College of Architecture.*

*Announcement of the New York State College of Agriculture.*

*Announcement of the Winter Courses in the College of Agriculture.*

*Announcement of the New York State College of Home Economics.*

*Announcement of the Course in Hotel Administration.*

*Announcement of the New York State Veterinary College.*

*Announcement of the University Division of Education.*

*Announcement of the Department of Chemistry.*

*Announcement of the Graduate School.*

*Announcement of the Summer Session.*

*Announcement of the Summer Session of the Law School.*

*Announcement of the Summer School of Biology.*

*Announcement of the Farm Study Courses.*

*Program of the Annual Farm and Home Week.*

*Annual Report of the President.*

Special departmental announcements, a list of prizes, etc.

Other periodicals are these:

*The Register*, published annually in September, and containing, not announcements of courses, but a comprehensive record of the University's organization and work during the last year. Price, 50 cents.

*Guide to the Campus*. A book of 132 pages, including 55 illustrations and a map in three colors. Price, 50 cents.

*Directory of the University*. Price, 10 cents.

The *Announcement of the Medical College* may be obtained by addressing the Cornell University Medical College, Ithaca, New York.

Correspondence regarding the Cornell University Official Publication should be addressed to

THE SECRETARY, CORNELL UNIVERSITY,  
ITHACA, NEW YORK.