

LONG ISLAND  
BIOLOGICAL ASSOCIATION

ANNUAL ANNOUNCEMENT  
of the  
**Biological Laboratory**

COLD SPRING HARBOR  
LONG ISLAND, NEW YORK

Forty-Fourth Year

1 9 3 3

LONG ISLAND  
BIOLOGICAL ASSOCIATION  
Incorporated 1924

ANNUAL ANNOUNCEMENT  
of the  
BIOLOGICAL LABORATORY  
Founded by JOHN D. JONES, 1890

For the Service of Biology,  
through the Study of Marine,  
Fresh Water and Land Organisms

COLD SPRING HARBOR  
LONG ISLAND, NEW YORK

Forty-Fourth Year

1 9 3 3



PHOTO BY  
JUNDEH

General view of part of the Laboratory grounds and buildings and of Cold Spring Harbor, taken from Cannon Hill, a portion of the thirty acres of land owned by the Biological Laboratory. 1—Hooper House. 2—Cottage. 3—John D. Jones Laboratory. 4—Wavepex Laboratory. 5—Corner of Blackford Hall.

## THE LONG ISLAND BIOLOGICAL ASSOCIATION

**President**  
Arthur W. Page

**Vice President and Treasurer**  
Marshall Field

**Vice President**  
W. J. V. Osterhout

**Secretary**  
Charles B. Davenport

### BOARD OF DIRECTORS

#### To serve until 1936

W. J. Crozier .....	Harvard University
Oliver B. James .....	Cold Spring Harbor, N. Y.
Walter Jennings .....	Cold Spring Harbor, N. Y.
Mrs. Van Santvoord Merle-Smith .....	Oyster Bay, N. Y.
W. J. V. Osterhout .....	Rockefeller Institute
Charles R. Stockard .....	Cornell Medical College

#### To serve until 1935

Charles M. Bleeker .....	Cold Spring Harbor, N. Y.
Marshall Field .....	Huntington, N. Y.
Ross G. Harrison .....	Yale University
Wilton Lloyd-Smith .....	Huntington, N. Y.
Arthur W. Page .....	Cold Spring Harbor, N. Y.
William K. Vanderbilt .....	Centerport, N. Y.
H. E. Walter .....	Brown University

#### To serve until 1934

Robert Chambers * .....	New York University
S. R. Detwiler .....	Columbia University
John Schiff .....	Oyster Bay, N. Y.
W. W. Swingle .....	Princeton University
Henry C. Taylor .....	Cold Spring Harbor, N. Y.
Willis D. Wood .....	Huntington, N. Y.

#### To serve until 1933

James C. Ayer .....	Glen Cove, N. Y.
C. B. Davenport .....	Carnegie Institute of Washington
Reginald G. Harris .....	The Biological Laboratory
Henry Hicks .....	Westbury, N. Y.
Acosta Nichols .....	Oyster Bay, N. Y.
H. M. Parshley .....	Smith College
John K. Roosevelt .....	Glen Cove, N. Y.

\* Elected December 14, 1932.



THE JOHN D. JONES LABORATORY



BLACKFORD HALL



FISH POND AT THE HATCHERY

## THE LABORATORY STAFF

- \*Reginald G. Harris ..... Director, The Biological Laboratory  
Physiology of Reproduction
- \*Hugo Fricke ..... The Biological Laboratory  
Biophysics
- \*A. J. Grout ..... The Biological Laboratory  
Bryology
- Asa A. Schaeffer ..... Professor of Biology, Temple University  
Research in Protozoology
- W. W. Swingle ..... Professor of Zoology, Princeton University  
Surgical Methods in Experimental Biology
- H. S. Conard ..... Professor of Botany, Grinnell College  
Plant Sociology
- J. H. Bodine ..... Professor of Zoology, University of Iowa  
Research in General Physiology, Chairman Scientific Advisory Committee
- S. I. Kornhauser ..... Professor of Anatomy and Embryology  
University of Louisville, Medical School  
Field Zoology
- Justin Andrews ..... Associate Professor of Protozoology, School of  
Hygiene and Public Health, Johns Hopkins University  
Research in Protozoology
- J. S. Nicholas ..... Assistant Professor of Zoology, Yale University  
Research in Embryology
- W. J. V. Osterhout ..... Rockefeller Institute for Medical Research  
Chairman Advisory Committee on Physiology and Biophysics
- Christianna Smith, Associate Professor of Zoology, Mount Holyoke College
- Israel S. Kleiner ..... Professor of Physiological Chemistry  
New York Homeopathic Medical College and Flower Hospital  
Research in Physiological Chemistry
- Bert Cunningham ..... Professor of Biology, Duke University  
Endocrinology

\* Member of All-Year Staff.

- Charles B. Davenport ..... Director, Department of Genetics,  
Carnegie Institution of Washington  
Lecturer
- I. R. Taylor ..... Assistant Professor of Biology, Brown University  
General Physiology
- C. H. Curran ..... Assistant Curator, Department of Entomology,  
American Museum of Natural History  
Associate in Field Zoology
- Herman T. Spieth ..... Department of Biology, College of the  
City of New York  
Associate in Field Zoology
- \*Eugene R. Brownscombe ..... The Biological Laboratory  
Chemist
- \*Howard J. Curtis ..... The Biological Laboratory  
Physicist
- Louisa M. Sargent ..... Assistant Professor of Botany, Grinnell College  
Associate in Plant Sociology
- William M. Parkins ..... Princeton University  
Assistant in Surgical Methods in Experimental Biology
- Harry W. Hays ..... Franklin and Marshall College  
Assistant in Surgical Methods in Experimental Biology
- Frederick Crescitelli ..... Brown University  
Assistant in Physiology
- James H. Birnie ..... Brown University  
Chemical Supplies
- \*Ernest Victoreen ..... The Biological Laboratory  
Guest Investigator
- \*Catherine Brown ..... Secretary
- \*D. M. Gallagher ..... Radio Engineer
- \*Member of All-Year Staff.

## HISTORICAL SKETCH

The Biological Laboratory was established at Cold Spring Harbor in 1890 as a department of the Brooklyn Institute of Arts and Sciences. Prominent among the founders and early patrons of the Laboratory were Professor Franklin W. Hooper, Director of the Institute, who, through his acquaintance with Professor Agassiz's station at Penikese Island, immediately recognized the advantages of Cold Spring Harbor for the location of a permanent biological laboratory. Mr. Eugene G. Blackford, fish commissioner of New York and the first president of the Board of Managers of the Laboratory, with others, was influential in interesting Mr. John D. Jones in the newly founded station.

In 1894 Mr. Jones (in collaboration with his brother, Walter R. T. Jones) erected, on land provided by him for the use of the station, a building to which the laboratory was immediately transferred from the previous cramped quarters of the State Fish Hatchery. From this modest beginning The Biological Laboratory has steadily grown until its present equipment includes two laboratory buildings for use throughout the year, three laboratory buildings for summer use, Blackford Memorial Hall, five other dormitory buildings and cottages, all of which are heated and used throughout the year, and four of which are provided with small apartments.

During the forty-three years of its existence The Biological Laboratory has been instrumental in the training of over two thousand biologists, while many scientific investigations of note have been carried on by investigators in residence at Cold Spring Harbor.

In 1924 the Biological Laboratory was transferred from the Brooklyn Institute of Arts and Sciences to the Long Island Biological Association, Incorporated. With this transfer the activity of the Laboratory is placed in the hands of biologists and neighbors of the station. Already the advantages of this action are apparent in the improvement and addition of facilities for scientific work.

During the last seven years six notable additions have been made to the assets of the Laboratory. These are the purchase of over thirty-two acres of land with a large dwelling house and with frontage on Cold Spring Harbor; the erection of a new laboratory building about 45 by 26 feet, with two stories and a basement, used as a general laboratory; the purchase of the Stewart cottage; the gift of the George Lane Nichols Memorial Laboratory; the gift of the Doctor Walter B. James Memorial Laboratory, and the purchase and remodelling of the old Cold Spring Harbor fire house.

## SITUATION

The Biological Laboratory stands on the shore of a remarkable harbor five miles long and hardly a mile wide—a deep fiord, stretching back into the land and limited on each side by a lofty plateau. The harbor is not exposed to the surf of the ocean, with the result that marine animals and plants grow here in great numbers, in a way which is impossible upon an unsheltered beach. The inhabitants of rocks, of gravelly and shelly and muddy bottoms, all live here in great profusion. Combined with these marine conditions there is an extraordinary abundance of fresh water—



a chain of small lakes, numerous small ponds and springs. Woods and uplands complete the unusual series of habitats.

The Laboratory is situated in a center of biological activity that is maintained throughout the year. The State of New York maintains here its largest fish hatchery, where many millions of brook trout and tom cod are annually hatched. The Department of Genetics, Carnegie Institution of Washington, with its library of 12,000 volumes, and a permanent staff of research associates and assistants, is located on the grounds adjoining those of The Biological Laboratory. The Eugenics Record Office, also of the Carnegie Institution of Washington, devoted to the collection and study of data on human heredity, is located nearby.

### THE BIOLOGICAL LABORATORY IN 1933

The Biological Laboratory exists for the advancement of biology in the most fundamental sense. To this end it (1) promotes biological research at all times (a) through a permanent staff and through guest investigators resident throughout the year, (b) through welcoming investigators who wish to make use of the facilities of the Laboratory during any period, especially during the summer; and (2) through giving advanced instruction during the summer to serious students of biology.

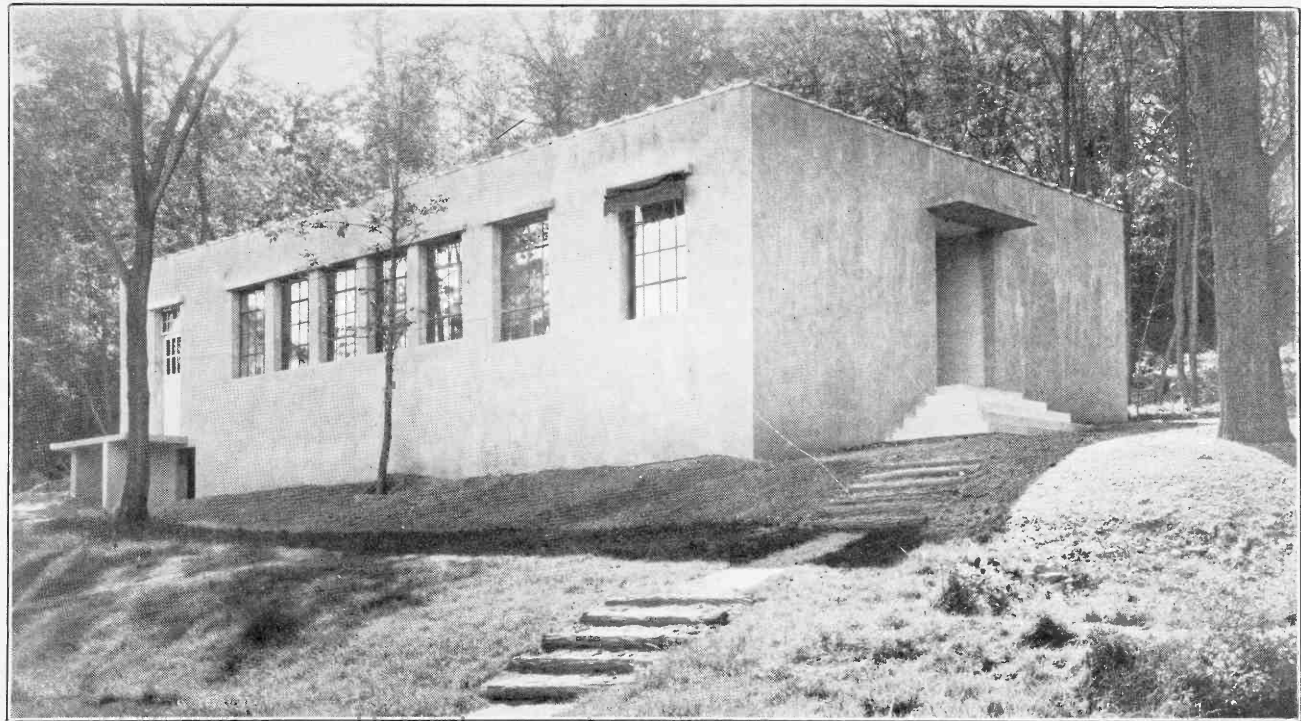
**Special Work on Potentials This Summer.** This year the Biological Laboratory will initiate a plan whereby each summer a small group of investigators will be brought together covering some important phase of biology. For the summer of 1933 the subject of potentials has been chosen. Leaders in the various means of obtaining knowledge, both theoretical and experimental, in this field, will have their apparatus, and carry on their work, at the Laboratory. A small group of advanced and qualified students, not exceeding 10 in number, will be selected to have the opportunity of working with these men, a given student being attached permanently to one man or being allowed to circulate through the group, in either case the student will have ample occasion to view the field as a whole.

The group this summer will represent particularly such aspects of the general problem as diffusion potentials, cataphoresis, polarization, Donnan potentials, streaming potentials, oxidation-reduction potentials, together with the theoretical mathematical aspects and the application to medicine. For further details regarding this work, address the Director of the Laboratory.

The general problem receiving special attention will be changed from year to year, being chiefly concerned with quantitative biology, particularly those fields related to the exact sciences, mathematics, physics and chemistry, and intermediate divisions.

The active promotion of research throughout the year gives an atmosphere to the whole Laboratory which the investigator and the student find agreeable and stimulating. The permanent work has been arranged with a view to its value to the summer work as well as its intrinsic value.

The research in biophysics is concerned with the chemical action of



THE DOCTOR WALTER B. JAMES MEMORIAL LABORATORY

X-rays upon cells and tissues, soft X-ray photography, and the electrical capacity of biological cells and systems and their resistance to electric currents of high frequency. At the same time, the excellently equipped biophysical laboratory provides an unusual opportunity for the many biologists, both students and investigators, who are interested in the possibilities of applying physical methods to biological problems, to become acquainted with such methods, and with machines, their construction, and uses.

In addition to the special advantages of the Laboratory, due to its situation on the seashore and near abundant fresh water and an unusual combination of land habitats, adequate equipment is available for mammalian work. Special mention should be made of the excellent material abundantly available for research in general physiology and in embryology provided by *Nitella* throughout the year, by frogs and salamanders in the spring; by *Fundulus*, starfish and many other forms in the summer, and by tomcod (*Microgadus*) in the winter; whose spawning period in December provides an unusual opportunity of which professors and others can avail themselves during the Christmas holidays. All of these forms, and many others, are easily obtainable at the Laboratory where facilities for working and for residence are available throughout the year.

Special notice should be taken of the fact that during this year improvements have been made in the method of collecting and storing seawater so that its specific gravity and temperature are now relatively constant at the taps. The collecting of experimental material from the floor of the Sound has also been considerably improved through arrangements with local oyster boats, whereby their dredging and collecting facilities will supplement those of the Laboratory.

There are five laboratory buildings, two of which, the Doctor Walter B. James Memorial Laboratory for biophysics and the George Lane Nichols Memorial Laboratory, are completely heated and in use throughout the year. Three of the five laboratories are equipped with running sea water, the source and piping of which insure freedom from toxic substances. Of the six dormitories and dwelling houses, five are centrally heated. A number of small apartments have been arranged which are available summer or winter. At all times it is wholly optional whether workers eat at the general dining room or keep house. In addition to the living accommodations available at the Laboratory a number of building lots are procurable, while frequent bus service to Huntington makes it practicable for investigators and their families, who so desire, to live in this pleasant town while working at the Laboratory. Huntington is the business center of this region and provides very adequate shops of many kinds.

Special attention is called to the fact that the Laboratory is eager to cooperate with persons having sabbatical leave, to the end that such leave may be of the greatest possible advantage to themselves and to biology. The Laboratory is ready not only to place its facilities at the disposal of such biologists who wish to carry on research but to give supplementary financial support during the period of residence, whenever that is desirable and necessary.



THE GEORGE LANE NICHOLS MEMORIAL RESEARCH LABORATORY

The Biological Laboratory is equally eager to aid in the accomplishment of biological research, in the further training of young biologists, and in providing a suitable environment in which biological work of many kinds may be satisfactorily carried on with the result that each worker may have the advantages of the broadening and stimulating association with workers in other fields. It is certain that this will promote the biologist's happiness and the general value and usefulness of his work.

The summer investigator in 1933 will find the spirit of cooperation and informal comradery which has characterized the Laboratory, and he will also find facilities suitable for the successful prosecution of his work. The student will find himself among competent instructors in an atmosphere where research and seriousness of purpose, coupled with a healthy and agreeable life, predominate.

**Beginning Investigators.**— The staff of the Laboratory is so composed that various members are eminently fitted to give advice in a wide range of research including ecology, physiology, embryology, endocrinology, pharmacology, biophysics, biochemistry, anatomy, protozoology, entomology, histology, and genetics, in plants and in various groups of animals from protozoa to mammals. Advanced students of approved standing are allowed to choose the investigator with whom they will work. They may continue to work upon problems which they have already started or, after appropriate conferences, begin work upon new problems. While such work will be carried on under the guidance of individual members of the staff, the student will find the tradition of the Laboratory such that it is always possible and agreeable to approach all members of the staff in seeking advice concerning his problem. (See special work on potentials this summer).

**Biophysics.** Dr. Fricke. The laboratory contains shops for mechanical, electrical and glass work as well as a laboratory for X-ray investigations, a chemical laboratory, a laboratory for work with electrical currents of high frequency, a library, and a purchasing office. The equipment includes apparatus both for the technical shops and for the scientific laboratories. Larger pieces of apparatus within this category are: equipment for high vacuum research; a 140 K. V., 10 K. W. generating outfit for X-ray work; apparatus for soft X-ray photography; apparatus for measuring X-ray dosage in the international r-unit; apparatus for the measurement of electrical resistance and capacitance of biological cells at different frequencies; equipment for ultra-violet work.

**Experimental Endocrinology.** Designed primarily to aid research students in the experimental methods of investigation in endocrine biology, including the extirpation and transplantation of the glands of internal secretion. Dr. Swingle.

**Physiology of Reproduction.** Two or three advanced students who wish to work as voluntary research assistants will be given problems concerned with the physiology of reproduction in mammals. Arrangements should be made in advance. Dr. Harris.

## INSTRUCTION

The Laboratory offers courses in Zoology and Botany during the summer. These courses are designed for the training of investigators and others who intend to make primary use of pure or applied biology in the professions which they plan to enter. They offer, at the same time, an opportunity for students of biology to receive the advantages of the study of living organisms in their natural habitats: the sea, fresh water ponds and streams, and the land, thereby supplementing the usual college training in biology.

The taking of examinations and the assignment of grades is optional with the student. The Laboratory will certify to the satisfactory completion of the work of any course upon the recommendation of the instructor of the course.

### Admission

**Notice:** The several courses do not all begin at the same time. The course in Field Zoology opens on the 16th of June. The courses in General Physiology, and in Surgical Methods in Experimental Biology begin June 20th. The course in Plant Sociology begins July 28th. Each course is of six weeks' duration, though students are invited to continue their work after the formal instruction of a given course has ended.

Application for admission to the Laboratory should be made on a form which may be obtained from the Laboratory upon request. New applicants must present supporting statements from their former or present instructors in biology. Applications should be made before May 15th, on which day notices of the action taken on all applications will be sent to the applicants. Applications for admission received subsequently will be acted upon immediately.

Rooms are reserved in the order of application. The application must be accompanied by a fee of \$5.00 to secure the reservation of a room. This fee is a deposit applicable to the student's account. The earlier applicants receive a choice of living accommodations. In all cases in which applications are not accepted by the Laboratory the deposit will be refunded. In other cases the deposit will not be refunded after May 10. The tuition fee is payable at the time of registration. Board and room rent are payable in advance either for the season or by the week.

All courses, except where stated to the contrary, occupy six to seven hours per day.

### I. Zoology

1. **Field Zoology.** This course is intended for college students who have already pursued elementary courses in biology, and for recent graduates interested in biological problems. The course has two objects in view: first, to acquaint students with the materials for the study of biological problems in their natural habitats; and second, to introduce the students to problems of investigation at a place where the material can be obtained fresh, and worked upon under optimum conditions.

For carrying out the first of these objects, a number of field trips will be taken to a wide variety of habitats such as Cold Spring Harbor offers so splendidly. The time will be divided so as to give opportunity for the study of marine, fresh water and land life. The principal objects of these trips will be a consideration of the organisms in relation to their environment, although some time must necessarily be spent upon collection and identification of specimens to make each student familiar with the fauna.

The second object of the course will be accomplished by each student's carrying on a problem selected by him from a wide range of suggested subjects and the material available. Approximately one-half the time should be spent on this investigation, the student becoming familiar with methods of biological research and the use of the library in looking up literature on his particular problem. The course is limited to 15 students. If possible, each student should bring a compound microscope, a binocular microscope, or both, and a set of dissecting instruments. Drs. Kornhauser and Spieth, and Mr. Curran.

**2. General Physiology.** A course of instruction dealing with fundamental vital phenomena and designed chiefly for advanced students with adequate training in the biological and related sciences who wish to become familiar with the outstanding phases of General Physiology and to secure training in the methods of fundamental physiological research. The work is planned to meet the needs of students with, and those without, previous training in General Physiology.

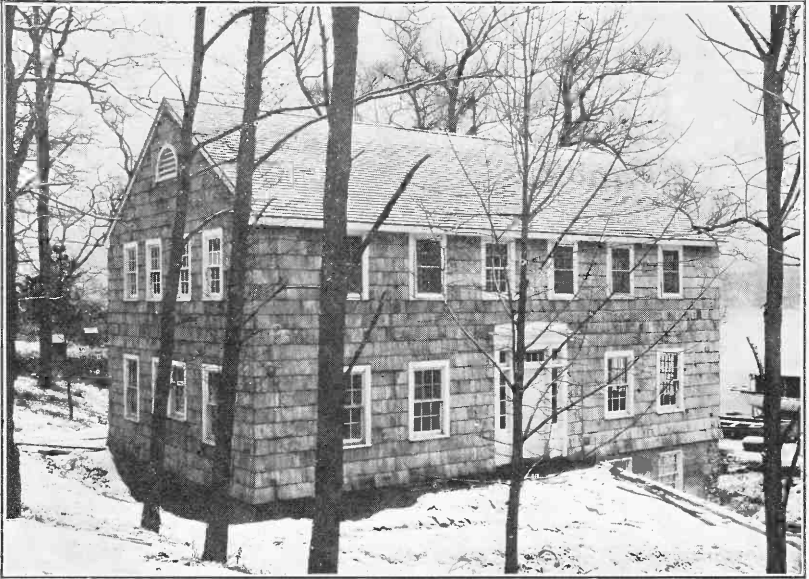
The course consists of daily lectures and laboratory work to supplement the lectures. Those phases of General Physiology in which original investigation can be profitably carried out are brought to the attention of the class.

The lectures this year will deal chiefly with the following subjects: physiology of contraction, excitation, conduction, physiological effects of ions, cell permeability, hydrogen-ion activity, physiological effects of temperature and light, bioelectrical phenomena, viscosity of protoplasm and bioluminescence. All topics are discussed from the broadest biological viewpoint.

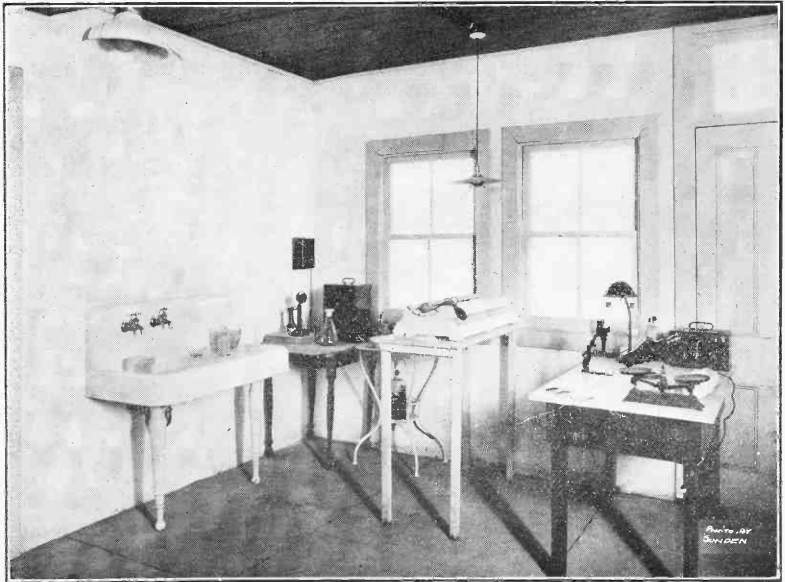
The regular laboratory experiments will include work on contractile tissues and nerves, effects of ions and temperature, injury and membrane potentials, cell permeability, artificial parthenogenesis, respiratory exchange of small organisms, colloidal phenomena, hydrogen-ion activity as determined by the colorimetric method and the hydrogen and quinhydrone electrodes, cataphoresis and other phenomena. To some extent use is made of the marine forms found in abundance at Cold Spring Harbor.

For the work of the course each student will need a dissecting set and a compound microscope. The number of students is limited to 12. Dr. Taylor, Mr. Crescitelli.

**3. Surgical Methods in Experimental Biology.** This is primarily a course in experimental surgery designed for advanced students who wish to obtain knowledge of mammalian surgical technique. The first two-thirds of the course is concerned solely with operative procedure;



THE PHYSIOLOGY LABORATORY



A CORNER OF THE OPERATING ROOM IN THE BASEMENT OF THE WAWEPEN LABORATORY



the last third of the work is devoted to the study of special physiological methods. The number of students is limited to 12. The hours are from nine A. M. to one P. M. and from two to four P. M. daily, except Saturday afternoon and Sunday. Opportunities and encouragement are given for students to engage in research. The scope of the work is indicated in the following outline:

1. Use of anaesthetics
2. Preparation of animals for operation
3. Methods for obtaining blood and for injecting materials, use of catheters, stomach tubes, vermifuges, etc.
4. Post-operative care and therapeutic treatment of animals
5. Operations
  - A. Devocalization
  - B. Nephrectomy
  - C. Ovariectomy
  - D. Castration
  - E. Splenectomy
  - F. Thyro-parathyroidectomy
  - G. Adrenalectomy
  - H. Technique of tissue transplantation
  - I. Parathyroid transplantation
  - J. Pancreatectomy
  - K. Gastro-intestinal surgery
    - a. Gastroduodemostomy
    - b. Gastro-enterostomy
    - c. End to end anastomosis of intestine
    - d. Lateral anastomosis of intestine
    - e. Gastrectomy
    - f. Gastric fistula
  - L. Study of intestinal obstruction
    - a. The closed loop
    - b. Strangulation of intestine
    - c. High and low intestinal obstruction
  - M. Study of traumatic and other types of shock in relation to blood pressure
    - a. Gravity shock
    - b. Spinal shock
    - c. Traumatic shock
    - d. Hemorrhage
    - e. Peptone shock
    - f. Anaphylactic shock
  - N. Special physiological methods and apparatus
    - a. Blood pressure methods
    - b. Venous pressure methods
    - c. Effect of various drugs, hormones, nerve section and stimulation on blood pressure
    - d. Use of the uterine strip methods
    - e. Use of intestinal strip methods

- f. Study of intestinal motility in vivo
- g. Study of gastric motility in vivo
- O. Experimental study of the capillaries
- P. Heart perfusion methods

Students enrolled in this course will be admitted, without additional fee, to the course of lectures on the endocrine system. Dr. Swingle, Mr. Parkins, Mr. Hays.

**4. An Introduction to the Endocrine System.** A series of illustrated lectures on the morphology (structure), physiology (function), and embryology (development), of the more important glands of internal secretion, with a discussion of their relations to biological processes, both normal and experimental. Their involvement in pathological conditions will also be considered.

Lectures daily, except Saturday and Sunday, at 5:00 P. M.

Course begins June 27th. Fee \$10. Students enrolled in Surgical Methods in Experimental Biology are admitted to this course without an additional fee. Dr. Cunningham.

## II. Botany

**1. Plant Sociology.** Practice in the recognition and description of Plant Associations. Studies will be made of the relatively simple associations of sea and shore, progressing to those more complex of saltmarsh, forest and cultivated land. The procedure will be that of assisting the instructor in the investigation of the floristic composition of Associations, with selection of independent problems as soon as the student is able for them.

Students should know the general outlines of the plant kingdom, and should know at sight a hundred or more species of plants. Bring such manuals as are available for all classes of plants, and compound and dissecting microscopes, hand lens and the usual laboratory instruments. Text: Plant Sociology by Braun-Blanquet: McGraw-Hill, N. Y., 1932.—Dr. Conard and Miss Sargent.

The vicinity of Cold Spring Harbor is peculiarly rich in material for studies in Plant Sociology. The littoral associations of green, brown and red seaweed, beach grass and saltmarsh, the various associations of the "Oak-chestnut forest" and "Oak-pine forest" of Shantz & Zon, "fragmentary associations" of the "beech-birch-maple-hemlock forest", including upland, lowland, marsh and pond communities of each forest type, natural grassland of the Hempstead Plains, and many characteristic cultural communities are within walking distance, or within an hour's drive. Preliminary lists of the species of the region are available. Various studies of habitat factors have been already published.

**2. Bryology.** Students wishing to gain proficiency in the study of Mosses will have opportunity to work along lines most appropriate to their needs. The region affords about a hundred species of Musci and twenty-five of Hepatics. Problems in morphology, taxonomy, ecology or physiology may be taken up by those who are qualified. Beginners and those wishing constant guidance and direction will register as students in course.

Those working wholly on problems will engage a research table or private room. One or two students interested in artificial growing of mosses for landscape gardening would be accepted. Drs. A. J. Grout and Conard.

**Research.** Assistance is offered to students carrying on research in plant science in topics within the competence of the staff.

### EVENING LECTURES

A number of evening lectures will be given, open to the members of the Laboratory, of the L. I. Biological Association, and of the Carnegie Institution. These lectures are given by the members of the Staff and by visitors from various other institutions. The lectures are intended to be of general biological interest and will be fully illustrated.

**Tuition and Fees.** Tuition including one course of instruction, the general lectures, and the use of the privileges, is \$75. Students who make use of the Laboratory microscopes will be charged \$6 extra. Research table \$50. Private laboratories \$75 to \$100 per season. Institutions may secure research facilities to be available at any time of the year by the subscription of \$100 per person per year.

**Scholarships.** Besides the various scholarships offered by colleges and universities to students in their biological departments and applicable to this Laboratory, the following scholarships have been established:

The Temple Prime scholarship established by Miss Cornelia Prime, of Huntington, in memory of Temple Prime, a distinguished student of the mollusca. Amount \$100.

The Dorothy Frances Rice scholarship, established by Mr. Oran W. Rice in memory of Dorothy Frances Rice, a former student at the Biological Laboratory. Applicable to a woman student at the Laboratory, "preference being given to students working in the botanical sciences". Amount \$100.

Application for any of these scholarships, supported by letters and other data, is to be made to the Director of the Laboratory before April 15th, on or about which day award is made.

A limited number of students can defray the cost of board by waiting on table.

### LIVING ACCOMMODATIONS

**Board** will be furnished to investigators and their immediate families and to students only, for \$7.75 per week from June 15th to September 15th. At other times the rate is \$8.00-\$9.00 per week. Board may be furnished to relatives or friends accompanying students, if due notice is given; rate \$1.50 per day. Rooms in the dormitory cost \$3.00 to \$4.00 per person per week, according to size and situation. Larger rooms accommodating two students may be had. A fee of \$5 should accompany each application for the reservation of a room. Arrangements for apartments may be made by correspondence. The Laboratory has a few row-boats, each available for a party of four or five persons, at a rental of \$3 per person, for the season.

**How to Reach the Laboratory.** The Laboratory lies on the north shore of Long Island about thirty miles from Manhattan, and about fifteen miles beyond the nearest part of the boundary of Greater New York. It is two miles from the village of Huntington and about three miles from Oyster Bay. Persons coming from the West and South will find the P. R. R. the most convenient, since direct connection is made at the 33rd St. terminal in Manhattan with trains to Cold Spring Harbor on the Long Island Railroad, in some cases changing cars at Jamaica. Those arriving at the Grand Central Terminal may go by subway to the Pennsylvania-Long Island station at West 33rd Street and Seventh Avenue. From the station at Cold Spring Harbor a short bus ride (25c) brings one to the Laboratory. During the summer months there are ten or more trains a day from the city. Ferries across the Sound from Bridgeport to Port Jefferson, and from Stamford, Conn., to Oyster Bay, Long Island, are usually operated daily during the summer time. Two trains a day from New England enter the Pennsylvania Station, Manhattan.

If further information is necessary, address: The Biological Laboratory, Cold Spring Harbor, Long Island, N. Y.

