THE BROOKLYN INSTITUTE OF ARTS AND SCIENCES.

1892-3.

THE BIOLOGICAL LABORATORY.

[Located at Cold Spring Harbor, L. I.]

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BOARD OF INSTRUCTION.

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Mr. AARON H. COLE, (Chicago University.)
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} *Associate Instructors.*

LECTURERS.

Prof. H. W. CONN, Ph. D., Wesleyan University.
Lecturer on Bacteriology.

Prof. HENRY F. OSBORN, Columbia College.
Lecturer on Vertebrates.

Prof. NATHANIEL L. BRITTON, Columbia College.
Lecturer on Systematic Botany.

Prof. BASHFORD DEAN, Ph.D., Columbia College.
Lecturer on Comparative Zoology.

Prof. JOHN B. SMITH, Sc.D., Rutgers College.
Lecturer on Entomology.

Prof. FRANKLIN W. HOOPER, Brooklyn Institute.
Lecturer on Comparative Osteology.

Dr. THOMAS MORONG, Columbia College.
Lecturer on Phænogamic Botany.

Prof. L. N. JOHNSON, Michigan University.
Lecturer on Cryptogamic Botany.

Prof. CHARLES W. HARGITT, Ph.D., Syracuse University.
Lecturer on Radiates.

Prof. HENRY L. OSBORN, Ph.D., Hamlin University.
Lecturer on Crustacea.

Prof. JULIUS NELSON, Rutgers College.
Lecturer on Mollusca.

Mr. AARON H. COLE, Chicago University.
Lecturer on Infusoria.

LOCATION OF THE LABORATORY.

The location of the Biological Laboratory, at the head of Cold Spring Harbor, is one of the most favorable on the coast. The country around is high and rolling, with abundant forests, glens and small streams,

affording most excellent collecting ground for every form of animal and vegetable life common to our climate. Just above the Laboratory is a series of three beautiful fresh water ponds, each fertile in forms of fresh water life, and through which flows the water of Cold Spring Creek. Just below the Laboratory is the long and beautiful harbor of Cold Spring, divided by a sandy neck into an inner and an outer basin. The inner basin is particularly rich in marine life, and the channel between the inner and outer basins has a most varied and vigorous growth of algae, molluscs and echinoderms. The outer basin has rocky projections, shallow flats, banks, and eel grass, sheltered pools, oyster beds and other most favorable conditions for collection and study. The outer basin opens widely into Long Island Sound, whose shore is very varied in character for twenty miles in either direction.

LABORATORY AND APPLIANCES.

The facilities for Biological Work at the Summer Biological Laboratory of the Institute were materially increased this season by the erection of a new and commodious laboratory building (36x70 feet) designed for the special purposes of the school. The laboratory building stands upon a wharf close by the water, and is provided with all the necessary conveniences for summer work. It contains (1) a general laboratory (36x40 feet) in which are located tables for students' work, aquaria supplied with running fresh and salt water, and conveniences for lectures and class instruction;

THE BIOLOGICAL LABORATORY, WITH OUT-DOOR AQUARIA IN FOREGROUND.

End View of Fish Commission Building used for Laboratory from 1890 to 1892.

(2) six private laboratories, which were assigned to persons who were competent to carry on independent work, and who were, as a rule, engaged in special investigation; (3) a room equipped for and devoted to work in bacteriological technique, such as making cultures, isolating species of bacteria, etc.; (4) a room equipped with apparatus for photographing purposes, including ordinary photography, microscopic photography and the making of lantern slides, and (5) a working library placed at the disposal of the members of the School. In addition the students were furnished with all the necessary apparatus, reagents, etc., for biological work at the sea-shore. The Laboratory owns a launch provided with apparatus for the collection of material for laboratory work, and small row boats were at the disposal of the school. Near by the main laboratory is a second building equipped and used for lecture purposes in cases where larger numbers attend the lectures than the general laboratory room will accommodate, or in cases when it is desirable to use the lantern for illustrative purposes. Through the generous hospitality of the New York State Fish Commission portions of the Fish Commission Building were placed at the disposal of the School.

THE PURPOSES OF THE LABORATORY.

The objects of the Laboratory are (1) to furnish a place for general biological instruction and (2) to offer opportunity for investigation to advanced students. The first object to which the energies of the school are devoted is to develop a first-class school of biological

instruction for students who feel the need of practical study at the seashore and of assistance in their work. For this reason the school at Cold Spring Harbor is especially adapted, first to college students who have not had extended laboratory work in Biology, or who, having had biological work, desire to supplement this work with the practical study of marine forms in their native condition and desire to do this under the guidance of instructors; second, to teachers or other students who are desirous of obtaining a practical familiarity with Botany or Zoology to assist them in the work of instruction or in gaining a practical knowledge of general Biology; third, to medical students whose medical course is so crowded as to make it impossible to include in it any thorough study of biological principles and truths outside of those having direct application to medicine. To such students a general course in biology proves very valuable and the work in bacteriology is of especial advantage; and finally, the school offers facilities for investigation by furnishing private rooms and collecting apparatus to any who are desirous of carrying on research.

THE COURSES OF INSTRUCTION.

I. A GENERAL COURSE IN BIOLOGY adapted to meet the wants of those who desire to obtain a general and working knowledge of Biology either for use in teaching or in preparation for special work was given during the first six weeks of the session. It consisted primarily of laboratory study of specimens illustrating

leading types of animal life. The practical work was accompanied by lectures giving an outline of systematic zoology, for the purpose of showing the relations of the forms studied to other animals. The lectures also treated of various matters of general biological interest. Accompanying this course of laboratory work and lectures, instruction was given in methods of mounting objects and in the preparation of microscopic sections.

The types studied during the season of 1893 were:

Protozoa [*Paramecium Vorticella.*]

Coelentera [*Podocoryne, Hydractinia, Obelia, Mnemiopsis, Anemone.*]

Echindoderma [*Asterias, Arbatia, Pentacta.*]

Vermes [*Nereis, Serpula, Planaria, Bugulia.*]

Mollusca [*Mya, Sycotypus, Loligo.*]

Crustacea [*Gelasmus, Palæmonetes, Talorchestia, Idotea, Belanus, Limulus.*]

Insecta [*Grasshopper.*]

Vertebrata [*Fish, frog.*]

II. A COURSE IN BOTANY was given for the first time at the Laboratory during the summer of 1893. This course consisted of laboratory work upon cryptogams and the anatomy and histology of the flowering plants. In addition to this, practical instruction was given in the collection and preparation of flowering plants and in the analysis of flowers, for the benefit of those who desired elementary botanical work.

III. A COURSE IN BACTERIOLOGY was a special feature of the Laboratory. The course consisted of

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III. A COURSE IN BACTERIOLOGY was a special feature of the Laboratory. The course consisted of

the Laboratory work on the culture and propagation of bacteria, the identification of species, and of lectures and demonstrations by the Director. The number of students admitted to this course was limited, and only those who were well prepared by previous study and experience in biological or medical work entered the course.

FACILITIES FOR ADVANCED WORK.

Students who pursued the General Course of Instruction during the summer, and who had time for extra work, were given the instruction and facilities necessary to enable them to carry on special investigations, while those students who had already gained the knowledge and experience which was provided by the general course, were permitted to give their entire time to special work. No special courses were laid down in advance, but each student was at liberty to arrange with the Director of the Laboratory for such work as was practicable.

FACILITIES FOR ORIGINAL INVESTIGATION.

Each lecturer was provided with a private laboratory room in which to carry on his own private investigation so long as he remained at the laboratory, and was not called upon to give any instruction outside of his lectures and such directions for work as accompanied his lectures.

PERSONS ENGAGED IN ORIGINAL RESEARCH.

Prof. HERBERT W. CONN, Ph.D., Wesleyan University, Conn.

Prof. CHARLES W. HARGITT, Ph.D., Syracuse University, N. Y.

Prof. L. N. JOHNSON, Michigan University.

Prof. JULIUS NELSON, Rutgers College, N. J.

Prof. THOMAS MORONG, Ph.D., Columbia College.

Mr. A. H. COLE, Chicago University.

Mr. DUNCAN S. JOHNSON, Wesleyan University.

STUDENTS IN THE SEVERAL COURSES.

Miss MARTHA T. AUSTIN, Teacher, Easthampton, Mass.
Miss NELLIE C. BERDEN, Student, Brooklyn Training School.
Miss JENNIE L. BERRY, Student, Woman's Medical College, N.Y. City.
Miss EMILY BOARDMAN, Student, New York City.
EARLE G. BURCH, Assistant in Biology, Syracuse University.
OLIVER D. CLARK, Teacher of Natural Science, Boys' High School, Brooklyn.
AARON H. COLE, Professor of Biology, Lake High School, University of Chicago.
Mrs. AARON H. COLE, Chicago, Ill.
Miss ANNA E. COLLINS, Teacher, Brooklyn.
Miss FANNIE W. COLLINS, Student, Brooklyn.
Miss MARY B. DENNIS, Ph.D., Principal P. S. No. 41, Brooklyn.
Miss LILLIAN M. ELLIOT, Student, New York City.
RUSSELL S. FOWLER, Student, College of Physicians and Surgeons, Brooklyn.
Miss SUSAN R. HOWARD, Teacher, Packer Institute, Brooklyn.
DUNCAN S. JOHNSON, Assistant in Biology, Wesleyan University.
LORENZO N. JOHNSON, Instructor in Botany, University of Michigan, Ann Arbor, Mich.
WILLIAM W. LAING, Student, College of Physicans and Surgeons, Brooklyn.

ALBERT E. LOVELAND, Assistant in Biology, Wesleyan University.
G. C. W. SHIFF, Student, Brooklyn.
Miss LUCILLA E. SMITH, Teacher, Brooklyn Training School.
Miss ELIZABETH M. STURGIS, Student,
Woman's Medical College, New York City.
WILLIAM T. VLYMEN, Ph.D., Principal P. S. No. 5, Brooklyn.
JOHN H. WALSH, Assoc. Supt., Brooklyn Public Schools.

The number of persons in regular attendance on the lectures in addition to the above students was sixty-five. Evening lectures were given twice a week on subjects of a general biological or scientific nature for the benefit of the students and the residents of Cold Spring and vicinity. The lectures were illustrated in most instances by lantern slides, and were attended by from fifty to one hundred and twenty people. The evening lecturers during the summer of 1893 were: Prof. FRANKLIN W. HOOPER, Prof. HERBERT W. CONN, Ph.D., Prof. JOHN B. SMITH, Prof. L. N. JOHNSON, Prof. HENRY F. OSBORN, Dr. NATHANIEL L. BRITTON, Dr. THOMAS MORONG, Prof. CHARLES W. HARGITT, Prof. JULIUS NELSON and Mr. A. H. COLE.

TUITION, BOARDING AND ROOMS.

The tuition fee for the full term (eight weeks) was $25.00; for the first six weeks of the season or less, $20.00. The fee for the use of private laboratory rooms was $50.00.

A dining room has been fitted up for the accommodation of the instructors and students in a building near by the Laboratory. Excellent table board was furnished to all connected with the School at $4.50 per

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week. Furnished rooms were obtained near the Laboratory at rates varying from $1.50 to $3.00 a week, according to location, size, etc. Where two occupy the same room the expense of board and room was from $6.00 to $7.00 per week.

The buildings and grounds occupied by the Laboratory are the property of the WAWEPEX SOCIETY of Cold Spring Harbor, a Society founded by Mr. JOHN D. JONES, of New York; and whose purpose it is to promote the increase and diffusion of knowledge in the Natural History Sciences. Through the great liberality of the founder of the Society, the generous action of the Society itself, and the active co-operation and support of its members, the laboratory buildings and grounds afford most advantageous conditions for biological study and research.

THE SHINNECOCK HILLS SUMMER SCHOOL OF ART.

This school is located at Southampton, Long Island, and is established for the purpose of affording facilities to students and artists for study and work at the seashore during the summer months, at reasonable rates. The school is under the direction of Mr. WILLIAM M. CHASE, President of the Society of American Artists and Instructor in the Art Students' League of New York and in the Brooklyn Art School. Mr. CHASE gives two days of each week to instruction and criticism, and the students work according to his directions