I. TRUSTEES

EX OFFICIO

GERARD SWOPE, JR., President of the Corporation, 570 Lexington Ave., New York City
A. K. PARPART, Vice President of the Corporation, Princeton University
PHILIP B. ARMSTRONG, Director, State University of New York, Medical Center at Syracuse
C. LLOYD CLAFF, Clerk of the Corporation, Randolph, Mass.
JAMES H. WICKERSHAM, Treasurer, 530 Fifth Ave., New York City
EMERITI

W. C. CURTIS, University of Missouri
M. H. JACOBS, University of Pennsylvania School of Medicine
F. P. KNOWLTON, Syracuse University
CHARLES W. METZ, Woods Hole, Massachusetts
W. J. V. OSTERHOUT, Rockefeller Institute
LAWRASON RIGGS, 74 Trinity Place, New York 6, N. Y.

TO SERVE UNTIL 1963

L. G. BARTH, Columbia University
JOHN B. BUCK, National Institutes of Health
AURIN M. CHASE, Princeton University
SEYMOUR S. COHEN, University of Pennsylvania School of Medicine
DONALD P. COSTELLO, University of North Carolina
T. HAYASHI, Columbia University
DOUGLAS A. MARSLAND, New York University, Washington Square College
H. BURK STEINBACH, University of Chicago

TO SERVE UNTIL 1962

FRANK A. BROWN, JR., Northwestern University
SEARS CROWELL, Indiana University
ALBERT I. LANSING, University of Pittsburgh Medical School
WILLIAM D. McELROY, Johns Hopkins University
C. LADD PROSSER, University of Illinois
S. MERYL ROSE, University of Illinois
MARY SEARS, Woods Hole Oceanographic Institution
ALBERT TYLER, California Institute of Technology

TO SERVE UNTIL 1961

ERIC BALL, Harvard University Medical School
D. W. BRONK, Rockefeller Institute
G. FAILLA, Columbia University, College of Physicians & Surgeons
R. T. KEMPTON, Vassar College
L. H. KLEINHOLZ, Reed College
IRVING M. KLOTZ, Northwestern University
ALBERT SZENT-GYÖRGYI, Marine Biological Laboratory
WM. RANDOLPH TAYLOR, University of Michigan

TO SERVE UNTIL 1960

H. F. BLUM, Princeton University
K. S. COLE, National Institutes of Health
S. W. KUFFLER, Harvard Medical School
C. B. METZ, Florida State University
G. T. SCOTT, Oberlin College
A. H. STURTEVANT, California Institute of Technology
E. ZWILLING, Brandeis University
TRUSTEES

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THE RESEARCH SPACE COMMITTEE

PHILIP B. ARMSTRONG, Chairman                 MAC V. EDDS, JR.
ARTHUR K. PARPART                             WILLIAM D. McELROY
II. ACT OF INCORPORATION

COMMONWEALTH OF MASSACHUSETTS

Be It Known, That whereas Alpheus Hyatt, William Sanford Stevens, William T. Sedgwick, Edward G. Gardiner, Susan Minns, Charles Sedgwick Minot, Samuel Wells, William G. Farlow, Anna D. Phillips, and B. H. Van Vleck have associated themselves with the intention of forming a Corporation under the name of the Marine Biological Laboratory, for the purpose of establishing and maintaining a laboratory or station for scientific study and investigation, and a school for instruction in biology and natural history, and have complied with the provisions of the statutes of this Commonwealth in such case made and provided, as appears from the certificate of the President, Treasurer, and Trustees of said Corporation, duly approved by the Commissioner of Corporations, and recorded in this office;

Now, therefore, I, HENRY B. PIERCE, Secretary of the Commonwealth of Massachusetts, do hereby certify that said A. Hyatt, W. S. Stevens, W. T. Sedgwick, E. G. Gardiner, S. Minns, C. S. Minot, S. Wells, W. G. Farlow, A. D. Phillips, and B. H. Van Vleck, their associates and successors, are legally organized and established as, and are hereby made, an existing Corporation, under the name of the MARINE BIOLOGICAL LABORATORY, with the powers, rights, and privileges, and subject to the limitations, duties, and restrictions, which by law appertain thereto.

Witness my official signature hereunto subscribed, and the seal of the Commonwealth of Massachusetts hereunto affixed, this twentieth day of March, in the year of our Lord One Thousand Eight Hundred and Eighty-Eight.

HENRY B. PIERCE,
Secretary of the Commonwealth.

III. BY-LAWS OF THE CORPORATION OF THE MARINE BIOLOGICAL LABORATORY

I. The members of the Corporation shall consist of persons elected by the Board of Trustees.

II. The officers of the Corporation shall consist of a President, Vice President, Director, Treasurer, and Clerk.

III. The Annual Meeting of the members shall be held on the Friday following the second Tuesday in August in each year at the Laboratory in Woods Hole, Massachusetts, at 9:30 A.M., and at such meeting the members shall choose by ballot a Treasurer and a Clerk to serve one year, and eight Trustees to serve four years, and shall transact such other business as may properly come before the meeting. Special meetings of the members may be called by the Trustees to be held at such time and place as may be designated.

IV. Twenty-five members shall constitute a quorum at any meeting.

V. Any member in good standing may vote at any meeting, either in person or by proxy duly executed.
VI. Inasmuch as the time and place of the Annual Meeting of members are fixed by these By-laws, no notice of the Annual Meeting need be given. Notice of any special meeting of members, however, shall be given by the Clerk by mailing notice of the time and place and purpose of such meeting, at least fifteen (15) days before such meeting, to each member at his or her address as shown on the records of the Corporation.

VII. The Annual Meeting of the Trustees shall be held promptly after the Annual Meeting of the Corporation at the Laboratory in Woods Hole, Mass. Special meetings of the Trustees shall be called by the President, or by any seven Trustees, to be held at such time and place as may be designated, and the Secretary shall give notice thereof by written or printed notice, mailed to each Trustee at his address as shown on the records of the Corporation, at least one (1) week before the meeting. At such special meeting only matters stated in the notice shall be considered. Seven Trustees of those eligible to vote shall constitute a quorum for the transaction of business at any meeting.

VIII. There shall be three groups of Trustees:
(A) Thirty-two Trustees chosen by the Corporation, divided into four classes, each to serve four years. After having served two consecutive terms of four years each, Trustees are ineligible for re-election until a year has elapsed. In addition, there shall be two groups of Trustees as follows:

(B) Trustees ex officio, who shall be the President and Vice President of the Corporation, the Director of the Laboratory, the Associate Director, the Treasurer, and the Clerk:

(C) Trustees Emeriti, who shall be elected from present or former Trustees by the Corporation. Any regular Trustee who has attained the age of seventy years shall continue to serve as Trustee until the next Annual Meeting of the Corporation, whereupon his office as regular Trustee shall become vacant and be filled by election of the Corporation and he shall become eligible for election as Trustee Emeritus for life. The Trustees ex officio and Emeritus shall have all the rights of the Trustees except that Trustees Emeritus shall not have the right to vote.

The Trustees and officers shall hold their respective offices until their successors are chosen and have qualified in their stead.

IX. The Trustees shall have the control and management of the affairs of the Corporation; they shall elect a President of the Corporation who shall also be Chairman of the Board of Trustees and who shall be elected for a term of five years and shall serve until his successor is selected and qualified; and shall also elect a Vice President of the Corporation who shall also be the Vice Chairman of the Board of Trustees and who shall be elected for a term of five years and shall serve until his successor is selected and qualified; they shall appoint a Director of the Laboratory; and they may choose such other officers and agents as they may think best; they may fix the compensation and define the duties of all the officers and agents; and may remove them, or any of them, except those chosen by the members, at any time; they may fill vacancies occurring in any manner in their own number or in any of the offices. The Board of Trustees shall have the power to choose an Executive Committee from their own number, and to delegate to such Committee such of their own powers as they may deem expedient. They shall from time to time elect members to the Corporation upon such terms and conditions as they may think best.

X. The Associates of the Marine Biological Laboratory shall be an unincorporated group of persons (including associations and corporations) interested in the Laboratory
and shall be organized and operated under the general supervision and authority of the Trustees.

XI. The consent of every Trustee shall be necessary to dissolution of the Marine Biological Laboratory. In case of dissolution, the property shall be disposed of in such manner and upon such terms as shall be determined by the affirmative vote of two-thirds of the Board of Trustees.

XII. The account of the Treasurer shall be audited annually by a certified public accountant.

XIII. These By-laws may be altered at any meeting of the Trustees, provided that the notice of such meeting shall state that an alteration of the By-laws will be acted upon.

IV. REPORT OF THE DIRECTOR

To: THE TRUSTEES OF THE MARINE BIOLOGICAL LABORATORY

Gentlemen:

I submit herewith the report of the seventy-second session of the Marine Biological Laboratory.

During the past year the Laboratory made significant progress in rehabilitating some of its research space and facilities and also funds were obtained for a new research building and additional housing.

1. Policy

During the past several years there have been about thirty people including investigators and their co-workers engaged in research on a year-round basis at the Laboratory. Investigators have made application through the Laboratory to various granting agencies for support for their various projects. In general, such investigators have been provided with laboratory space and services for a limited tenure, usually no more than five years. In addition, there have been other investigators, either retired or on sabbatical leave, who have availed themselves of the opportunity to work at the Laboratory continuously for one or more years at the discretion of the Executive Committee.

There has been a growing interest among the members of the Corporation, particularly some of those engaged in invertebrate zoological research, in the possibility of developing year-round research programs at the Laboratory in marine systematics and ecology. It is felt by many that such programs will serve to strengthen the summer research programs and will represent the most profitable type of year-round research. The Board of Trustees concurred in a recommendation from the Executive Committee that such a combined systematics-ecology program be operated by the Laboratory, the staff to be selected by the Executive Committee. Efforts are being made to receive support for this program. Also, a grant has been obtained from the Office of Naval Research with which to explore the feasibility of developing a year-round research program in marine microbiology.

The Laboratory will continue to make research space and facilities available to
retracted scientists and those on sabbatical leave on the approval of the Executive Committee.

2. Research Training Programs

In 1959 the course in Physiology operated as a research training program under the direction of Dr. William McElroy with support from the National Institutes of Health. The success of this operation strongly supported the desirability of developing the other courses along similar lines. Research training program support has been obtained from the National Institutes of Health for Experimental Embryology starting in 1960 and for Marine Ecology starting in 1961. During this present winter the Old Lecture Hall has been completely remodeled to house the Experimental Embryology Training Program. Also in 1960 Invertebrate Zoology and Marine Botany will start operating as research training programs with support from the National Science Foundation. It is confidently anticipated that these programs will attract staff members of the same high caliber as have the courses in the past. At this writing the trainee applicants far exceed the numbers that can be accommodated in the various programs, which permits the selection of highly qualified individuals.

All the training programs will run for the entire summer season. Each program will operate in the manner best calculated in the minds of its director and his staff to develop background knowledge, technical competence and research interest in the trainees. It is anticipated that these programs will stimulate increased interest in marine biology since it will introduce the beginning investigator to marine research material early in his career and emphasize the unique advantages that such material presents for a great variety of problems.

3. New Laboratory Building

The current progress on the new building assures completion for 1960 summer occupancy barring unforeseen delays in the construction. The schedule is a very tight one so any interruption of the work will be most serious. Mr. Homer P. Smith, General Manager of the Laboratory, merits the highest commendation for the energetic and effective way in which he has promoted the construction of the building. The original planning called for completion of the building for 1961 summer occupancy so that the present schedule represents the gain of a full year.

4. Grants, Contracts and Contributions

The total income from these sources of support amounted to $181,726.00 in 1959. This represents 29.6% of the total income and is made up of the following accounts:

- American Cancer Soc.—RC4A (+) Studies in Radiobiology ....... $ 3,300.00
- AEC—1343—Program of Research on the Physiology of Marine Organisms Using Radioisotopes .............................. 16,165.00
- NIH—4359—Biological Research on the Morphology, Ecology, Physiology, Biochemistry and Biophysics of Marine Organisms ......... 40,000.00
- NIH—5143—Training Program in Nerve Muscle Physiology ....... 21,654.00
5. Future Plans

During the summer of 1959 the Executive Committee in several meetings considered the immediate future needs of the Laboratory and recommended that steps be taken to (1) develop plans and obtain funds for a dormitory-dining hall building, (2) construct an additional 25 cottages on the Devil's Lane Property, and (3) prepare an application for funds to cover the detailed planning and construction of a research instruction building.

The concentration of both the research and dormitory buildings on our present campus creates a serious problem of congestion. The ten old wooden residences used as dormitories take up space out of proportion to the numbers they accommodate. Also they do not adapt satisfactorily to dormitory use. The present dining hall, constructed for table service, has been modified to cafeteria service but it leaves much to be desired in fully meeting the needs of the Laboratory. A new dormitory-dining hall facility is urgently needed in a convenient location off of our present limited campus. There were sixty applications in 1959 for the twenty-five new cottages built in the spring in the Devil's Lane Tract. An additional twenty-five cottages are urgently needed particularly since the training programs will attract a larger number of advanced students. A research training building to replace the wooden laboratories will provide modern facilities for the training program staffs and the trainees. Such a building will permit the consolidation under one roof of the variety of services which must be provided the present training programs housed in three wooden buildings. It will also permit certain economies in operation and maintenance.

Respectfully submitted,
PHILIP B. ARMSTRONG,
Director
The death of Edmund Newton Harvey from a heart attack on the morning of July 21st at his Penzance Point home was so unexpected as even now hardly to seem possible to his multitude of friends. Indeed, so difficult is it to realize that for a long time many of those who knew him will still expect to hear his voice in the corridors of the M.B.L., or to see him at their doors asking what's new, or reporting, with that characteristic enthusiasm, the most recent discovery in bioluminescence or in any one of a dozen other fields.

It is rare indeed for a man to reach the age ordinarily associated with retirement and still remain so young. Newton Harvey was equally at home with people of all ages, and they with him. He will be greatly missed at Woods Hole and the many other places where he lived, worked and played.

Having graduated from Germantown Academy and then received his Bachelor of Science at the University of Pennsylvania, Harvey went to Columbia for his graduate work and was awarded the Ph.D. in 1911. He started teaching immediately at Princeton where, virtually single-handed, he initiated courses in general physiology and biochemistry, subjects not often included in biology curricula at that time. In 1916 he married Ethel Nicholson Browne, herself a Columbia Ph.D. in zoology. They shared laboratories at Princeton and Woods Hole over the years, except for the period when it was necessary for her to devote full time to raising their two sons, Ned and Dick. The Harveys had a host of friends and greatly enjoyed interesting company. Many will remember, for example, the “Harvey Table” at the M.B.L. Mess as a center of good conversation and congeniality.

At Princeton, Newton Harvey was promoted to full professor in 1919 and, fourteen years later, became Henry Fairfield Osborn Professor of Biology, occupying that chair until his retirement in 1956. During his years of teaching he attracted many graduate students, most of whom based their Ph.D. theses on some aspect of bioluminescence. Nearly all his summers were spent at the M.B.L., where he had been elected a member of the Corporation in 1910, when barely out of college, and became a trustee in 1929. He served as Vice President of the Corporation from 1942 until 1952, and was always most active and influential in the affairs of the Laboratory. He was elected Trustee Emeritus in 1958. Although it was only natural that a man of his interests and energy should become involved in the direction and operation of many organizations—he was, for example, a trustee of the Bermuda Biological Station—the activities and welfare of the Marine Biological Laboratory were always closest to his heart.

With as many interests as he had, it is not surprising that Harvey belonged to some twenty societies covering the fields of physiology, biochemistry and biophysics, as well as less specialized areas of biology. He was a member of The National Academy of Sciences and The American Philosophical Society, and had been vice president and president of The International Society of Cell Biology. In 1953 he was president of The American Society of Zoologists, as he was also of The American Society of Naturalists in 1956. He was an associate editor of several journals, and served as Managing Editor of The Journal of Cellular and Comparative Physiology during the first sixteen years of its existence.

Among the formal awards made to him were the John Price Wetherill Medal of The Franklin Institute, in 1934, for his development of the centrifuge-microscope, and the Rumford Medal, by The American Academy of Arts and Sciences, in 1947, for his work
Harvey's attitude toward research was always that of the explorer and pioneer. He opened up new regions for others to develop. His tremendous curiosity and drive were not satisfied by the sort of routine experimentation required to wrap up completely all the loose ends of a problem. Without his kind, the discovery of new things would be slow if it occurred at all. So extensively did he explore in the field of bioluminescence, for example, that it is difficult to do any experiment involving a luminous organism without finding, sooner or later, that Harvey had had the same idea and tested it—at least in a preliminary way—years before.

A person of such consuming curiosity could never be satisfied in a single line of research. His 250 or so published papers include such topics as cell permeability and oxidations, physical measurements at cell surfaces, brain potentials, effects of supersonic waves and of centrifugal forces on cells and—during the war—decompression sickness and wound ballistics. He loved instrumentation and was always eager to apply new apparatus and techniques to biological problems. His vast knowledge of organisms was most useful in this connection. But his greatest interest, and the one to which he returned again and again, and which was occupying him at the time of his death, was bioluminescence. It is for this that he is best known and the acknowledged authority throughout the world. He wrote four books on the subject, and was working on a fifth.

One who did not know Newton Harvey might get the mistaken impression from a review of his many scientific accomplishments that his time was spent entirely in the laboratory and the study. Nothing could be farther from the truth! He enjoyed life to the full! He was an excellent tennis player in his time and an experienced mountain climber, went on numerous scientific expeditions, and at one time was even reported to have been eaten by cannibals! At Woods Hole he always found time for swimming and sailing, and the Harveys' sloop, the "Rip Tide," carried many a happy party across Vineyard Sound to Edgartown, or down the islands to Tarpaulin Cove or Cuttyhunk.

He loved to surprise his friends in unusual and pleasant ways, such as pulling off the road into a secluded grove, opening the luggage compartment of his big Buick, and serving cocktails from the portable bar which nobody had suspected was there. Then would follow dinner at some nearby restaurant which he had previously tested and found to be good.

Yet in the midst of a social gathering his scientific interest might suddenly come to the fore. As when, once, he tossed a corked bottle to the ceiling so that all could observe that the large air bubble trapped inside did not rise in the bottle while it was in "free fall."

All those who have come in contact with Edmund Newton Harvey, his friends, colleagues, graduate students, and those fortunate undergraduates who did their senior theses under his direction, have absorbed some of his boundless enthusiasm and spirit. Certainly he will be sorely missed. But surely he would not have preferred to have gone otherwise than as he did; in full possession of all his faculties; vigorous, joyful and active until the last.

MEMORIAL

George H. A. Clowes

by

Philip B. Armstrong

Rarely do we encounter in one man such a variety of talents and interests as characterized George Henry Alexander Clowes. With unbounded energy, he used these talents effectively, following up his interests with persistent determination. He was a
scientist and investigator who sparked many practical applications of basic research. He was a man of business, a civic leader, and patron of the fine arts and of music.

Dr. Clowes was born in Ipswich, England, in 1877, in a period of developing scientific interest. Through environment and natural bent, he early developed an interest in science. His family was in the business of producing intermediates for the brewing industry.

He attended the Royal College of Science in London from 1893–1896 and completed his studies for a Ph.D. degree in chemistry in 1899 at the University of Göttingen. His thesis was concerned with the methyl derivatives of sugar. After additional work in some of the other leading chemical laboratories in France and Germany, he came to this country in 1901 as chemist at the Institute for the Study of Malignant Diseases at Buffalo.

For the following period of fifteen years, Dr. Clowes published extensively, using a variety of approaches to the problem of cell division and growth, particularly as it applied to cancer. An important contribution concerned the evidence for immunity against cancer in mice after spontaneous remissions. Other papers dealt with the mechanism of the action of mustard gas, enzyme action in fermentation, ion antagonisms, and the action of anesthetics in biological and physical systems. His outstanding scientific contributions were on the effects of calcium or sodium at oil-water interfaces. Surface phenomena remained a life-long interest resulting in many practical developments.

Dr. Clowes left Buffalo in 1918 to serve in the Chemical Warfare Service where he continued his work on mustard gas, particularly its mechanism of action. In order to study its action under most favorable experimental conditions, he spent the summer of 1918 at the Marine Biological Laboratory, working with Robert Chambers and Ralph Lillie. Although Dr. Clowes had a highly practical turn of mind, he had a deep appreciation of the potential significance of basic research. The scientific intellectual atmosphere of the Marine Biological Laboratory was so attractive to Dr. Clowes that he spent most of the following 40 summers at Woods Hole. At the Laboratory he found what he considered ideal biological materials for many of the basic problems in which he was interested.

After the war he joined the research staff of Eli Lilly and Company and became Director of Research in 1921. Here he served very effectively in the development of the commercial production of several products, starting with insulin. His earlier interest in salt antagonisms and the effects of pH on proteins served him in good stead in the precipitation and purification of insulin. He also played a prominent role in the development of liver extract, protamine insulin and penicillin. From the Marine Biological Laboratory with collaborative workers Homer Smith, Maurice Krahl, Anna Keltch and others, Dr. Clowes published a series of papers on the possible control of mitosis by chemical agents.

In 1918 he was elected a member of the Corporation of the Marine Biological Laboratory, served three terms as a trustee, and was elected a Trustee Emeritus in 1948. He was active in seeking support for the Laboratory as well as contributing generously himself. In Indianapolis he played an active role in the development of the Indianapolis Symphony Orchestra and the John Huron Art Institute.

Dr. Clowes enjoyed a felicitous marriage. He is survived by his wife, Mrs. Edith Whitehill Clowes, who shared with him many of his civic and philanthropic interests. Also surviving him are two sons, Dr. G. H. A. Clowes, Jr. and Allen W. Clowes. Dr. Clowes died in Woods Hole on August 25, 1938. He will be remembered by his Woods Hole friends for his outstanding generosity and kindness and his active participation in the scientific and physical development of the Marine Biological Laboratory. He had a keen interest in the work of others, participated actively in the scientific discussion at the Laboratory, and was always ready to give help in the development of science.
Dr. Eugene Floyd Du Bois died on February 12, 1959, at his home at the age of 76. His death is not only a great loss to medicine and physiology but to his many students, house officers and colleagues who were associated with him at Cornell University Medical College, Bellevue Hospital, the New York Hospital and the Marine Biological Laboratory, it is a personal tragedy.

Doctor Du Bois was born on June 4, 1882 in West New Brighton, Staten Island, New York, the son of Eugene and Anna Brooks Du Bois. He attended the Staten Island Academy and Milton Academy in Massachusetts and received his A.B. degree from Harvard in 1903 and his M.D. degree from Columbia in 1906. In 1948 he was awarded an honorary Doctor of Science degree by Rochester University.

After interning at the Presbyterian Hospital (1907–08) and acting as assistant pathologist (1909) at this institution he decided to secure a training in bacteriology. But just before he was about to leave for France he changed his plans at the suggestion of Dr. John Howland and he went to Germany to study metabolism. Dr. Graham Lusk visited the laboratory in Berlin and met Dr. Du Bois there. This was the beginning of a lifelong association of these two pioneers in the field of metabolism. When Dr. Du Bois returned to the United States he soon became the Medical Director of the Russell Sage Institute of Pathology, of which Dr. Lusk was the Scientific Director. Thus Dr. Du Bois became a scientific descendant of Lavoisier. Under Du Bois’ guidance the Russell Sage Institute has had world-wide influence in advancing scientific knowledge in the field of metabolism and from his “Calorimeter Room” there have gone forth many of our most important scientists and medical educators.

Doctor Du Bois was Director of the Second (Cornell) Medical Division of Bellevue Hospital from 1919 to 1932, Professor of Medicine at the Cornell University Medical College from 1930 to 1941, Physician-in-Chief at the New York Hospital from 1932 to 1941, and Professor of Physiology at Cornell from 1941 to 1950 when he became Emeritus Professor.

Some of Dr. Du Bois’ most important contributions were concerned with his work for the United States Navy. Because of his modesty few of his associates knew that he was an outstanding authority in the fields of submarine warfare and aviation medicine. For heroism in the conduct of hazardous experiments during World War I he received the Navy Cross. During the second World War he was recognized by Commendation and Ribbon Bar. He retired from the Navy with the rank of Captain and continued to work with the military service until the very day of his death.

He belonged to many societies—the National Academy of Sciences, the Philosophical Society, the American Physiological Society, the Aero Medical Association, the Society for Experimental Biology and Medicine, and was president of the American Society for Clinical Investigation, of the Association of American Physicians, of the Harvey Society and of the Institute of Nutrition.

He became a member of the Corporation of the Marine Biological Laboratory in 1929 and was elected a Trustee in 1942. He was re-elected in 1944 for an additional full term to 1948. In 1952 he was elected Trustee Emeritus which position he held until his death. He was as conscientious in his duties to the Laboratory as he was in all undertakings and even during the later years of his incapacity he attended the meetings of the Trustees despite his physical limitations. He planned to be present at the Annual Winter Meeting which took place just one day after his death.
REPORT OF THE DIRECTOR

Many honors came to Dr. Du Bois, such as the Kober Medal of the Association of American Physicians in 1947 and the Academy Medal of the New York Academy of Medicine in 1956. He was to receive the John Phillips Memorial Award of the American College of Physicians in April.

Doctor Du Bois' accomplishments and honors are of minor importance compared to the influence he has had upon his students and associates by virtue of his personality and character. As his life-long friend and successor as Professor of Medicine, Dr. David P. Barr, has said, "This extraordinary influence has been attributable only in part to his mastery of experimental procedure and the intrinsic value of his scientific contributions. Its essence derives from his own character and personality. Inspiration has come to others from his abiding faith in principles of scientific and personal conduct, from his integrity and tolerance, and from his sympathetic understanding of the problems of those about him. His character has influenced behavior of his colleagues. It has also influenced innumerable students who have learned from him lessons of critical evaluation, clear expression, unvarying courtesy, and true humility."

Doctor Du Bois was a gentleman, gentle in all his dealings with his fellow men and with suffering, and a man in his uncompromising attitude toward injustice and dishonesty.

A colleague once asked him why he did not delegate some of his difficult and unpleasant problems to his subordinates. His reply was that such tasks were the duties of the chief.

The principles which guided him in educating the medical students were described in an article entitled "The Clinical Clerkship in Medicine," published in the Journal of the American Medical Association, August 21, 1926, and were these: "The purpose of instruction is to teach the students to teach themselves; the manner of instruction is by example and work; the spirit of instruction is sympathy for and faith in the students."

All his friends join his widow, his three children and his nine grandchildren in being proud of their association with a great and good man. His life may be summarized by the citation on the Academy Medal: "Eugene Floyd Du Bois, physiologist, physician, educator, patriot. His life and work have brought honor to the profession of medicine and to science.

MEMORIAL

Jacques Loeb

by

W. J. V. Osterhout

This year marks the 100th anniversary of the birth of Jacques Loeb, who contributed so much to the study of marine biology, and it seems appropriate that in a marine biological station where he worked, we should recall his activities.

Thirty-five years have passed since his death and yet our memory of him is still fresh and vivid.

He was above all an idealist. Protected by his devoted wife who knew how to help him, he lived in a world of ideals. Their inspiration dominated his life and set him apart from others. Yet he had also a tender heart, and his sympathy was always with those who were in need of help.

His outstanding feature was his creative imagination, implying prophetic vision, the intuitive, and emotional urge of ideas.

Fortunately his poetic imagination was associated with a keen critical sense. He would test his conceptions over and over again and repeat his experiments very carefully. He published only a small part of his experimental work. It is remarkable that his observations remain valid without fundamental modifications.
The questions he put to nature were never dull and the answers he received were always interesting and at times startlingly so.

He was not content to pursue a special part of a problem without considering its relation to all the rest. To achieve this, it was necessary both to simplify and to generalize, and these powers he possessed to an extraordinary degree.

Courage played a great part in his success. He did not select problems because they were easy but because of their importance. His courage sprang largely from his faith in the mechanistic conception to which he consecrated his life.

He had a truly lovable and sympathetic personality that drew men irresistibly to him. His teaching was inspiring and unforgettable, so that it was not strange that young men gladly followed him.

One felt instinctively that he cared only for truth and that in its quest he would spare no labor and sacrifice.

The breadth of his knowledge made it natural for him to utilize in his work recent advances in other fields of science. Thus he took the ideas of tropism and of heteromorphosis from botany. He applied to biology theories of dissociation and osmotic pressure which resulted in the discovery of artificial parthenogenesis and antagonistic salt action. To the very end of his life he kept in touch with recent progress in physics and chemistry which he applied to his own studies.

Death came while he was actively engaged in what he regarded as the most fundamental investigation of his life. In the midst of this research on proteins he was stricken down.

Here we may pause to ask ourselves, how are we to remember him? He was an idealist, sympathizing with all suffering, consecrating his gifts to humanity; a scientist with an artist's soul, emotional, intuitive, creative; a thinker, strangely original, born to blaze fresh trails and teach new doctrines; a dreamer, regarding the world of life with poetic insight and seeking with creative imagination rarely equalled to sweep aside its mystery and set free the mind of men. His visions, that have made others see visions, cannot but continue to shed inspiration; and in shaping the soul of the future he may serve humanity more than he dared to dream.

MEMORIAL

Frank M. MacNaught

by

Charles Packard

Long and faithful was the service rendered to this Laboratory by Frank M. MacNaught who died in June of this year at the age of 83. Coming to Woods Hole as an accountant in 1913 when the Laboratory began its rapid growth, he was soon made Registrar, and then, in 1916, the Business Manager, a position which he held for 34 years. For much of this time his only assistant was Miss Polly Crowell. Among his many responsibilities was the task of assigning laboratory rooms and tables, and the much more difficult work of apportioning space in the Apartment House and dormitories. Only those who worked closely with him can appreciate the care which he exercised in selecting places best adapted to the needs of each applicant. In addition to these duties, he was responsible for the Mess and its many employees.

From the first he devoted himself to these various tasks, discharging them with great efficiency. Always in the Office, even on Sundays and holidays, he was quick to help newcomers unfamiliar with the operation of the Laboratory. His memory was extraordinary. He could at once call by name investigators and students returning after an
absence of many seasons, even recalling the year of their last attendance and the rooms
they occupied. His friendliness endeared him to all. He once remarked that if he
should take a trip across the country he could spend each night at the home of investi-
gators or students who had especially asked him to visit them. In his relations with all
he worked with he showed patience, good judgment, and great tact. Many times he re-
lieved a tense situation with an apt, humorous remark.

He was active in Town affairs, serving on the Finance and other committees, and in
the village, as Treasurer and Trustee of the Woods Hole Public Library, and Clerk of
the Coonamesset Ranch.

The Laboratory has lost an exceptional man, a devoted friend whose outstanding
services and genial personality will long be remembered.

MEMORIAL TO CHARLES R. CRANE ON HIS
HUNDREDTH ANNIVERSARY

by

Lawrason Riggs

On the eighth day of August 100 years ago was born the greatest benefactor and
friend of the Marine Biological Laboratory, Charles R. Crane.

Mr. Crane was most interested in education. I think this was because he had no
formal education beyond grade school. His father, the founder of the Crane Company,
did not believe in colleges, in fact he wrote a book against college education, enlisting in
the writing of the book two employees of the Crane Company, both of whom turned out
to be college graduates.

He went to work at an early age for his father. In 1878 he happened to be in New
York. He wandered down to Front Street where in those days the bowsprits of sailing
vessels projected over the street. Young Crane went aboard one of these ships and on
telegraphic consent from his father arranged to sail on her to Java as the sole passenger.
The only additions he made to his baggage were a set of Herbert Spencer and 12 dozen
bottles of Guiness Stout. On the voyage he read the Spencer, drank a bottle of stout
every day and learned navigation, and on his 21st birthday he furled the main royal in
a gale off the Cape of Good Hope. Toward the end of the voyage the first mate died
and Mr. Crane was offered his position. He did not accept as he wanted to see as much
of Asia as possible. This was fortunate as on the ship's return voyage the captain and
most of the crew died, undoubtedly of beri-beri. Later his doctor informed him that his
health had been preserved by those 144 bottles of Guiness Stout.

So began his informal education, which he pursued with unrelenting vigor so that in
time he became one of the best informed Americans about the Moslem world, Russia and
the Far East. During the Peace Conference after World War I he was appointed on a
Commission with President King of Oberlin to investigate and make recommendations
on the future of Syria. This mission further deepened and extended his contacts with
the Near East. Subsequently he was for a number of years American Ambassador to
China.

He had an extraordinary interest in exotic places and a real flair for people. He was
as much at home in Paris, St. Petersburg, Cairo, Damascus, Constantinople, Samarkand
and Pekin as he was in Chicago, and he numbered among his friends, presidents, espe-
cially President Wilson, cabinet members, educators, judges, Moslem leaders, including
the King of Hejaz and Sherif of Mecca and his son Feisal, later King of Iraq.

He made some 32 visits to Russia, penetrated the most remote parts of Asia, includ-
ing Bokhara and the Transoxnas, and went with one servant on horseback through Albania after being deserted by the Turkish bodyguard supplied by the Sultan.

The M.B.L. was not the only beneficiary of his interest in education and research. He was interested in the Near East colleges, especially the American College for Girls on the Bosphorus and the Sofia-American Schools in Bulgaria and also a school in Albania and in many universities in this country. The main purpose of his Foundation, The Friendship Fund, was to assist individuals to get an education and the purpose of the Institute of Current World Affairs, which he also founded, was to train specialists in critical areas under conditions that would develop their talents and personality.

His first important contact with the Marine Biological Laboratory was his joining in an offer of assistance with several other persons through President Harper of Chicago University. This happened in 1901.

When this offer and that of the Carnegie Institution were finally rejected by the Laboratory because the trustees and members did not wish to allow the Laboratory to lose its independence, Mr. Crane became more interested through his brother-in-law, Dr. Frank R. Lillie, and before long was contributing about $20,000 a year towards its expenses.

He had a large part in purchasing real property for the Laboratory and in 1913 provided the first brick building, the so-called Crane Building. He had a very important part in the expansion and endowment of the Laboratory between the years 1919 and 1925. He not only capitalized his annual contribution of $20,000 by a gift of $405,000 to endowment, but he guaranteed to pay any cost of the new Rockefeller Building in excess of $500,000. This guarantee cost him $221,000. He had a large part in interesting Mr. John D. Rockefeller, Jr. and the Rockefeller Foundation, as is clear from Mr. Rockefeller's letter found at page 75 of Dr. Lillie's book.

While his gifts were important and always timely, his appreciation of the spirit of the Laboratory and of its democratic and self-governing organization—a group of scientists running their own affairs—was almost more important. He acted as President from 1904 to 1925.

That the Laboratory came through its early and difficult years and survived to become the great institution that it now is, I feel, largely due to his help and encouragement.

ZOOLOGY

I. CONSULTANTS

F. A. BROWN, JR., Morrison Professor of Zoology, Northwestern University
LIBBIE H. HYMAN, American Museum of Natural History
A. C. REDFIELD, Woods Hole Oceanographic Institution

II. INSTRUCTORS

GROVER C. STEPHENS, Assistant Professor of Zoology, University of Minnesota; in charge of course.
JOHN B. BUCK, Senior Biologist, National Institutes of Health
RALPH I. SMITH, Associate Professor of Zoology, University of California, Berkeley
BERNARD L. STREHLE, Chief, Cellular and Comparative Physiology, Division of Gerontology, National Institutes of Health
PAUL P. WEINSTEIN, Laboratory of Tropical Diseases, National Institutes of Health
RICHARD C. SANBORN, Professor of Zoology, Department of Biological Sciences, Purdue University
REPORT OF THE DIRECTOR

MORRIS ROCKSTEIN, Associate Professor of Physiology, New York University College of Medicine
MILTON FINGERMAN, Assistant Professor of Zoology, Tulane University

III. LABORATORY ASSISTANTS

ROBERT ASHMAN, Wabash College
DONALD HALL, University of Michigan

EMBRYOLOGY

I. INSTRUCTORS

MAC V. EDDS, JR., Professor of Biology, Brown University; in charge of course
PHILIP GRANT, Assistant Professor of Pathobiology, Johns Hopkins University
JOHN W. SAUNDERS, JR., Professor of Zoology, Marquette University
NELSON T. SPRATT, JR., Professor of Zoology, University of Minnesota
MAURICE SUSSMAN, Associate Professor of Biological Sciences, Brandeis University
LIONEL REBHUN, Assistant Professor of Biology, Princeton University

II. LABORATORY ASSISTANTS

CHANDLER M. FULTON, Rockefeller Institute for Medical Research
DAVID S. LOVE, University of Colorado

PHYSIOLOGY

I. CONSULTANTS

MERKEL H. JACOBS, Professor of Physiology, University of Pennsylvania
ARTHUR K. PARPART, Professor of Biology, Princeton University
ALBERT SZENT-GYÖRGYI, Director, Institute for Muscle Research, Marine Biological Laboratory

II. INSTRUCTORS

W. D. McELROY, Professor of Biology, Johns Hopkins University; in charge of course
FRANCIS D. CARLSON, Associate Professor of Biophysics, Johns Hopkins University
BERNARD D. DAVIS, Professor of Bacteriology, Harvard Medical School
DONALD GRIFFIN, Professor of Zoology, Harvard University
HOWARD SCHACHMAN, Virus Laboratory, University of California
TIMOTHY GOLDSMITH, Fellow, Harvard University
ROBERT LOFTFIELD, Massachusetts General Hospital

III. LABORATORY ASSISTANT

LOUIS OTERO, University of Puerto Rico, Rio Piedras

BOTANY

I. CONSULTANT

WM. RANDOLPH TAYLOR, Professor of Botany, University of Michigan
II. INSTRUCTORS

RICHARD C. STARR, Associate Professor of Botany, Indiana University; in charge of course
JOHN M. KINGSBURY, Assistant Professor of Botany, Cornell University
WALTER R. HERNDON, Assistant Professor of Biology, University of Alabama

III. COLLECTOR

G. BENJAMIN BOUCK, Columbia University

IV. LABORATORY ASSISTANTS

LARRY HOFFMAN, University of Texas
ROBERT W. KORN, Indiana University

ECOLOGY

I. CONSULTANTS

PAUL GALTSOFF, U. S. Fish and Wildlife Service, Woods Hole
ALFRED C. REDFIELD, Woods Hole Oceanographic Institution
BOSTWICK H. KETCHUM, Woods Hole Oceanographic Institution
EDWIN T. MOUL, Rutgers University
CHARLES E. JENNER, University of North Carolina
HOWARD L. SANDERS, Woods Hole Oceanographic Institution

II. INSTRUCTORS

EUGENE P. ODUM, Alumni Foundation Professor of Zoology, University of Georgia; in charge of course
HOWARD T. ODUM, University of Texas
HAROLD J. HUMM, Associate Professor of Botany, Duke University
JOHN H. RYTHER, Marine Biologist, Woods Hole Oceanographic Institution

III. LABORATORY ASSISTANT

RICHARD B. WILLIAMS, Harvard University

1. THE LABORATORY STAFF, 1959

HOMER P. SMITH, General Manager

MRS. DEBORAH LAWRENCE HARLOW, Librarian
CARL O. SCHWEIDENBACK, Manager of the Supply Department
IRVINE L. BROADBENT, Office Manager

ROBERT KAHLER, Superintendent, Buildings and Grounds
ROBERT B. MILLS, Manager, Department of Research Service

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JOHN P. HARLOW  MRS. ARLENE BROWN

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GEORGEY J. LEHY  JOHN J. VALOIS
ROBERT O. LEHY  JARED L. VINCENT
MRS. MILDERED H. MIXSON  HALLETT S. WAGSTAFF

2. INVESTIGATORS, LALOR AND LILLIE FELLOWS, AND STUDENTS

Independent Investigators, 1959

ADELMAN, WILLIAM J., Assistant Professor of Physiology, University of Buffalo
ALLEN, ROBERT D., Assistant Professor of Biology, Princeton University
AMBERSON, WILLIAM R., Investigator, Marine Biological Laboratory
ARMSTRONG, PHILIP B., Professor and Chairman of Anatomy, State University of New York,
College of Medicine at Syracuse
ARNOLD, WILLIAM, Principal Biologist, Oak Ridge National Laboratory
BALTUS, ELYANE, Chargé de Course, University of Brussels, Belgium
BANG, FREDERIK B., Professor of Pathobiology, Johns Hopkins University School of Hygiene
BARTH, L. G., Professor of Zoology, Columbia University
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BELL, EUGENE, Assistant Professor of Biology, Massachusetts Institute of Technology
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BENIGNA, SISTER MARIA, Professor of Biology, Saint Joseph College
BENNETT, MICHAEL, Research Associate, Columbia University, College of Physicians and
Surgeons
BENNETT, MIRIAM F., Assistant Professor of Biology, Sweet Briar College
BENZER, SEYMOUR, Professor of Biophysics, Purdue University
BERGMANN, FELIX, Research Fellow, College of Physicians and Surgeons, Columbia University
BERMAN, MONES, Physicist, National Institutes of Health
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BERNSTEIN, MORRIS H., Assistant Professor of Anatomy, Wayne State University
BISHOP, DAVID W., Staff Member, Carnegie Institution of Washington
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CASE, JAMES, Assistant Professor of Zoology, State University of Iowa
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COSTELLO, DONALD P., Kenan Professor of Zoology, University of North Carolina
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CROSTI, NICOLETTA, Foreign Italian Student, Bryn Mawr College
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GREEN, ROGER L., Associate Professor of Physiology, Cornell University Medical College
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GROSS, DANIEL S., Professor of Genetics, North Carolina State College
GROSS, PAUL RANDOLPH, Associate Professor of Biology, New York University
GROSS, SAMSON RICHARD, Assistant Professor, Rockefeller Institute for Medical Research
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GRUNDFEST, HARRY, Associate Professor of Neurology, College of Physicians and Surgeons, Columbia University

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MARSLAND, DOUGLAS, Professor of Biology, New York University, Washington Square College

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MARINE BIOLOGICAL LABORATORY

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MONIER, ROCAS, Post-doctoral Associate, University of Paris

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NELSON, LEONARD, Assistant Professor, University of Chicago

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ROSE, S. MERYL, Professor of Zoology, University of Illinois

ROSENBERG, EVELYN E., Associate Professor of Pathology, New York University-Bellevue Medical Center

ROSLANSKY, JOHN D., Research Associate, Princeton University

ROTH, JAY S., Associate Professor of Biochemistry, Hahnemann Medical College

ROTHMAN, ALVIN H., Research Fellow, Johns Hopkins University School of Hygiene

RUDOMIN, P., Research Fellow, College of Physicians and Surgeons, Columbia University

RUSHTON, W. A. H., Reader in Physiology, Trinity College, Cambridge, England

RUSTAD, RONALD C., Instructor in Physiology, Florida State University

RYTHIER, JOHN H., Staff, Woods Hole Oceanographic Institution

SANBORN, RICHARD C., Professor of Zoology, Purdue University

SANDER, MURIEL L., Assistant Professor of Zoology, Duke University

SAUNDERS, HOWARD L., Research Associate, Woods Hole Oceanographic Institution

SCHACHMAN, HOWARD K., Associate Professor of Biochemistry, University of California, Berkeley

SCHUL, REV. JOSEPH E., Associate Professor of Biology and Chairman of Department, Saint Peter's College

SCOTT, SISTER FLORENCE MARIE, Professor of Biology, Seton Hill College

SCOTT, GEORGE T., Professor and Chairman, Department of Biology, Oberlin College

SELIGER, HOWARD H., Guggenheim Fellow, Johns Hopkins University

SKOGlund, CARL RUDOLF, Associate Professor, Karolinska Institutet, Stockholm, Sweden

SMITH, PAUL FERRIS, Electronics Engineer, Rockefeller Institute for Medical Research

SMITH, RALPH L., Associate Professor of Zoology, University of California, Berkeley

SPICKER, ABRAHAM, Instructor, Harvard Medical School

SPEDEL, CARL C., Professor and Chairman of Anatomy, University of Virginia

SPEREL, MELVIN, Assistant Professor of Biology, Colby College

SPRATT, NELSON T., Chairman, Department of Zoology, University of Minnesota

SPIROPOULOS, CONSTANTINE S., Neurophysiologist, National Institutes of Health

STARR, RICHARD C., Associate Professor of Botany, Indiana University

STEELE, RICHARD, Associate Professor of Biochemistry, Tulane University

STEINHARDT, JACINTO, Director, Operations Evaluation Group, Massachusetts Institute of Technology
24  MARINE BIOLOGICAL LABORATORY

RUSTAD, R. C., Florida State University
SKOGLAND, CARL, Karolinska Institutet, Stockholm, Sweden
STRITTMATTER, P., Washington University

Lillie Fellow

RANZI, SILVIO, Istituto di Zoologia, Milano, Italy

Grass Fellows

LIPICKY, RAYMOND, University of Cincinnati
STEVENS, CHARLES, Yale University, School of Medicine

Beginning Investigators, 1959

BENSAM, BERTRAND J., State University of New York, Upstate Medical Center, Syracuse
BROBERG, PATRICIA L., Brandeis University
BURNSTOCK, G., University of Illinois
BUTTERWORTH, FRANK M., University of Pennsylvania
BYERS, THOMAS J., University of Pennsylvania
CAMPBELL, JAMES WAYNE, Johns Hopkins University
CARLSON, ALBERT D., State University of Iowa
CHERNETSKI, KENT EUGENE, University of California
CURTIS, BRIAN A., Rockefeller Institute for Medical Research
DAVIDSON, MORTON, New York University Medical College
DUBNAU, DAVID, Columbia University
DUDEL, JOSEF, Johns Hopkins University
FAUST, ROBERT GILBERT, Princeton University
FILOSA, MICHAEL, Princeton University
GRAHAM, CHARLES EDWARD, Johns Hopkins University School of Medicine
GRIFFIN, DEAN H., American University
GUMP, DIETER W., Johns Hopkins University
GUTTMAN, BURTON S., Institute of Molecular Biology, University of Oregon
HUWITZ, CHARLES, VA Hospital, Albany
HUVER, CHARLES W., Yale University
JACKSON, JAMES A., Western Reserve University
KUPERMAN, ALBERT S., Cornell University Medical College
LAMBERT, JOHN S., Tulane University
LIPICKY, RAYMOND JOHN, University of Cincinnati
DE LORENZO, A. J., Johns Hopkins University Medical School
NAGLER, ARNOLD L., New York University-Bellevue Medical Center
NARBATZ, ROBERTO, Carnegie Institution of Washington and Universidad de Buenos Aires
ORKAND, RICHARD K., University of Utah
PEPE, FRANK A., University of Pennsylvania
POLGAR, GEORGE, University of Pennsylvania School of Medicine
POTTER, DAVID, Johns Hopkins University
REBEN, JOHN P., College of Physicians and Surgeons, Columbia University
RUBIN, ARNOLD D., New York University College of Medicine
SCHAFER, DAVID G., New York University College of Medicine
SHEPHARD, DAVID, University of Chicago
SMITH, THOMAS G., JR., College of Physicians and Surgeons, Columbia University
SMYTH, THOMAS, JR., Pennsylvania State University
SUDDUTH, SOLOM SCOTT, Johns Hopkins University School of Medicine
SWAMI, KARUMURI S., University of Pennsylvania
THOREELL, KLAS T. G., Karolinska Institutet, Stockholm, Sweden
TOBIN, MICHAEL, New York University Medical Center, Downstate
WARNER, ELDON D., University of Wisconsin
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Wertheim, Guta, Hebrew University
Wheeler, James English, Johns Hopkins University School of Medicine
Winick, Paul, Columbia University

Research Assistants, 1959

Allen, Constance, Massachusetts Eye and Ear Infirmary
Ashman, Robert F., Wabash College
Ashton, Francis T., University of Pennsylvania
Asterita, Harvey L., New York University
Baer, Spencer, Marine Biological Laboratory
Barnwell, Franklin H., Northwestern University
Barron, Evelyn, Massachusetts Eye and Ear Infirmary
Berman, Lawrence J., Princeton University
Blumstein, Joyce R., Albert Einstein College of Medicine
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Bouck, G. Benjamin, Columbia University
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Brooks, Kenneth H., Indiana University
Bunim, Lesley S., Barnard College
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Clark, Lynne G., Queens College
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Corlette, Sally L., Institute for Cancer Research
Cousineau, Gilles, University of New York
Delsing, Rozanne, Massachusetts Institute of Technology
Dingle, Al D., University of Illinois
Doolittle, Russell F., Harvard University
Doss, Dicky E., American University
Dunsky, Milton H., Rockefeller Institute for Medical Research
Eigner, Elizabeth Ann, Massachusetts General Hospital
Ein, Daniel, New York University-Bellevue Medical Center
Erskine, Louise, Institute for Muscle Research, Marine Biological Laboratory
Esper, Hildegard, Columbia University
Feldherr, Carl M., University of Pennsylvania
Fielden, Ann, University of Illinois
Finkel, Arnold, New York University College of Medicine
Fiorentino, Eileen, Hahnemann Medical College
Fisher, Frank M., Jr., Purdue University
Foran, Elizabeth H., Smith College
Friedler, Gladys, Tufts Medical School
Friedman, Leonard, Rutgers University
Fulton, Chandler M., Rockefeller Institute for Medical Research
Gassel, Mary T., Marquette University
Gebhart, John H., National Institutes of Health
Goldfarb, David, Johns Hopkins University
Goudsmit, Esther M., University of Michigan
Griffin, Joe L., Princeton University
Haas, Florence Anne, Western University Medical School
Haley, Barbara, Brandeis University
Hall, Donald J., University of Michigan
Hampson, George Richard, Northeastern University
Hanson, Frank E., Jr., State University of Iowa
Haskell, Judith Ann, Purdue University
Hathaway, Ralph R., Florida State University
HIKE, SALLY JAYNE, Mount Holyoke College
HILLMAN, CELIA A., Harvard University
HIMMELFARB, SYLVIA, University of Maryland School of Medicine
HOPFMAN, LARRY R., University of Texas
HOLSTEN, GEORGE H., III, Rutgers University
HOLT, CHARLES E., III, Massachusetts Institute of Technology
JACKSON, THOMAS JOHN, Lehigh University
JOHNSON, CHRISTINE A., Wheaton College
KAIGHN, MORRIS E., Massachusetts Institute of Technology
KORN, ROBERT WILLIAM, Indiana University
LAMONT, HAYES C., Columbia University
LEIGHTON, CHARLES, Colby College
LIBBIN, DICK, Bard College
LIPPERT, BYRON E., Indiana University
LONGRO, NORMA, Seton Hill College
LORING, JANET, Harvard Medical School
LOVE, DAVID S., University of Colorado
MCCONNAUGHY, R. A., American University
MCGOWAN, BERNARD L., Johns Hopkins University
MCLAUGHLIN, JANE, Institute for Muscle Research, Marine Biological Laboratory
MANGUM, CHARLOTTA PRESTON, Vassar College
MAKINEN, PAULA, University of Minnesota
MALKOFF, DONALD B., University of Pittsburgh Medical School
MARDIDIS, PARASKEVI J., Purdue University
MERRILL, CHARLOTTE F., Massachusetts Institute of Technology
MERSON, GERALD, New York University
MINGOLI, ELIZABETH S., Harvard University
MOSHERLY, WILLIAM C., Tulane University
MORRISON, ROBERTA ANNE, Smith College
MOUL, JOHN WILLIAM, McMaster University
MOUL, MARGARET, McMaster University
MUELLER, HELMUT, Institute for Muscle Research, Marine Biological Laboratory
ORTO-VILARDEBO, LUIS, University of Puerto Rico
PALUBINKAS, BERTHA, College of Physicians and Surgeons, Columbia University
PERRY, BARBARA, Institute for Muscle Research, Marine Biological Laboratory
PHILPOTT, CHARLES W., Tulane University
REICH, MELVIN, Rutgers University
REUBEN, JOHN PHILLIP, University of Florida
ROBERTS, MARY LOU, Washington University Medical School
ROGERS, ANNETTE, North Carolina State College
ROSE, JEANNETTE, Bates College
ROSENBLUTH, RAJA, Columbia University
ROTHSTEIN, HOWARD, University of Pennsylvania
SATUNEN, JANICE, State University of New York Upstate Medical Center at Syracuse
SCHROEDER, PAUL C., St. Peter's College
SCHUEL, HERBERT, University of Pennsylvania
SELLERS, RICHARD LEE, American University
SIEGEL, PAULA, University of Cincinnati
SIGER, ALVIN, Johns Hopkins University
SILKOVSKIS, IZOLDE, McMaster University
SIMMONS, JOHN E., Johns Hopkins University
SPENCER, JOYCE M., Harvard Medical School
STAUB, HERBERT W., Rutgers University
STOLL, LOUISE, Johns Hopkins University School of Hygiene
SWOPE, JULIA, Massachusetts General Hospital
SZENT-GYÖRGYI, MARTA, Institute for Muscle Research, Marine Biological Laboratory
SZENT-GYÖRGYI, EVA, Institute for Muscle Research, Marine Biological Laboratory
TEYAN, Fred, Albert Einstein College of Medicine
THOMAS, CYNTHIA, Massachusetts Eye and Ear Infirmary
VANLIEW, HUGH D., U. S. Navy, Bethesda
VANNORMAN, EARL, Princeton University
WAHBE, VERA, Kansas University
YATES, LLOYD AUSTIN, University of Minnesota
YIP, CECIL C., McMaster University

Library Readers 1959

BALL, ERIC G., Professor of Biological Chemistry, Harvard Medical School
BAYLOR, MARTHA B., Investigator, Marine Biological Laboratory
BEIDLER, LLOYD M., Professor of Physiology, Florida State University
BODANSKY, OSCAR, Chief, Division of Metabolism and Enzyme Studies, Sloan-Kettering Institute
BROWN, DUGALD, Professor of Zoology, University of Michigan
BUTLER, ELMER G., Professor of Biology, Princeton University
CHASE, AURIN M., Associate Professor of Biology, Princeton University
CLARK, ELIOT R., University of Pennsylvania
COHEN, SEYMOUR S., Professor of Biochemistry, University of Pennsylvania School of Medicine
COLLIER, JACK R., Marine Biological Laboratory
FOERSTER, THEODOR, Professor of Physical Chemistry, Technische Hochschule, Stuttgart, W. Germany
FRIES, E. F. B., Associate Professor, City College of New York
GABRIEL, MORDECAI L., Associate Professor of Biology, Brooklyn College
GAFFRON, HANS, Professor of Biochemistry, University of Chicago
GINSBERG, HOMER S., Associate Professor of Preventive Medicine, Western Reserve University
GOLDTHWAIT, DAVID A., Assistant Professor of Biochemistry, Western Reserve University
HUNTER, F. R., Professor and Head, Dept. of Biology, Univ. de los Andes, Bogota, Colombia
JACOBS, M. H., Professor Emeritus, University of Pennsylvania
KARUSH, FRED, Professor of Immunochemistry, University of Pennsylvania
KASHA, MICHAEL, Professor of Chemistry, State University of Florida
KLEIN, MORTON, Professor of Microbiology, Temple University School of Medicine
KOLLOFF, LLOYD M., Associate Professor of Biochemistry, University of Chicago
LEIGHTON, JOSEPH, Associate Professor of Pathology, University of Pittsburgh School of Medicine
LUBIN, MARTIN, Assistant Professor of Pharmacology, Harvard Medical School
LUDWIG, GEORGE D., Assistant Professor of Medicine, University of Pennsylvania
McDONALD, SISTER ELIZABETH SETON, Professor of Biology, College of Mt. St. Joseph on the Ohio
MINARD, FREDERICK, Research Biochemist, Abbott Laboratories
MOUL, EDWIN T., Associate Professor of Botany, Rutgers University
MUSACCHIA, X. J., Associate Professor in Biology, St. Louis University
NOVIKOFF, ALEX B., Research Professor, Albert Einstein College of Medicine
PULLMAN, BERNARD, Professor of Theoretical Chemistry, University of Paris, France
RHULAND, LIONEL E., Research Section Head, The Upjohn Company
ROCHOVANSKY, OLGA M., Research Assistant, Public Health Research Institute of New York City
ROOT, WALTER S., Professor of Physiology, College of Physicians and Surgeons, Columbia University
ROTH, FR. OWEN H., Associate Professor of Zoology, St. Vincent College
SCHLAMOWITZ, MAX, Associate Cancer Research Scientist, Roswell Park Memorial Institute
SERBER, BARBARA JO, Assistant Professor of Anatomy, New York University-Bellevue Medical Center
SONNENBLICK, B. P., Professor of Biology, Rutgers University
SULKIN, S. EDWARD, Professor and Chairman, Dept. of Microbiology, University of Texas, Southwestern Medical School
Students 1959

BOTANY

Brown, Malcolm, University of Texas
Churchill, Algernon C., Harvard University
Correll, David L., Michigan State University
Edwards, Jackie L., University of Alabama
Ehrlich, Diana Lee, College of the City of New York
Findley, Davis L., University of Alabama
Flach, Mary E., Vassar College
Foldats, Ernesto, Universidad Central de Venezuela
Fredericks, Walter W., Johns Hopkins University
Golas, Mary, Marquette University
Kalil, Mildred, Wellesley College
Koor, Derry Delos, Cornell University
Mason, Charles F., Cornell University
Miles, Marjorie L., Acadia University
Morris, Ruth Carol, Cornell University
Nolan, Richard A., University of Nebraska
Shor, Bernice C., Rollins College
Wagner, Kenneth A., College of William and Mary
Williams, Richard B., Harvard University
Zacharia, Kuruvilla, Princeton University

EMBRYOLOGY

Ashman, Robert F., Wabash College
Baker, John R., University of Minnesota
Bergmann, Fred H., Brandeis University
Birky, C. William, Jr., Indiana University
Corbes, Eugene H., Brandeis University
Curtis, Joseph C., Brown University
Gibley, Charles W., Jr., Iowa State College
Grant, Theodore L., Brown University
Grinnell, Alan D., Harvard University
Harris, Thomas M., University of North Carolina
Hennet, Sally H., Indiana University
Holz, Charles E., III, Massachusetts Institute of Technology
Kessler, Dietrich, University of Wisconsin
Lawrence, Irvin E., Kansas University
Lessups, Roland J., S. J., Johns Hopkins University
Levine, Stephen, Brandeis University
Merson, Gerald, New York University Medical School
Pierce, Gordon B., University of Pittsburgh
Rose, Irwin A., Yale University
Schuler, Margery E., Wesleyan University
REPORT OF THE DIRECTOR

STEINBERG, SONIA NAOMI, Northwestern University
WHITTAKER, J. RICHARD, Yale University
YATES, ROBERT D., University of Alabama Medical Center

PHYSIOLOGY

ALVAREDO, FRANCISCO, New York University, College of Medicine
ANGELES, LETICIA, Tulane University
BENJAMIN, THOMAS, Amherst College
EISEN, JAMES, Emory University
GARRICK, MICHAEL, Johns Hopkins University
GILLESPIE, BARBARA, Radcliffe University
GOTTlieB, ABRAHAM, New York University-Bellevue Medical Center
GREEN, MORRIS, University of Rochester
HAMILTON, MARY, Sloan-Kettering Institute
HANDLER, JOSEPH, University of Pennsylvania
HOMER, LOUIS, Medical College of Virginia
KALEY, GABOR, New York University
KEAN, EDWARD, University of Pennsylvania
KINSOLVING, CLYDE, Vanderbilt University
LIEBMAN, PAUL, Barnes Hospital
LUCII, ROBERT, University of Pennsylvania
PLOTZ, PAUL, Harvard Medical School
PURPLE, RICHARD, Rockefeller Institute
ROSENBAUM, JOEL, Syracuse University
RYSER, HUGUES, Massachusetts General Hospital
SLAYMAN, CLIFFORD, Rockefeller Institute
THEORELL, HENNING, Karolinska Inst., Stockholm
TOWNSEND, EDITH, McGill University
WALCH, CAROLYN, Johns Hopkins University
WEISS, CHARLES, Harvard University
WHITTENBURY, GUILLERMO, Harvard Medical School

INVERTEBRATE ZOOLOGY

ANDREW, OLIVER T., Franklin and Marshall College
BERCHMANS, SISTER ANN, St. Mary of the Woods College
BREBBIA, DANTE R., Fordham University Graduate School
BRENOWITZ, HARRY, Adelphi College
BUCKLEY, BROTHER WILLIAM, Fordham University
CHURCHILL, ALGERNON, Harvard University
CONNOR, MARY M., Wilson College
CORRELL, DAVID, Michigan State University
DELONG, KARL T., Oberlin College
EDDY, JANE, Tufts University
EDWARD, BROTHER C., Fordham University
ELLISON, ESTHER, University of Minnesota
ENGLOUND, PAUL, Hamilton College
EPEL, DAVID, University of California, Berkeley
FEIR, DOROTHY J., University of Wisconsin
FERGUSON, JOHN, Cornell University
GAGE, ELIZABETH M., Cushing Academy
GATES, DAVID A., Clark University
GOLDMAN, LAWRENCE, University of California, Los Angeles
GREEN, LAUREL E., Goucher College
GUTKNECHT, JOHN, University of North Carolina
HAVES, WILLIAM, University of Michigan
HENDERSON, OLIVER, Jr., The Citadel
HUBER, SALLY A., Mt. Holyoke College
IZOWER, JACK, City College of New York
JONES, LYNNE A., Connecticut College
KRAUSE, HELEN, University of Massachusetts
LAFAUCI, GRACE, Wilson College
MANGUM, CHARLOTTE, Vassar College
MARZOLF, GEORGE, University of Michigan
MCDOWELL, SISTER MARGARET ANN, College of St. Mary of the Springs
MCWHINNIE, DOLORES J., DePaul University
MESCHER, SISTER ALMA L., University of Notre Dame
MOFFEY, ELIZABETH S., University of Michigan
MOULTON, JOHN, Hastings College and Clark University
NORBECK, BETTY, University of Minnesota
NORDLE, FRANK, University of Minnesota
PROSSER, JANE ELLEN, Earlham College
RAPPAORT, LUCINDA, Brandeis University
SEECK, MARGARET A., Oberlin College
SHAW, WILLIAM N., Bureau of Commercial Fisheries
SHOR, BERNICE, Rollins College
SIMPSON, MARGARET, Catholic University of America
STERN, CAROL W., Peckskill, New York
STONG, CYNTHIA C., Wellesley College
THOMAS, CAROLINE, University of Vermont
VERRUSIO, A. CARL, Drew University
WILLIAMS, JUNARDEN, Northwestern University
ZIMMERMAN, WILLIAM, Princeton University
ZOTTOLE, ROBERT, Bowdoin College

ECOLOGY

ABBiate, Lorraine M., Douglass College
BACHMAN, ROGER W., University of Michigan
BIANCHI, CARLA F., Chatham College
BURKHOLDER, K. M., Emory University
DAVEY, TESSA, Mount Holyoke College
HAYWARD, GEORGE E., Drew University
PALMER, JOHN D., Northwestern University
PINCHOT, GIFFORD B., Johns Hopkins University
McLAUGHLIN, ELLen, University of North Carolina
SWEENEY, EDWARD F., Boston University
SWIFT, ELIJAH, Swarthmore College
TAYLOR, WALTER R., Johns Hopkins University
WATT, WALTON D., Dalhousie University
WHITELEY, GEORGE CO., The Hill School
WILLIAMS, ELSIE LOUISE, Goucher College

3. Fellowships and Scholarships, 1959

Lucretia Crocker Scholarships:
  CHARLES P. MASON, Botany Course
  JOHN D. PALMER, Ecology Course
Conklin Scholarship:
  STEPHEN LEVINE, Embryology Course
Bio Club Scholarships:
  DIANA LEE EHRLICH, Botany Course
  JACK IZOWER, Invertebrate Zoology Course
REPORT OF THE DIRECTOR

4. Tabular View of Attendance, 1955-1959

<table>
<thead>
<tr>
<th>Investigators—Total</th>
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<th>1956</th>
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<td>Independent</td>
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<td>Under Instruction</td>
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<td>23</td>
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<td>Library Readers</td>
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<td>Research Assistants</td>
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<td>50</td>
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<td>Students—Total</td>
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<td>139</td>
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<thead>
<tr>
<th>Students</th>
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<tbody>
<tr>
<td>Invertebrate Zoology</td>
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<tr>
<td>Embryology</td>
</tr>
<tr>
<td>Physiology</td>
</tr>
<tr>
<td>Botany</td>
</tr>
<tr>
<td>Ecology</td>
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<tr>
<td>TOTAL ATTENDANCE</td>
</tr>
<tr>
<td>398 444 465 548 561</td>
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<thead>
<tr>
<th>Institutions Represented—Total</th>
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<th>1956</th>
<th>1957</th>
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<tr>
<td>By Investigators</td>
<td>95</td>
<td>97</td>
<td>94</td>
<td>110</td>
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<tr>
<td>By Students</td>
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<td>33</td>
<td>35</td>
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<table>
<thead>
<tr>
<th>Schools and Academies Represented</th>
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<tbody>
<tr>
<td>By Investigators</td>
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<td>By Students</td>
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</table>

<table>
<thead>
<tr>
<th>Foreign Institutions Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>By Investigators</td>
</tr>
<tr>
<td>By Students</td>
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</table>

5. Institutions Represented, 1959

Abbott Laboratories
A & M College of Texas
Adelphi College
Agricultural Research Center
Alabama, University of
Albert Einstein College of Medicine
American Heart Association
American University
Amherst College
Barnes Hospital
Bowdoin College
Brandeis University
Brooklyn College
Brown University
Bryn Mawr College
Buffalo, University of
California, University of
Carnegie Institution of Washington
Catholic University
Chatham College
Chicago, University of
Cincinnati, University of
City College of New York
Colby College
College of St. Mary of the Springs
College of William and Mary
Columbia University

Columbia University, College of Physicians and Surgeons
Connecticut College
Connecticut, University of
Cornell University
Cornell University Medical School
Cushing Academy
Department of the Interior
DePaul University
Drew University
Duke University
Earlham College
Emory University
Florida State University
Fordham University
Franklin and Marshall College
Georgia, University of
Goucher College
Hahnemann Medical School
Hamilton College
Harvard University
Harvard University Medical School
Hastings College
Illinois, University of
Indiana State Teachers College
Indiana University
Institute for Muscle Research
Iowa State University
Johns Hopkins University
Kansas University
Louisiana State University
Loyola College
Maine, University of
Manhattan College
Marquette University
Maryland, University of
Massachusetts Eye and Ear Infirmary
Massachusetts General Hospital
Massachusetts Institute of Technology
Medical College of Virginia
Michigan State University
Michigan, University of
Minnesota, University of
Montefiore Hospital Research Institute
Mount Holyoke College
Mt. St. Joseph, College of
National Institutes of Health
Nebraska, University of
New Hampshire, University of
New York State University College of Medicine at Syracuse
New York University
New York University, Bellevue Medical Center
New York University School of Dentistry
New York University, Washington Square College
North Carolina State College
North Carolina, University of
Northwestern University
Notre Dame University
Oak Ridge National Laboratory
Oberlin College
Ohio Wesleyan University
Oklahoma, University of
Oregon, University of
Orleans High School
Pennsylvania, University of
Pennsylvania Medical School, University of Pittsburgh, University of
Princeton University
Purdue University
Queens College
Radcliffe College
Reed College
Research Institute for Advanced Studies
Rhode Island, University of
Rochester, University of
Rockefeller Institute for Medical Research
Rollins College
Roswell Park Memorial Institute
Rutgers University
St. Joseph’s College
St. Louis University
St. Mary of the Woods College
St. Peter’s College
St. Vincent College
Seton Hill College
Single Cell Research Foundation
Sloan-Kettering Institute
Smith College
Swarthmore College
Sweet Briar College
Syracuse University
Temple University
Texas, University of
Texas, University of, Southwestern Medical School
The Hill School
Tufts University
Tulane University
Upjohn Company
Utah, University of
U. S. Fish and Wildlife Service
U. S. Public Health Service
Vanderbilt University
Vassar College
Vermont, University of
Veterans Administration Hospital
Virginia, University of
Washington University
Washington University Medical School
Washington and Jefferson College
Wayne State University
Wellesley College
Wesleyan University
Western Reserve University
Wilson College
Wisconsin, University of
Woods Hole Oceanographic Institution
Yale University

Foreign Institutions Represented, 1959

Instituto de Anatomica y Embriologia, Universidad de Buenos Aires, Argentina
University of Brussels, Belgium
Arcadia University, Canada
Dalhousie University, Canada
McGill University, Canada
McMaster University, Canada
University de los Andes, Bogota, Colombia
King’s College, England
Trinity College, England
University College, England
Sorbonne, Paris, France
University of Paris, France
Max-Planck Institut für Virusforschung, Germany
Technical University, Darmstadt, Germany
REPORT OF THE DIRECTOR

Supporting Institutions and Agencies, 1959

American Cancer Society
Olin Mathieson Chem. Corporation, Charitable Trust
Associates of the Marine Biological Laboratory
National Institutes of Health
Atomic Energy Commission
National Science Foundation
Josephine B. Crane Foundation
Office of Naval Research
The Grass Foundation
The Rockefeller Foundation
The Lillie Foundation
Smith, Kline and French Foundation
Abbott Laboratories
Merck Company Foundation
Ciba Pharmaceutical Products, Inc.
Schering Corporation
Carter Products, Inc.
The Upjohn Company
Eli Lilly and Company
Wyeth Laboratories

6. Evening Lectures, 1959

June 26
R. E. Billingham "Studies on the Y chromosome antigen in rodents"

July 3
Alexander Forbes "The growth of physiology"

July 6
Alexander Forbes "Electrophysiology of color vision"

July 10
I. M. Klotz "Protein hydration and behavior"

July 17
C. Ladd Prosser "'The origin' after a century; prospects for the future"

July 24
Silvio Ranzi "Protein differentiation during embryonic and larval development"

July 31
V. G. Dethier "Chemical sense of the blowfly and hunger"

August 7
Claude A. Villee "Interrelations of hormones and enzymes"

August 14
Hugo Theorell "Mode of action of enzyme-coenzyme complexes"
August 21
W. A. H. Rushton .................. "The retina is the net of a fisherman who catches quanta and barters them for information"

August 28
Eugene P. Odum .................. "The energy flow to the study of populations in nature"

7. Tuesday Evening Seminars, 1959

July 7
J. L. Griffin .................. "Isolation and chemical identification of the crystalline cytoplasmic inclusions in the large, free-living amebae"

Milton Fingerman .................. "Physicochemical characterization of chromatophorotropins in the crayfish, Cambarus shufeldti"

William H. Johnson and Andrew G. Szent Györgyi ............ "The molecular basis for the 'catch mechanism' in molluscan muscles"

July 14
James D. Eisen .................. "A study on the physiology of the predator-prey relationship existing between Paramecium aurelia and Didinium nasutum"

Wolfgang Wieser .................. "Growth, metabolism and coexistence in marine nematodes"

Ralph A. Lewin .................. "Uptake of strontium by Syracosphaera"

July 21
A. B. Novikoff .................. "Lysosomes in the physiology and pathology of cells"

J. R. Collier .................. "Localization and synthesis of ribonucleic acid in the development of Ilyanassa obsoleta"

G. G. Holz, Jr. and C. C. Speidel .................. "Mating behavior of x-rayed Tetrahymena pyriformis." Motion pictures

C. Fulton .................. "Polarized tissue movement in hydroid regeneration." Motion pictures

July 28
Philip Person, Jay W. Lash and Albert Fine .................. "Myoglobin and cytochrome oxidase in odontophore cartilage of Busycon"

W. Troll, S. Belman and N. Nelson .................. "Aromatic amine metabolism and bladder cancer"

Paul S. Galtsoff and D. E. Philpott .................. "Ultra structure of the spermatozoon of the oyster"

August 4
Vincenzo Leone .................. "Some structures found in electron microscopic pictures of an amphibian tumour"

Alfred W. Senft .................. "Ultrastructure of the human parasite, Schistosoma mansoni"
REPORT OF THE DIRECTOR

GEORGE W. de VILLAFLANCA AND
DELBERT E. PHILPOTT "A study of the fine structure of skeletal muscle from Limulus polyphemus"

August 11
MAURICE M. RAPPORT "Present status of the problem of plasmalogren structure"

ERIC G. BALL "On the mode of action of insulin"

WALTER S. VINCENT AND
ELYANE BALITUS "Incorporation of isotopic label into RNA: synthesis or terminal addition?"

August 18
L. V. HEILBRUNN "The action of glycerol on protoplasm"

WALTER L. WILSON AND
K. S. SWAMI "Electrophoretic studies on protoplasm"
FRANCIS T. ASHTON "Germinat vesicle breakdown in the eggs of Spisula and Hydroides"

R. D. ALLEN "Polarized optical studies on Ameba"
F. CHILD "Isolation and analysis of cilia"

8. MEMBERS OF THE CORPORATION, 1959

1. LIFE MEMBERS

BRODIE, MR. DONALD M., 522 Fifth Avenue, New York 18, New York
CALVERT, DR. PHILIP P., University of Pennsylvania, Philadelphia, Pennsylvania
CARVER, DR. GAIL L., Mercer University, Macon, Georgia
COLE, DR. ELBERT C., 2 Chipman Park, Middlebury, Vermont
COWDRY, DR. E. V., Washington University, St. Louis, Missouri
CRANE, MRS. W. MURRAY, Woods Hole, Massachusetts
DEDERER, DR. PAULINE H., Connecticut College, New London, Connecticut
GOLDFARB, DR. A. J., College of the City of New York, New York City, New York
KNOWLTON, DR. F. P., 1356 Westmoreland Avenue, Syracuse, New York
LEWIS, DR. W. H., Johns Hopkins University, Baltimore, Maryland
LOWTHER, DR. FLORENCE DEL., Barnard College, New York City, New York
MALONE, DR. E. F., 6610 North 11th Street, Philadelphia 26, Pennsylvania
MEANS, DR. J. H., 15 Chestnut Street, Boston, Massachusetts
MOORE, DR. J. PERCY, University of Pennsylvania, Philadelphia, Pennsylvania
PAYNE, DR. FERNANDUS, Indiana University, Bloomington, Indiana
PORTER, DR. H. C., University of Pennsylvania, Philadelphia, Pennsylvania
RIGGS, MR. LAWSON, 74 Trinity Place, New York 6, New York
SCOTT, DR. ERNEST L., Columbia University, New York City, New York
TURNER, DR. C. L., Northwestern University, Evanston, Illinois
WAITE, DR. F. G., 144 Locust Street, Dover, New Hampshire
WALLACE, DR. LOUISE B., 359 Lytton Avenue, Palo Alto, California
WARREN, DR. HERBERT S., 610 Montgomery Avenue, Bryn Mawr, Pennsylvania

2. REGULAR MEMBERS

ABELL, DR. RICHARD G., 7 Cooper Road, New York City, New York
ADAMS, DR. A. ELIZABETH, Mount Holyoke College, South Hadley, Massachusetts
ADDISON, DR. W. H. F., 286 East Sidney Avenue, Mount Vernon, New York
ADOLPH, DR. EDWARD F., University of Rochester School of Medicine and Dentistry, Rochester, New York
ALBERT, DR. ALEXANDER, Mayo Clinic, Rochester, Minnesota
ALLEN, DR. M. JEAN, Department of Biology, Wilson College, Chambersburg, Pennsylvania
ALLEN, DR. ROBERT D., Department of Biology, Princeton University, Princeton, New Jersey
ALSCHER, DR. RUTH, Department of Physiology, Manhattanville College, Purchase, New York
AMBROSE, DR. WILLIAM R., Department of Physiology, University of Maryland School of Medicine, Baltimore, Maryland
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V. REPORT OF THE LIBRARIAN

During 1959, forty-eight new journals were acquired making a total of 1665 currently-received titles. Of these, there were 484 (12 new) Marine Biological Laboratory subscriptions, 638 (9 new) exchanges and 184 (5 new) gifts; 100 (7 new) were Woods Hole Oceanographic Institution subscriptions; 199 (12 new) were exchanges and 60 (3 new) were gifts. Between the years 1950 and 1959, 439 new journals were obtained with initial date of publication, in each case, falling within that period.

The Laboratory purchased 92 books (15 of these from the Montgomery Memorial Fund), received 119 complimentary copies (7 from authors and 112 from publishers) and accepted 43 miscellaneous gifts. The Institution purchased 50 books and received 6 as gifts. The total number of books accessioned amounted to 310.

Through purchase, exchange and gift the Laboratory completed 10 journal sets and partially completed 15. The Institution completed 6 sets and partially completed 6. There were 5,629 reprints added to the collection, of which 1772 were of current issue.

At the close of the year there were 76,073 bound volumes and 212,627 reprints. The Library mailed out on inter-library loan 384 volumes and borrowed 72. About 900 volumes were bound, as well as 85 pamphlets.

Dr. E. V. Cowdry presented his large collection of reprints to the Library, of which 2000 were added to the shelves. Among his collection there were several journal numbers which filled in gaps of long standing. Dr. F. A. Hartman presented a collection which will be processed in 1960. Also, gifts of reprints and books were received from Dr. H. W. Kaan, Dr. P. W. Whiting and Mrs. A. R.
Memhard. Dr. W. R. Amberson donated a long series of the serial entitled “Onderzoekingen gedaan in het Physiologisch Laboratorium der Rijksuniversiteit te Utrecht,” as well as several books. To each of these generous friends the Laboratory wishes to extend grateful thanks for the valuable literature acquired by the Library.

Two foreign institutions benefited from the collection of duplicates, namely, the National Institution of Oceanography in England and the Marine Biological Laboratory at Helsingør, Denmark.

During 1959, the Staff noticed a considerable increase in the use of the Library during the winter months. This is very gratifying, as it indicates further year-round use of the Library facilities, as Woods Hole becomes more and more a scientific research center.

Respectfully submitted,
DEBORAH L. HARLOW,
Librarian

VI. GENERAL BIOLOGICAL SUPPLY HOUSE, INC.

It would seem that a short résumé of the history of “Turtox” would be of interest to the members of the Corporation at this time.

In 1913, Morris Wells was a graduate student in the Department of Zoology of the University of Chicago. Dr. Frank R. Lillie was Chairman of the Department, and also President of the Marine Biological Laboratory. Prior to this, Mr. Wells had taught biology for one year in a high school in Kansas. This experience made him realize that biology teachers needed aid in obtaining material for instruction. In 1914, he and his wife prepared a one-page mimeographed sheet, listing slides and other material, which was mailed to a list of biology teachers. Several orders for $1.00 each were received, which were processed in the cellar of Mrs. Wells’ parents’ home. Mr. Wells received his Doctor’s degree in 1915, and accepted a position as Instructor under Dr. Frank R. Lillie, at the University of Chicago. He was promoted to the rank of Assistant Professor three years later. By 1918, Dr. Wells realized he could no longer do justice to his teaching, and take care of his growing business. He discussed this with Dr. Frank Lillie. Dr. Lillie suggested that if Dr. Wells wished to devote all his time to furnishing biological supplies to teachers, he might interest his brother-in-law, Mr. Charles Crane, in the business. A corporation was formed, under the laws of the State of New York; Dr. Frank Lillie was Chairman of its Board of Directors for many years. Mr. Crane purchased 51% of the stock of the new company, and turned it over to the Marine Biological Laboratory as a gift. The amount involved was $10,000.

In 1920, due to the growth of the business, the General Biological Supply House increased their stock by $5000, and the M. B. L. purchased one-half of the new issue for $2500.

In 1921, the Treasurer’s report of the M. B. L. shows the entire holdings of General Biological Supply House stock held by M. B. L. listed at $12,700. This figure includes 51% of the voting stock. The purpose of this arrangement was to keep the business in the control of a scientific institution, which would prevent any
possible future hazards of the business being run just for the profit of the private owners of the stock. Dr. Wells insisted from the start that the most important functions of the new company were to help biology teachers get material, and pass on to them information concerning new techniques.

The new company was called “The General Biological Supply House Inc.” and Dr. Wells coined the word “Turtox,” with a design of a turtle holding up the world.

Information about the new company during the first five years is not available, except that 8% of the par value of the stock was paid in dividends during that period. From 1923 to the present date, a period of 36 years, the M. B. L. has received $476,144 in dividends and its stock interest in the company at this time is worth well over $500,000.

In 1919 Dr. Wells had a student in one of his courses who seemed to have potentialities. Dr. Wells suggested that he continue his courses in fundamental biology, and take courses in commerce. This student followed Dr. Wells’ suggestion, and took his degree in Business Administration. He worked part time, as a student, for “Turtox,” and became a full time employee when he graduated. Dr. Wells was ill for long periods, and this man was elected Vice President. When Dr. Wells died, he became President, a position he still holds. He is, of course, Mr. C. Blair Coursen. Part of Blair Coursen’s work until recently was to edit the magazine, “Turtox News”; Mrs. Shepherd, who worked with Mr. Coursen for several years, is the present editor. “Turtox News” devotes more than half its pages to non-advertising material. Secondary school biology teachers find it “good reading.”

In 1955, General Biological Supply House moved to a new building, especially designed for their operation. This building has proved to have been a wise investment.

In 1957, the Board of Directors established the “Turtox Scholarship.” Any American citizen who is currently, or has been, enrolled in a graduate school of biology is eligible. The award is based upon evidence bearing upon the promise of the applicant as a prospective teacher and research scholar. The stipend is $5000 per year—one of the largest scholarships available. The Scholarship Committee consists of Dr. Frank A. Brown, Jr., Chairman, Dr. Philip B. Armstrong, Dr. C. E. Olmstead, Dr. D. P. Rogers and Dr. S. Meryl Rose.

In preparing this report, I wish to acknowledge help from Mr. C. Blair Coursen, Mrs. Edith Wells, Dr. Winterton C. Curtis, Mr. Homer P. Smith and the Librarian, Mrs. Deborah L. Harlow.

The successful operation of the General Biological Supply House Inc. reflects the management of its President, C. Blair Coursen, ably assisted by the Vice President, Arold Blaufuss, the Export Manager, Charles Coursen, Jr., and the Assistant to the President and Editor of “Turtox News,” Mrs. Ruth L. Shepherd. They, together with a group of well trained and loyal employees, have rendered a unique service to teachers of biology throughout the world. Thus, the original purpose of its founder, Dr. Morris Wells—to give aid and assistance to biology teachers—is being carried out.

Respectfully submitted,

C. Lloyd Claff