

THE
MARINE BIOLOGICAL
LABORATORY.

THIRD ANNUAL REPORT,

FOR THE YEAR

1890.



BOSTON:
1890.



OFFICERS.

1890.

Trustees.

SAMUEL H. SCUDDER, *President.*

FLORENCE M. CUSHING.

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EDWARD T. CABOT, *Treasurer.*

ANNA D. PHILLIPS, *Secretary.*

A. L. LOWELL, *Clerk.*

Director.

C. O. WHITMAN.

Instructors at the Laboratory.

HOWARD AYERS.

J. S. KINGSLEY.

H. C. BUMPUS.

J. P. McMURRICH.

E. G. GARDINER.

W. M. RANKIN.

W. A. SETCHELL.

Artist.

RYOICHE TAKANO.

INVESTIGATORS AT THE LABORATORY.

A. — OCCUPYING PRIVATE ROOMS.

- ✓ HOWARD AYERS, PH.D., Director of Allis Lake Laboratory, Milwaukee, Wis.
- ✓ HERMAN C. BUMPUS, Assistant Professor of Zoölogy, Brown University, Providence, R.I.
- ✓ HENRY H. DONALDSON, PH.D., Assistant Professor of Neurology, Clark University, Worcester, Mass.
- ✓ J. S. KINGSLEY, PH.D., Professor of Biology, University of Nebraska, Lincoln, Neb.
- ✓ T. H. MORGAN, PH.D., Bruce Fellow, Johns Hopkins University, Baltimore, Md.
- ✓ WALTER M. RANKIN, PH.D., Instructor in Biology, Princeton College, Princeton, N.J.
- ✓ EDMUND B. WILSON, PH.D., Professor of Biology, Bryn Mawr College, Bryn Mawr, Penn.
- ✓ S. WATASE, PH.D., Assistant in Zoölogy, Clark University, Worcester, Mass.
- ✓ J. PLAYFAIR McMURRICH, PH.D., Docent in Zoölogy, Clark University, Worcester, Mass.
- ✓ C. O. WHITMAN, PH.D., Professor of Biology, Clark University, Worcester, Mass.
- ✓ W. A. SETCHELL, B.A., Assistant in Botany, Harvard University, Cambridge, Mass.
- ✓ E. G. GARDINER, PH.D., Instructor in Biology, Massachusetts Institute of Technology, Boston, Mass.
- ✓ C. H. EIGENMANN, PH.D., California Academy of Science, San Francisco, Cal.

B. — RECEIVING INSTRUCTION.

- ✓ CORNELIA M. CLAPP, Mt. Holyoke Seminary and College, South Hadley, Mass.
- ✓ L. W. CHANEY, Jr., Carleton College, Minn., Professor of Biology, Northfield, Minn.
- ✓ F. M. MCFARLAND, Olivet College, Minn., Professor of Biology, Olivet, Mich.
- ✓ A. D. MORRILL, Ohio University, Professor of Biology and Geology, Athens, Ohio.
- ✓ MARCELLA I. O'GRADY, Associate Professor of Biology, Vassar College, Poughkeepsie, N.Y.
- ✓ JULIA B. PLATT, Boston.
- ✓ HARRIET RANDOLPH, University of Zürich.

THIRD ANNUAL REPORT
OF THE
TRUSTEES OF THE MARINE BIOLOGICAL
LABORATORY.

THE Trustees have the pleasure of reporting to the Corporation another year of prosperity to the Laboratory.

During the last summer those working in the Laboratory numbered no less than forty-seven, and the tuition fees amounted to \$959, as against \$845 during 1889, and \$363 during 1888.

During the last summer the Laboratory offered greater advantages for study and collecting than ever before, and it may be confidently expected that in the future the receipts from tuition fees will be even larger than heretofore. The Trustees learn with pleasure that the gentlemen in charge of the Department of Instruction report that the quality of the elementary students, and the work done by them, is decidedly better than in previous years. The two Lucretia Crocker scholarships, of fifty dollars each, were held by Miss A. F. Armes and Miss Nellie L. Shaw, of Boston public schools.

During the summer of 1889 the need of a lecture-room was keenly felt. Every available place in the Laboratory being occupied by a work-table, it was impossible for students to gather around the lecturer without completely disarranging the Laboratory. Experience had also shown that some of the more advanced students did not need to attend every lecture given, but could often spend their time to greater advantage, if allowed to continue their laboratory work without interruption. This could not be done conveniently while lectures were in progress.

Further, in accordance with the plan adopted by the Director, evening lectures of a more advanced character were given from time to time. These were attended by both students and investigators, an aggregate of over forty persons. The interest in, and instructiveness of, these lectures was much marred by the discomforts of the surroundings. The library had also outgrown the quarters to which it was originally assigned during the summer of 1889, and the number of rooms for investigators was less than the number of applicants.

In view of remedying these defects, the Trustees have added an L to the present building. This addition contains a comfortable and convenient lecture-room, a pleasant library, and six investigators' rooms, which, like those in the main building, are fitted with aquaria, and supplied with running sea-water. All workers at the Laboratory during last summer fully appreciate the advantages gained by this addition.

The library has been considerably enlarged by gifts from numerous friends. Although we were unable to purchase any books, the current subscriptions to journals have been maintained. The following list gives the donations received, as far as catalogued. Other gifts were received from A. Agassiz, California Academy of Science, R. Ellsworth Call, C. and R. S. Eigenmann, E. G. Gardiner, Mrs. Gifford, J. E. Ives, T. H. Morgan, E. S. Morse, W. A. Setchell. The most important gift was from Dr. Francis Minot, and included Agassiz's Contributions and a series of the publications of the American Academy.

	Volumes.	Pamphlets.
Barnes, C. P.		1
Baur, G.		12
Coulter, J. N.	2	2
Coulter, Stanley		2
Farlow, W. G.	2	3
Fewkes, J. W.		1
Ganong, W. F.		1
Kingsley, J. S.		1
McLaren, Dur.	1	1

STUDENTS AT THE LABORATORY.

- Miss A. F. ARMES, Teacher in Martin School, Boston, Mass.
 Miss ELIZABETH E. BICKFORD, Teacher of Science, Bryn Mawr School,
 Baltimore, Md.
 CHARLES L. BRISTOL, Professor of Biology, State University of South Dakota,
 Vermilion, So. Dak.
 HOWARD S. BRODE, Assistant in Zoölogy, University of Illinois, Champaign,
 Ill.
 SEVERANCE BURRAGE, Student, Massachusetts Institute of Technology, Bos-
 ton, Mass.
 H. N. CONSER, Professor of Natural Science, Central Pennsylvania College,
 New Berlin, Pa.
 E. A. CODMAN, Student, Harvard University, Cambridge, Mass.
 GERTRUDE CROTTY, Assistant in Zoölogy, University of Kansas, Lawrence,
 Kan.
 Miss E. M. DRURY, Boston.
 JOHN L. GEROULD, Teacher, Burr and Burton Seminary, Manchester, Vt.
 Miss LEAH GOFF, Demonstrator in Biology, Bryn Mawr College, Bryn
 Mawr, Pa.
 Miss CAROLINE J. HITCHCOCK, Teacher of Science, Meriden High School,
 Meriden, Conn.
 Miss SUSAN R. HOWARD, Teacher of Elementary Zoölogy, Packer Institute,
 Brooklyn, N.Y.
 Miss SUSAN J. HART, Teacher of Natural Science, State Normal School, Fram-
 mingham, Mass.
 Miss S. EMMA KEITH, Student, Mt. Holyoke College, South Hadley, Mass.
 Miss LUCY T. MARSH, Assistant in Biological Laboratory, Mount Holyoke
 College, South Hadley, Mass.
 A. D. MEAD, Graduate Student, Brown University, Providence, R.I.
 H. W. NORRIS, Graduate Student, University of Nebraska, Lincoln, Neb.
 Miss MARY A. SCHIVELY, Instructor in Zoölogy, Friends' Central School,
 Philadelphia, Pa.
 Miss ADELINE F. SCHIVELY, Teacher in Bridesburg School, Philadelphia, Pa.
 Miss NELLIE L. SHAW, Teacher in Dwight School, Boston, Mass.
 Miss SUSAN B. SMITH, Teacher of Natural History, West Town Boarding
 School, West Town, Pa.
 W. C. STEVENS, Assistant in Botany, University of Kansas, Lawrence, Kan.
 ELLISON A. SMYTH, Jr., Adjunct Professor of Biology, University of South
 Carolina, Columbia, S.C.
 HERBERT J. WEBBER, Assistant, Shaw School of Botany, St. Louis, Mo.
 A. P. WHITE, Teacher of Sciences, University School, Chicago, Ill.
 A. A. WRIGHT, Professor of Natural History, Oberlin College, Oberlin
 Ohio.

	Volumes.	Pamphlets.
Miller, W. S.	1	1
Mills, T. Wesley		16
Minot, Charles S.	15	6
Minot, Francis	20	
Osborn, Henry F.	7	8
Packard, A. S.	9	116
Peabody Acad. Science, Salem	5	
Scudder, Samuel	1	

During the former seasons both students and investigators have felt the need of better collecting facilities than the Laboratory could offer. Although well supplied with row-boats, the strong tides which prevail in the neighboring waters rendered it imperative for the Laboratory to have the use of a steam-launch. Many of the localities where the richest fauna and flora were to be found were beyond the reach of either sail or row boats.

Last spring the Trustees supplied this deficiency in the equipment by the purchase of the "Wyandotte," a most excellent steam-launch designed by Edward Burgess, and in every way suitable to the work. During the last summer the "Wyandotte" fully demonstrated her usefulness, dredging and collecting excursions being made every day when the weather was suitable.

Last August the "Gifford Homestead," or "The Elms," which consists of about half an acre of land, closely adjoining the lot on which the Laboratory stands, and a substantial old house, was advertised at forced sale. The Trustees have long believed that in the near future the land and house would be of great value to the Laboratory, but have been deterred from purchasing by lack of funds. Appreciating that the amount for which this property could be purchased, (\$3,500) thirty-five hundred dollars, was small considering its real value, Joseph S. Fay, Esq., advanced the money for the purchase, holding a mortgage on the property for three thousand dollars.

(\$3,000). This generous act secures the property to the Laboratory, and at the same time presents the Trustees with the sum of five hundred dollars (\$500). Since the Laboratory was first opened Mr. Fay has shown by his liberality great interest in its success, and the Trustees have once again to thank him most cordially. Their thanks are also due to Professor McDonald, United States Commissioner of Fish and Fisheries, for many courtesies extended by him and his staff to our officers and students.

We are again, as in past years, under obligations to Miss Fay for the use of Gardiner cottage for a mess-room for those working in the Laboratory. This last summer the mess was under the immediate charge of one of the officers of the Laboratory, and if not in every way satisfactory, yet was on the whole as good as circumstances would allow. It is hoped that the experience gained will be of service in whatever arrangement may be made another year. The Laboratory now owns a complete mess-outfit, including tables, chairs, stove, cooking-utensils, and table furniture; and it is believed that the house on the newly acquired property can be adapted to a permanent mess-room at small expense.

The Trustees believe that the Laboratory is now fully equipped; until an effort is made to establish a permanent Laboratory, but little outlay on improvements will be necessary.

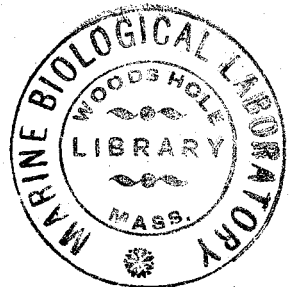
They would, however, again remind the Corporation that the success of the Laboratory is largely due to the voluntary efforts of the Director and his corps of assistants. They have worked faithfully and without further remuneration than their personal expenses while at Wood's Holl. In many cases the work was arduous, allowing little or no time for study or investigation. It is to be hoped that at least those who give their whole time to the Laboratory will, in the future, receive some compensation.

The Treasurer's report shows that receipts from all sources failed to meet disbursements for the year by the amount of \$873.19, which was temporarily advanced by friends of the Laboratory. We also owe to Mr. Joseph S. Fay \$3,000, secured

by a mortgage of the Gifford estate, for which he advanced the purchase money, and to C. H. Burdick, \$947.26, for the addition to the Laboratory building.

As the success of the Laboratory has greatly exceeded expectation, and warrants the largest hopes for the future, your Trustees consider it imperative that an effort be made at once to place the Laboratory upon a permanent footing; and they have accordingly voted to take immediate steps to raise sixty thousand dollars, which, when the indebtedness incurred the past season is removed, will yield an annual income sufficient, not only to carry it on as heretofore, but to pay a small stipend to those on whose voluntary assistance in direction and instruction we have been dependent for success. The Trustees invite your earnest coöperation in securing this amount. The proved usefulness of the Laboratory, the great demand for the privileges it offers, and its present far-reaching influence demonstrate the need for a permanent establishment, and enable us to make our appeal to the public with pride in our brief past, and confidence in our future.

(Signed) S. H. SCUDDER, *President*,
E. T. CABOT,
FLORENCE M. CUSHING,
W. G. FARLOW,
E. G. GARDINER,
A. L. LOWELL,
SUSAN MINNS,
C. S. MINOT,
H. F. OSBORN,
ANNA D. PHILLIPS,
W. T. SEDGWICK,
E. B. WILSON.



TREASURER'S

Dr. MARINE BIOLOGICAL LABORATORY IN

GENERAL

1890. By cash paid as follows, viz.: —

Addition to Laboratory	\$800 00
Steam-launch	1,350 00
Expenses on launch	433 10
Improvements, furniture, etc., at Laboratory and Gardiner Cottage	606 25
Instructors	654 55
Boatmen and Janitor	245 25
Books	589 50
"Sundries and running expenses"	196 38
Painting, etc.	131 21
Apparatus, chemicals, etc.	391 70
Expenses of transferring and insuring title to Gifford estate	200 25
Book boxes	12 00
Alcohol	35 50
Stationery	4 43
Custom-House expenses	13 15
Insurance	82 28
Freight and express	34 44
 Total	 \$5,749 99
Balance	188 44
	<hr/>
	\$5,938 43
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CROCKER

Amount paid to holders of scholarships	\$50 00
Amount transferred to general fund, on ac- count of fees of holders of scholarships	50 00
	<hr/>
	\$100 00
Balance	64 28
	<hr/>
	\$164 28
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REPORT.

ACCOUNT WITH EDWARD T. CABOT, TREASURER. *Cr.*

FUND.

1890. By cash received as follows, viz.: —

Balance cash on hand, Jan. 1, 1890	\$932 82
Assessments (1890)	48 00
“ (1891)	5 00
Contributions	2,984 00
Fees of students	577 00
Fees of investigators	350 00
Mess account	156 50
Interest	11 92
Advanced by friends of the Laboratory	873 19

Total \$5,938 43

FUND.

Balance cash on hand, Jan. 1, 1890	\$56 28
Income from fund	108 00

\$164 28

Examined and found correct.

SAMUEL H. SCUDDER,
A. LAWRENCE LOWELL,
Committee on Finance.

DONATIONS RECEIVED DURING 1890.

Miss Mary F. Bartlett	\$55 00
Miss Helen C. Bradlee	25 00
Miss Ellen Cary	5 00
Miss Eliza Collamore	4 00
Miss Helen Collamore	4 00
Miss M. H. Crocker	10 00
Miss Florence M. Cushing	30 00
Miss Lucy Ellis	100 00
Wm. Endicott, Jr.	25 00
Prof. W. G. Farlow	100 00
Mr. J. S. Fay	*1,100 00
A Friend (through Mr. J. S. Fay)	400 00
Miss H. E. Freeman	4 00
Mrs. George Faulkner	50 00
Mrs. T. M. Gibbs	25 00
Mr. W. O. Grover	100 00
Mr. C. C. Jackson	50 00
Mrs. Charles Jackson	200 00
Prof. J. S. Kingsley	2 00
Miss A. C. Lowell	200 00
Miss E. F. Mason	100 00
Miss Ida Mason	100 00
Mr. H. T. Nachtrieb	4 00
Miss Laura Norcross	100 00
Mrs. John C. Phillips	500 00
Mr. Henry Saltonstall	100 00
Mr. S. H. Scudder	4 00
Miss M. A. Tappan	4 00
Miss M. A. Wales	25 00
Mrs. C. E. Ware	50 00
Mr. Samuel Wells	4 00
Mrs. S. D. Warren	4 00
	\$3,484 00

*This includes \$500.00 (not appearing in the Treasurer's Report) which Mr. J. S. Fay contributed towards the purchase of the Gifford Homestead. See page 11.

REPORT OF THE DIRECTOR
OF THE
MARINE BIOLOGICAL LABORATORY
FOR THE
THIRD SESSION, 1890.

To the Trustees of the Marine Biological Laboratory:—

The third session of the Laboratory has been marked by progress in several important directions. The steam-launch has proved a most timely addition to our facilities for work, and the new L has given us the much-needed lecture-room and library-room, together with six more private rooms for the use of investigators.

The department of instruction had a large attendance of earnest and promising workers. Instruction was provided for by an able and energetic corps of teachers, who took an earnest interest in their work, and spared no effort to make it a complete success. For what was accomplished in this department, we are indebted to J. S. Kingsley, of the University of Nebraska; H. C. Bumpus, of Brown University; W. M. Rankin, of Princeton University; and W. A. Setchell, of Harvard University. In addition to the courses of lectures in marine zoölogy and botany given by these gentlemen, a special course on the Coelenterates was given by Dr. McMurrich, of Clark University.

In the department of investigation twenty tables were occupied, — seven in the general laboratory, and thirteen in private

rooms. The two remaining rooms were reserved for Profs. W. A. Lacy and Henry Orr; but poor health prevented them from joining us.

In the organization of the staff of teachers, and in the distribution of tables, we have secured a fairly wide representation. On the staff we have had eight men from no less than seven different institutions; namely, Harvard, Princeton, Brown, Clark, the Mass. Institute of Technology, the University of Nebraska, and the Allis Lake Laboratory, of Milwaukee. The total number in attendance was forty-seven; the universities, colleges, seminaries, and laboratories represented were eighteen, and academies and schools eleven; making a total of twenty-nine.

From these facts it is evident, first, that the organization of the Laboratory bears a representative character; and, secondly, that the Laboratory stands for needs that are pretty generally felt among students, teachers, and investigators.

The scientific work done at the Laboratory has made good progress during the session. The results already published or in press are as follows:—

DR. HOWARD AYERS. "On Cephalogenesis." *Four. Morph.*, IV., 2, 1890.

DR. HOWARD AYERS. "On the Development of the Ear." *Four. Morph.*, IV., 3, 1890.

PROF. JAMES ELLIS HUMPHREY. "Notes on Technique." *Botanical Gazette*, XV., 7, 1890.

PROF. J. S. KINGSLEY. "The Ontogeny of *Limulus*." Preliminary. *Zoologischer Anzeiger*, No. 345, 1890, and *American Naturalist*, July, 1890.

DR. J. PLAYFAIR MCMURRICH. "Contributions on the Morphology of the Actinozoa." II. "On the Development of the Hexactiniae." *Four. Morph.*, IV., 3, 1890.

MISS JULIA B. PLATT. "The Anterior Head-cavities of *Acanthias*." *Zoologischer Anzeiger*, No. 334, May, 1890.

MISS JULIA B. PLATT. "A Contribution to the Morphology of the Vertebrate Head, based on a Study of *Acanthias vulgaris*." *Four. Morph.*, Vol. V., 1. [To appear in Feb., '91.]

PROF. E. B. WILSON. "Origin of the Mesoblast Bands in Annelids." *Four. Morph., IV., 2.*

Memoirs promised for this year: —

PROF. H. C. BUMPUS. "The Early Stages in the Development of the Lobster."

PROF. J. S. KINGSLEY. "The Embryology of *Limulus*."

DR. J. PLAYFAIR MCMURRICH. "Contributions to the Morphology of the Actinozoa." III. "The Phylogeny of the Actinozoa."

WORKS IN PROGRESS.

L. W. CHANEY, JR. "The Origin of the Periblast in Fishes."

CORNELIA M. CLAPP. "The Developmental History of the Lateral-Line Organs in *Batrachus*."

H. H. DONALDSON. "Action of Hardening Fluids on the Brains of Fishes."

E. G. GARDINER. "Development of the Ascidians."

J. PLAYFAIR MCMURRICH. "The Development of the Scypho-medusæ."

F. M. MCFARLAND. "Cleavage and Gastrulation in the Eggs of Mollusca."

A. D. MORRILL. "The Sense-organs of the Pectoral Fins of *Trigla*."

T. H. MORGAN. "The Embryology of the Pycnogonida."

MARCELLA I. O'GRADY. "The Origin and Significance of Kupffer's Vesicle."

HARRIET RANDOLPH. "The Development of *Spirorbis*."

W. M. RANKIN. "The Excretory and Circulatory Systems in Lamellibranchs."

W. A. SETCHELL. "Observations on the Germination of Certain Smuts (species of *Doassansia*)."

S. WATASE. "The Morphology of the Arthropod Eye."

DR. H. J. WEBBER. "The Structure of the Antheridia in Lomentaria."

E. B. WILSON. "The Embryology of Annelids."

THE EVENING COURSE OF BIOLOGICAL LECTURES.

[*In press.*]

1. HOWARD AYERS. "The Ear of Man; Its Past, Present, and Future."
2. H. H. DONALDSON. "On Chromatophores."
3. E. G. GARDINER. "Weismann and Maupas on the Origin of Death."
4. WILLIAM LIBBY, JR. "The Study of Ocean Temperatures and Currents."
5. J. PLAYFAIR MCMURRICH. "The Gastræa Theory and its Successors."
6. CHARLES SEDGWICK MINOT. "On the Origin of the Mesoblast in Vertebrates."
7. T. H. MORGAN. "The Relationships of the Sea-spiders."
8. EDWARD E. MORSE. "Evolution."
9. HENRY FAIRFIELD OSBORN. "Evolution and Heredity."
10. S. WATASE. "On Caryokinesis."
11. C. O. WHITMAN. "Specialization and Organization."
12. E. B. WILSON. "Some Problems of Annelid Morphology."

The educational value which such lectures may be presumed to have, and the consideration that through them the aims, the needs, and the possibilities of biological work might, in some measure, be made better known to the public, especially to those whose liberal benefactions have enabled the Laboratory to carry forward its work, suggested the propriety of publication.

There are one or two points in the *raison d'être* of this course of lectures, which do not lie wholly on the surface, but which deserve to be made clear. It was hoped, through such a course, to bring specialists into mutually helpful and stimulating relations with one another, and at the same time to make their work and thought intelligible and useful to beginners.

These were not intended to take the place of systematic lectures, such as are given in the regular courses of instruction; they stand rather for the higher and the more general needs of the science. Their leading purpose, if I may be permitted to define it more with reference to the possibilities of its future development than to its present attainment, was to meet the rapidly growing need of coöperative union among specialists. Specialization has now reached a point where such union appears to be an essential means of progress. Specialization is not science, but merely the method of science. For the sake of greater concentration of effort, we divide the labor; but this division of labor leads to interdependence among the laborers, and makes social coördination more and more essential. This is the law of progress throughout the social as well as the organic world. An organism travels towards its most perfect state in proportion as its component cell-individuals reach the limit of specialization, and form a whole of mutually dependent parts. Scientific organization obeys the same law. As methods of investigation improve, specialization advances, and at the same time the mutual dependence of specialists increases. Isolation in work becomes more and more unendurable. Comparison of results, interchange of views and ideas, and a thousand other advantages of social contact, become of paramount importance to the highest development.

In such considerations may be found the leading motive for this course of lectures. While directed in the main to the higher needs of investigators, they deal, as a rule, with subjects of present and quite general interest to beginners. In general, it may be said that the authors undertake to set forth what has been accomplished in their special fields of research, to give the conclusions of the best work and thought, to point out general bearings, and to state the problems that await solution.

Obviously, such a course of lectures admits of unlimited development. Those which we have ventured to offer to the public may serve to emphasize our need, and perhaps may contribute something towards the eventual realization of that more perfect organization which we look for in the establishment of a

permanent station, with an endowment equal to our great opportunities for marine biological research.

As often as we review the work of the Laboratory, there must arise the question, how to advance and improve it. The great drawback now is that the Laboratory represents only a summer station. No sooner have we fairly begun work than it is time to close. This interruption of work tells tremendously against the attainment of the best results. There is one remedy, and only one remedy, and that is a permanent station organized for continued research. The problems of highest interest in biology require years of uninterrupted labor, and I can but regard it as a great national misfortune that we still lack the means to undertake such work on a footing of equality with other countries. As compared with the naturalists of Europe, we are laboring under enormous disadvantages. This is not from any lack of natural advantages, nor from lack of capable men. We have an inexhaustible abundance of the most inviting material for study; we have a good number of well-trained naturalists ready and eager for the work; in fact, we have everything we require save one thing only, — the means. With half a million dollars it would be possible, within two or three years, to organize one of the strongest and most productive biological stations in the world. Without such a station we are handicapped, and a single station like that of Dohrn's at Naples can outdo the whole United States in real biological research.

It is not a zoölogical, nor a botanical, nor a physiological station that will best meet our need, but a biological station large enough to include all three sciences of life. In my opinion — and I believe I express the conviction of the leading naturalists of the country — such a station is to-day the greatest need of American biology.

The object being one of such immediate general interest and importance, it seems to me that we cannot too soon formulate our plans in their full length and breadth, and proceed to do

everything that organized effort can do towards bringing them to the knowledge of the intelligent philanthropy of the country. The moment these plans are put into definite shape, a committee of ways and means is in order. It would be well to have this committee composed of as many representative biologists as could be induced to take an active interest in the end proposed. The work of such a committee would in all probability advance very slowly, and I see no reason why it should not be formed at once, and be empowered to increase its number at discretion.

Respectfully submitted,

C. O. WHITMAN.

LIFE MEMBERS.

Mr. F. L. Ames,
Mr. Robert C. Billings,
Miss H. C. Bradlee,
Miss F. M. Cushing,
Miss Lucy Ellis,
Mr. William Endicott, Jr.
Mrs. Glendower Evans,
Prof. William G. Farlow,
Mrs. George Faulkner,
Mr. J. S. Fay,
Mr. John Foster,
Mr. William O. Grover,
Mr. George W. Hammond,
Mrs. H. L. Higginson,
Mr. C. C. Jackson,
Miss Marian C. Jackson,
Dr. George G. Kennedy,
Mr. N. T. Kidder,
Miss Anna C. Lowell,
Miss Ellen F. Mason,
Miss Ida M. Mason,
Mrs. Daniel Merriman,

Mrs. Frances A. Minns,
Mr. Thomas Minns,
Mr. William Minot,
Miss M. C. Mixter,
Miss Laura Norcross,
Mr. Alfred Pell,
Miss Anna D. Phillips,
Mrs. John C. Phillips, Jr.
Mr. William R. Robeson,
Mrs. William B. Rogers,
Mr. Henry Saltonstall,
Mr. J. P. Spaulding,
Miss M. A. Wales,
Mrs. C. E. Ware,
Miss M. L. Ware,
Mr. William F. Weld,
Mr. Henry M. Whitney,
Mr. Thomas Wigglesworth,
Miss M. A. Wilcox,
Mrs. H. D. Wilmarth,
Dr. R. W. Wood.

MEMBERS.

Mrs. Alvord,
Mr. James B. Ames,
Mrs. James B. Ames,
Miss A. F. Armes,
Mr. C. B. Atwell,
Dr. Howard Ayres,
Miss Mary Bartlett,
Mr. J. L. Batchelder, Jr.
Dr. H. H. A. Beach,
Mrs. H. H. A. Beach,
Miss Elizabeth E. Bickford,
Prof. E. A. Birge,
Miss Elizabeth Blanchard,
Prof. C. L. Bristol,
Mr. H. C. Brode,
Prof. H. C. Bumpus,
Mr. Severance Burrage,
Mr. Edward T. Cabot,
Prof. L. W. Chaney, Jr.
Dr. David W. Cheever,
Miss Mary Cheney,
Prof. Cornelia M. Clapp,
Prof. S. F. Clarke,
Mr. E. A. Codman,
Miss Collamore,
Miss Helen Collamore,
Prof. H. W. Conn,
Prof. H. N. Conser,

Prof. J. M. Coulter,
Miss M. H. Crocker,
Miss Clara E. Cummings,
Mr. John Cummings,
Prof. H. H. Donaldson,
Prof. William R. Dudley,
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