

REPORT OF THE TRUSTEES OF THE MARINE BIOLOGICAL  
LABORATORY TO THE TRUSTEES OF THE CARNEGIE INSTITUTION.

The following statement has been drawn up by a committee appointed by the Board of Trustees at their meeting of Aug. 12, 1902, to report to the Carnegie Institution upon the needs and plans of the Marine Biological Laboratory. The committee is composed of the members of the Executive Committee of the present trustees, Charles Coolidge, an architect of Boston and a trustee of the laboratory, and G. H. Collins, Chairman of the Library Committee.

In offering the report the committee desires to state that it should be regarded as of a somewhat provisional character. The board of trustees is so large and widely scattered that the available time has not been sufficient for the general consideration and maturation of our plans for future development. The many and varied problems that these plans involve can only be solved gradually and demand the most careful study on the part of all biologists interested in the laboratory. We are therefore of the opinion that a wise policy calls for deliberate action; and the plans here outlined, though based on careful estimates, should be regarded as a basis of discussion rather than as a fixed and fully matured estimate.

The committee has endeavored to outline in this report, first, the general scope and aims of the laboratory, and, second, somewhat detailed estimates for the development of its existing departments



to a permanent effective working basis. In so doing they have not hesitated to plan in a large way. The outlay demanded by such a development as we have outlined far exceeds the support that the trustees have thus far been given any reason to expect from the Carnegie Institution or other sources. It has nevertheless seemed worth while to indicate the full requirements of a station that should take its place as a national centre of research, worthy to rank as the first of its kind in any country, and affording opportunities that should enable American biologists to take the foremost place in biological research. With sufficient means such a development of the laboratory should be possible within three years; and this report has been so drawn as to indicate the approximate outlay demanded by such an expansion in the successive years, 1903, 1904 and 1905. Fully realizing, however, that so rapid a development may be impracticable, the estimates for the first year, 1903, directly based on our immediate and most pressing needs, have been carefully prepared so as to form a working basis for subsequent years in case so speedy a realization of the plan is not practicable.

The report has been drawn primarily with reference to the development of the central station at Wood's Holl. It is hardly necessary to urge the importance of establishing branch stations or supporting those already existing at other points. We have left open the important question as to what proportion of the available funds should be diverted to such a purpose at the present time. The greatest needs in this direction appear to be a station



on the Maine coast and one in the West Indian region. We transmit herewith a statement of Prof. J. S. Kingsley, director of the Tufts College Biological Laboratory at South Harpswell, Me., regarding the advantages of that locality, with estimates on the cost of maintenance of a small research laboratory at that point. (Enclosure 7).

The report has been prepared with a view to the situation that would be created by the acceptance of the laboratory by the trustees of the Carnegie Institution on the terms arranged between the conference committee on both sides. Some of the undersigned are, however, of the opinion that had the trustees and corporation of the Marine Biological Laboratory, realized the possibility of receiving any adequate unconditioned support from the Carnegie Institution, their action might have been different. They therefore wish to reserve the right to declare their preferences in another place provided it should seem advisable later to do so. In case such a statement were to be made, it would be presented before the November meeting of the trustees of the Carnegie Institution.

The Scope and Aims of

The Marine Biological Laboratory.

Most of our earlier sea-side laboratories were designed to meet an important need that had been long neglected, namely, the study of marine plants and animals. It was natural that the need should define the aim and limit the scope of the work at the start; The most important of these laboratories have outgrown their original



nal aims. The Naples Station was at first a marine zoological station; but it has enlarged its scope by taking in botany. It has thus become a marine biological station, and may in the future outgrow the limitation remaining in the name marine. The Marine Biological Laboratory, starting out in a more humble way, had at first the same limitation in scope. It has likewise taken in botany, embryology, and physiology, thus becoming more true to its claim of being biological. The development of a Biological Farm (see enclosure 6), now in its inception, will carry it a step nearer the fulfilment of its aim, which is biology at large, without any limitation of the field. Marine is, therefore, a somewhat misleading reminiscence of an early stage of development, when sea ferns alone occupied attention. Biological Station would better express the character and aim than does the name, Marine Biological Laboratory.

The present ideals of the laboratory anticipate the widest freedom of development. As the laboratory does not stand for a single science, much less for a special branch of science, but rather for a group of sciences, which are multiplying, it follows that its aim to represent a national centre of biological work can only be realized in progressive development. To limit its development in any departmental sense of less scope than biology, would inevitably defeat the larger ends in view. Shut out Physiology, for example, <sup>and</sup> all the morphological sciences are handicapped; for these can be cultivated to best advantage in close touch with the the palenstar of our whole organization and policy.



SUMMARY OF RECOMMENDATIONS.

study of life-phenomena and functions. Exclude Animal Psychology, and Zoölogy would be shorn of its deeper interests in the study of habits, instincts and intelligence; and Psychology would lose just what it most needs - the naturalist's aid in the study of the evolution of mind. Separate Laboratory and Biological Farm, and both would thereby be robbed of splendid resources for study and most important opportunities for collaboration. Bar out Embryology, and Morphology would lose its right arm and Physiology its closest ally. Remove Botany or Zoölogy, and the stimulus and light of parallel research would depart.

If the prospects of the Laboratory as a research centre would certainly be seriously injured by cutting off any one of its present departments, it is equally certain that any limitation of its freedom of development in the future would by so much narrow its possible sphere of activity, and make it impossible for it to follow the development of the biological sciences.

It is to be borne in mind that this freedom of development is essential to the life of the Laboratory. It is not research work alone that sustain this life, for that is possible on salaries, with complete isolation of the workers, and without any unity of purpose or sentiment. The life which can make a laboratory a strong centre of interest, and enlist wide coöperation without buying it, depends upon no mercenary motives, but upon devotion to a cause which finds its reward in pursuit. Herein is revealed the polestar of our whole organization and policy.



SUMMARY OF ESTIMATES.

I. Buildings, Land and Equipment.

I. ESTIMATES ON COST OF BUILDINGS, LAND AND EQUIPMENT.

- 1. Land ..... \$44,075.00
- 2. Wharf ..... 5,000.00
- 3. Steam Launch ..... 15,000.00
- 4. (Main Building (Zoology, Physiology, Library etc) ..... 270,000.00
- 5. Botany Building (used by two trustees of the Laboratory) ..... 270,000.00
- 6. Power-house and work-shop - electric light plant ..... 150,000.00
- 7. Ponds, grading, filling, beautifying, etc. ..... 48,400.00
- 8. Library - Books and equipment (See enclosure 2) ..... 25,000.00
- 9. Furniture, apparatus and equipment (initial) ..... 25,000.00
- 10. Experimental Farm (See enclosure 6)

In the block occupied by the Laboratory there are three lots not owned by the Laboratory, that should be acquired as \$451,475.00 possible. This could probably be done for about \$16,000.00.

If but \$80,000.00 were available for betterment for the first two years, the committee are of the opinion that it should be spent as follows:- Land \$16,000.00, Wharf \$5,000.00, Steam Launch \$15,000.00, Building (to include library, offices for administration and a few work rooms with furniture and equipment) \$44,000.00

on deck II. or fifty

ESTIMATE ON COST OF MAINTENANCE

1903	(See enclosure 3)	practically available	30,000.00
1904	(See enclosure 4)	available	75,000.00
1905	(See enclosure 5)	available	100,000.00



Brief Explanation of Summaries.

I. Buildings, Land and Equipment.

1. The purchase of the land specified is necessary for the development of the laboratory. The location of the various parcels is shown on the accompanying plan (Enclosure 1). The Spindel land (\$6375.00) and the Swift land (\$6000.00) have already been bought with money advanced by two trustees of the Laboratory. The Kidder land (\$3700.00) is being held for the Laboratory, but should be bought at once. The land of the Wood's Holl Yacht Club (\$10,000.00) is extremely important as completing our shore line, and guarding against undesirable encroachment. The total cost of these pieces would be \$26,075.00.

In the block occupied by the Laboratory there are three lots not owned by the Laboratory, that should be acquired as soon as possible. This could probably be done for about \$18,000.00.

2. The Wharf is one of our first needs and should be provided for at once.

3. The steam-launch at present owned by the Laboratory will accommodate only about ten persons, and cannot make long trips. The new steamer recommended is about 80 x 20 feet, will accommodate on deck forty or fifty persons, and is capable of exploring the entire coast. It would practically double our collecting area, and increase the number of available forms for study very materially. The estimate of cost is based on a report from a reliable firm.



4 and 5. The estimates on buildings are of necessity at the present time only approximate. But they are based on a careful estimate of the amount of floor-space needed for a very moderate expansion of our present work with a simple but permanent style of construction. The committee is indebted for these estimates to one of its members, Mr. Charles Coolidge of Boston, who has had much experience in laboratory construction. Detailed plans can be prepared and submitted, though several months' time would be needed to prepare all the detailed specifications. It will be possible to prepare these in such a manner as to permit the building to proceed in sections, according to the necessities of the financial situation. If this plan were adopted, the section containing the library should be begun first.

II. Maintenance.

6. For certain kinds of experimental work most important for the development of Biological science, ponds capable of isolation are a prime necessity. Here again the estimates are very approximate, but some provision for this purpose is necessary.

7. Library. The establishment of a good biological library at Wood's Holl will be of service to the workers of the entire country. It is not necessary to urge the necessity of adequate resources of literature, for this is recognized in every scientific institution as one of the main requisites. The library at present is in a rudimentary condition; but we should hesitate to urge the acquisition of a large collection until there is a fire-proof building for their storage and preservation. It is therefore believed that the building for this purpose should be erected without



delay.

The estimate on the establishment and equipment of a satisfactory library has been prepared by an expert sub-committee and it is believed to be accurate. Reference is made to the report of this committee herewith transmitted for details (enclosure 2).

8. Furniture, Apparatus and Equipment. The estimate submitted, while admittedly approximate, is based on the known cost in the case of various biological laboratories; the committee has been careful not to make this excessive, but at the same time to provide for all necessary initial expenses. Some provision has been made in the estimates of annual expenses for accessions.

II. Maintenance.

1. 1903. As it is not planned to keep the laboratory open for the entire year in 1903, the estimates for maintenance involve only a moderate expansion of the existing undertakings of the laboratory, and the taking on of a new journal. But as it has been necessary for so many years to rigidly limit the expenditure in all departments, their mere establishment on a moderate basis nearly doubles the expenditure of the current year (1902). (For details see enclosure 3).

2. 1904. The estimates for maintenance for 1904 represent a second stage in the development of the full plan and provide for the first time for work at all seasons of the year. Although the estimate amounts to about \$75,000.00, it yet leaves no provision for many items essential to the full development of the plan out-



ned in the report. The director and assistant director, technical assistants and employees are provided for, but other necessary members are not included. These will be provided for in the estimate for 1905. (For details see enclosure 4).

3. 1905. If the plans outlined for the seasons of 1903-1904 shall have been carried out, the Laboratory will be supplied with buildings and equipment adequate for the next five or ten years. The estimates for 1905, therefore, are based on the adequate manning and economical management of this plant. It is not probable that everything has been thought of in so hurried an estimate, and the appropriations should therefore rather exceed than fall below the estimate. Inadequate appropriations for the management of a large plant make the investment on the plant futile; no policy could be worse than to erect such an institution, and limit its work by inadequate appropriations for maintenance. (For details see enclosure 5).