

UNIVERSITY OF CALIFORNIA

ASSEMBLY IN SCIENCE

AT THE

SCRIPPS INSTITUTION FOR BIOLOGICAL RESEARCH

June 25 to August 5, 1916

LA JOLLA, CALIFORNIA

During the summer of 1916 it is proposed to try the experiment at the Scripps Institution of an Assembly in Science to continue six weeks. While the experiment will have particularly in view the needs of teachers of the biological sciences and physical geography in the secondary schools, it will be open, subject to the limited accommodations, to anybody in position to profit by the work that will be carried on.

Two distinct types of work will be tried. First: The visitors will be given opportunity to increase their knowledge in the provinces of nature that are being specially investigated at the Institution. This work will be in the hands of the research members of the staff, each dealing with facts and problems pertaining to his own field of research. The second type of work will have in view an increase in the visitors' knowledge of the marine fauna of the California coast, and of the physical features of the local coastal region. The members of the Institution who have charge of the boat work and general collecting, and of the aquaria and museum, will lead in this part of the undertaking. The biological studies here will be chiefly taxonomic and ecological.

COURSES

1. **Local Coastal Physical Geography:** W. C. Crandall, Lectures and Discussions. Monday, Wednesday, Friday, 10 a. m.
2. **Physical Oceanography, including some of its relations to Meteorology:** G. F. McEwen, Lectures, Conferences and Demonstrations. Tuesday, 2 p. m.
3. **Some of the Messages of Marine Biology to Student and Teacher:** E. L. Michael, Lectures, Conferences and Demonstrations. Wednesday, 2 p. m.
4. **Studies on the Characteristic Marine Fauna and Flora of Southern California:** W. C. Crandall and P. S. Barnhart, Lectures, followed by laboratory, museum and field work; arrangements to be made with small groups. Monday, Tuesday, Wednesday, Thursday, Friday, 8 a. m.
5. **Heredity, Environment and Adaptation:** F. B. Sumner, Lectures, Conferences and Demonstrations. Thursday, 2 p. m.
6. **The Relation of Biology to the Sciences of Man:** W. E. Ritter, Lectures, Conferences and Assigned Readings. Friday, 2 p. m.

While this schedule indicates the formal plan to be followed, it is hoped much will be done by personal conference. Any one sufficiently advanced to undertake research, and desirous of trying a piece of work in collaboration with one of the investigators will be given every encouragement and assistance. No examinations, grade marks, or credits, will be given, the assumption being that desire for knowledge is the controlling motive of all who participate in the Assembly.

FACILITIES

LOCATION

The Institution is located two miles north of the village of La Jolla, and fifteen miles north of the City of San Diego. Both Institution and village are within the corporate limits of San Diego, which continues to be an Exposition City during 1916, combining its present exposition with many exhibits shown in San Francisco during 1915. San Diego may be reached by the Santa Fe Railroad, or by the steamers of the Pacific Navigation Company and the Pacific Coast Steamship Company. La Jolla is reached by the La Jolla line, a local railroad; and the laboratory itself by auto bus provided by the Institution.

The Institution property has an ocean frontage of half a mile. The littoral zone in the San Diego region is diversified into rocky tide pools, rich in animal life, representing practically all the phyla; extensive mud flats with an abundant fauna peculiar to this kind of environment; sandy beaches offering opportunities for some kinds of collecting and for surf bathing; precipitous cliffs, cut by canyons and caves; and detached reefs accessible at low tide. The well-equipped modern laboratory and its location within easy reach of rich collecting grounds for littoral, pelagic, and bottom-dwelling animals, offer exceptional opportunities for field and laboratory studies in biology and oceanography.

LABORATORY

The laboratory building consists of a two-story structure, fifty by seventy-five feet, which contains twelve private investigators' rooms each accommodating two workers; and a large aquarium room for researches calling for more aquarial space than is furnished by the individual research rooms. The museum and library are now housed in this building, but these will be moved to more commodious quarters in a new two-story concrete building now in course of construction and to be completed before the opening of the Assembly. The investigators' rooms on the first floor are provided with concrete and plate glass aquaria which are supplied with sea-water secured by means of an electric motor pump at the outer end of a one-thousand-foot concrete pier; that is, from beyond the surf zone, purity of the water being thus assured.

Besides the two concrete buildings already mentioned, there are a number of wooden ones. One of these is the public aquarium, containing nineteen cement tanks with plate glass fronts; another is the garage; a third the service house; and a fourth the bath house. The reagent, apparatus, dark, and shop rooms are amply stocked for the ordinary needs of biological workers.

LIBRARY

This fundamental part of the Institution is reaching a high degree of efficiency. Its bound volumes exceed 5000, and its pamphlets exceed 8000. It is a subscriber to many of the principal journals in its field; and many periodicals, and Institution and Government Series are represented by complete files. The cards of the Concilium Bibliographicum constitute a welcome feature to the investigator; and thorough cataloging of the assembled literature makes the material quickly available.

MUSEUM

No thought is entertained of developing a general zoological museum at La Jolla; but the research and educational aims of the Institution call for as complete a representative display of the marine fauna of this part of the Pacific as is practicable and of such other biological matter as is included in the Institution's program. Such a museum is being gradually created and the exhibits already installed should be highly useful in connection with the proposed Assembly.

Some phases of the oceanographic researches are susceptible of being facilitated in themselves and made generally educative by being represented through various mechanical and graphic devices. A collection of this sort is accordingly being built up and should be specially advantageous to teachers of physical geography.

BOATS AND OTHER EQUIPMENT FOR WORK AT SEA

The Alexander Agassiz, 85 feet over all, and 15 tons register, is the Institution's chief boat. She is equipped with a large assortment of apparatus for biological and oceanographic investigation and will be used for both illustrative and actual work at times during the Assembly. One, and probably two, small power boats and several row boats will be available. These boats and the wharf, which will afford numerous facilities for observation and experimentation, make possible an extensive range of practical studies on the ocean and its life.

REGISTRATION AND FEES

The visitors should first consult with the scientific director as to what they would like to do. They should then make the necessary arrangements with the business office and after this enroll in the office of the scientific director.

A stated fee will not be charged those who participate in the laboratory and other practical work, but each visitor of this class will be expected to deposit \$10 in the business office. Against this amount charges will be made to cover the direct outlay incurred by the Institution on the visitor's behalf. Should the deposit not be used up, the balance will be returned at the close of the Assembly.

At the option of those who conduct the courses, persons not living on the Institution grounds who may wish to listen to the talks and participate in the discussions and use the laboratory, may do so on payment to the business manager at the rate of \$3 for each course.

LIVING FACILITIES AND EXPENSES

Provision for both meals and lodging will be made by the Institution. Meals will be furnished at the Institution club house; and platform tents will be the chief sleeping quarters. The club house will provide baths and the toilets, sitting room, reading room, and opportunities for social intercourse and entertainments. \$12 a week will be the price of board and lodging, including service. A few of the cottages on the grounds will probably, though not certainly, be available for visitors who may prefer to keep house.

Automobile service, with frequent trips to La Jolla, is maintained by the Institution. The fare is 5 cents for regular trips and 25 cents for special trips.

Those who expect to do the laboratory-museum work should provide themselves with hand lens, simple dissecting tools, and drawing materials. Microscopes and all other laboratory equipment will be furnished by the Institution; but those who expect to carry on special microscopic studies and who have instruments of their own would do well to bring them.

Although there will be no reduced railroad and steamer rates to and from San Diego for the special benefit of those attending the Assembly, Exposition and Coronado excursion rates may be expected, and should be taken advantage of by those coming to La Jolla.

GENERAL PRINCIPLES GUIDING THE EDUCATION EXPERIMENT NOW TO BE TRIED

The Scripps Institution is being developed on the theory that endowed research in "pure science" is absolutely essential to continued progress in civilization. In a democratic country like ours, practice in accordance with this theory involves two things: First, provision for investigation; and second, definite measures to disseminate the fruits of investigation as widely as possible among the people. This two-fold relation between the community and institutions of scientific investigation, seems not to have been seen clearly enough either by the public or by men of science.

The research members of the Institution regard their positions not so much in the light of privileges to be enjoyed, as opportunities and obligations to serve the public. Hitherto the conditions of development of the Institution have not been such as to warrant undertaking anything very definite toward a general dissemination of the technical knowledge in which the Institution's activities lie. Now, however, that the funds and facilities are so considerably increased through the new gifts by the investors (as Miss Scripps and Mr. Scripps prefer to be called), and from the State of California, the Local Board of Management has, with the sanction of the Regents of the University, decided to try this plan as one means of discharging the Institution's educational obligations to the community. During the period set apart for the Assembly, the entire time of the staff taking part in the meetings, excepting such as may be imperatively demanded by certain aspects of their experimental work, will be at the disposition of the visitors.

While eager to try this experiment, the Local Board yet feel constrained to invite special attention to the following considerations: As stated above the research members of the Institution recognize a two-fold obligation resting upon them. But because of the well known fact that scientific research is exceedingly time-consuming—so much so that an investigator may need hardly more than a few hours to present in popular form, the essentials of a year's work, it follows that if a man holding a professedly research position puts himself unreservedly for a few weeks each year at the service of learners, he is doing all that is possible without serious interference with his whole duty. When, consequently, our research men insist that the ten and a half months of the year left after deducting the month and a half to be devoted to visitors shall be sacred to their investigations, this is to be understood as meaning that only by this division of time can their highest effectiveness to the general good be secured.

SPECIAL

Those who think of attending the Assembly are earnestly asked to notify the scientific director at the earliest possible moment. This request is made in order that the management may have early information as to how many visitors must be provided for.

WM. E. RITTER, Scientific Director.

La Jolla, California.