SCIENCE

NEW YORK, APRIL 22, 1892.

THE LOAN COLLECTION OF OBJECTS USED IN WORSHIP.

THE ceremonies at the opening of the Loan Collection of Objects used in Worship at the Museum of Archæology of the University of Pennsylvania took place on the afternoon of the 16th of April, in the large hall of the library building, in the presence of a large audience of invited guests and members of the University Archæological Association. Addresses were made by Dr. William Pepper, provost of the University, the Rev. John S. MacIntosh, D.D., LL.D., the Rev. Dr. Marcus Jastrow, and Mr. Charlemagne Tower, president of the Department of Archæology. Dr. MacIntosh, in his address entitled "Musings in the Pantheon of the East," dwelt upon the evidences of the unity of the human race to be found in the various religions represented in the collection. Dr. Jastrow, in conclusion, said, "Few in number as yet are the universities which have endowed chairs for the history of religions; a beginning has been inaugurated by which to interest American thought in this special work. Collections of religious emblems like the one we are about to open to-day contain the way-marks on the roads and by-ways which the human family has been taking up to this day. As yet there exists in the world only one museum where these way-marks can be studied; it is the Musée Guimet in Paris. And our collection here is the first attempt of the kind in our country."

The collection is divided into sections, each of which was either arranged and described by a special student, or by the curator with the aid of native oriental scholars. Each section of the catalogue, a closely-printed octavo of 174 pages, is prefaced by a sketch of the religion to which it refers, while the details regarding each object comprised in the 794 catalogue entries are given in appended notes. The sections comprise Religions of Ancient Egypt, by Mrs. Cornelius Stevenson; Religions of India: Vedism, Brahmanism, Buddhism, and Jainism, to which Suamee Bhaskara Nand Saraswatee of Jodhpur lent valuable assistance; Religions of China, divided into the State Religion, Confucianism, Worship of Ancestors, Taoism, Buddhism, and Thibetan Buddhism, arranged with the aid of scholarly Chinese; The Religion of the Chinese in the United States, under which is to be found an almost complete collection of the idols, shrines, amulets, implements for divination, with incense, paper money, and offerings used by our Chinese residents, including two practical shrines with all of their appurtenances, one of the God of War and the other the shrine erected at the New-Year; Religions of Japan: Shintoism and Buddhism, collated with the aid of resident Japanese students; Mohammedanism, by Dr. Morris Jastrow, professor of Arabic in the University of Pennsylvania; Native American Religions, comprising the North-west Coast, United States, Mexico, Yucatan, San Domingo, and Peru, by Dr. Daniel G. Brinton; Religions of Polynesia, by Dr. Brinton; Religions of the Baulu Tribes of Africa, by Rev. Dr. Robert Hamill Nassau; and, in conclusion, a section devoted to charms and amulets.

The collection represents forty-five individual donors and lenders, besides several institutions and societies, including the Smithsonian Institution, Washington, D.C., the Numismatic and Antiquarian Society of Philadelphia, and the Board of Foreign Missions of the Presbyterian Church in the United States, whose Missionary Museum constitutes the nucleus of the exhibition. The plan of the Musée Guimet has in general been followed, but the collection has a much wider range than the great Paris museum, although inferior to it in point of intrinsic value and artistic beauty of the specimens, every object in the Guimet Museum being a gem.

The educational value of the collection has been the first thing considered, and whatever are its deficiencies, it is highly suggestive throughout, and an endeavor has been made to supply the notable gaps by means of notes in the catalogue.

The exhibition has been the means of bringing to light many objects of scientific importance, whose possessors were unaware of their significance and value, and making them available for the purposes of study. It marks an event in the history of scientific work in its special field in Philadelphia, where the study of the history of religions, the object of a highly successful course of lectures during the past winter under the auspices of the University Archæological Association, has lately received much attention.

THE BROOKLYN INSTITUTE BIOLOGICAL LABORATORY.

THE location of the Biological Laboratory, at the head of Cold Spring Harbor, is one of the most favorable on the coast. The country around is high and rolling, with abundant forests, glens, and small streams, affording most excellent hunting ground for every form of animal and vegetable life common to our climate. Just above the laboratory is a series of three fresh-water ponds, each fertile in its own peculiar forms of fresh-water life, and through which flows the water of Cold Spring Creek. Just below the Laboratory is the harbor of Cold Spring, divided by a sandy neck into an inner and an outer basin. These basins afford a great variety of marine life, and the channel between the inner and outer basins has a varied and vigorous growth of algæ, molluscs, and echinoderms. The outer basin has shallow flats, banks, and eel grass, sheltered pools, oyster-beds, and other favorable conditions for collection and study. The outer basin opens widely into Long Island Sound, whose coast is exceedingly varied in character for twenty miles in either direction.

The main Laboratory occupies the first floor of the New York State Fish Commission Building, and is a room thirty-six feet wide and sixty-five feet long, provided with ample light from every side. It is furnished with laboratory tables, aquaria, hatching-troughs, glassware, and all the apparatus and appliances required for general biological work. Into the Laboratory is conveyed a bountiful supply of the water

of the Cold Spring for use in the aquaria and troughs. This water is pure, has the same low temperature throughout the year, and is the water used so successfully by the New York State Fish Commission in hatching and growing salmon, trout, and other food fishes. The Laboratory is also supplied with an abundance of salt-water, which is pumped up from the harbor into a reservoir, from which it runs into the Laboratory.

The station is provided with two small row-boats and a naphtha launch, together with nets, trawls, and dredges for use in collecting and dredging. The main Laboratory is furnished with both fresh and salt-water aquaria, with a Becker microtome and a Minot microtome, together with many smaller instruments and appliances. Near the main Laboratory is a photographic room, with a dark room and a work-room adjoining. These rooms are provided with a general photographic outfit, a photomicrographic apparatus, a heliostat, and the necessary appliances for practical photography.

Each student is provided with dissecting instruments, chemicals, and glassware to be used in the dissection, preparation, and study of tissues. Students who own microscopes, or who can borrow them for the summer, are respectfully requested to bring them to the Laboratory for their own individual use. Microscopes will be provided for those students who cannot provide themselves with instruments.

The New York Fish Commission very kindly grants the use of the main Laboratory room for biological study during the summer months, when it is not required by the work of the Commission.

The other buildings and the grounds used by the Biological Laboratory are the property of the Wauwepec Scientific Society of Cold Spring Harbor, and the use of them is generously donated by the Society for the benefit of the instructors, specialists, and students who are in attendance at the Laboratory.

A general course in biology adapted to meet the wants of those who desire to obtain a general and working knowledge of biology either for use in teaching or in preparation for special work will be given during the first six weeks of the session. It will consist primarily of laboratory study of specimens illustrating leading types of animal life. The practical work will be accompanied by lectures giving an outline of systematic zoology, for the purpose of showing the relations of the forms studied to other animals. The lectures will also touch upon various matters of general biological interest. The types studied will comprise forms of life represented in the waters of Long Island Sound.

Accompanying this course of laboratory work and lectures, instruction will be given in methods of mounting objects and in the preparation of microscopic sections. Opportunity will also be given for collecting and surface skimming.

A special feature of the Laboratory will be an extended course in the methods of bacteriological research. The course will consist of laboratory work on the culture and propagation of bacteria, the identification of species, and of lectures and demonstrations by the director. The number of students admitted to this course is limited, and only those who are well prepared by previous study and experience in biological or medical work will be admitted to the course.

Students who pursue the general course of instruction during the summer, and who have time for extra work, are given the instruction and facilities necessary to enable them to carry on special investigations, while those students who have already gained the knowledge and experience which is provided by the general course, will be permitted to give their entire time to special work. No special courses will be laid down in advance, but each student will be at liberty to arrange with the director of the Laboratory for such a course or courses as may be practicable.

Each lecturer will be provided with extra laboratory space in which to carry on his own private investigations so long as he shall remain at the Laboratory, and will not be called upon to give any instruction outside of his lectures and such directions for work as may accompany his lectures.

The Laboratory will open for the season on Wednesday, July 6. The regular session for students will continue from that date until Wednesday, Aug. 31.

The tuition fees will be, — for the full term, eight weeks, $25; for the first six weeks, $20; for the first four weeks, $15; for the last four weeks, $15.

The tuition is payable $10 on registration as a student, and the balance during the first week of attendance. Each student will be entitled to attend all the lectures delivered at the Laboratory, to the use of the Laboratory and its appliances, subject to the regulations established by the director and board of managers, and to all the facilities for collecting specimens which are possible with the launch and other boats provided by the Laboratory.

The number of students for the season of 1892 is limited to thirty. The Board of Managers reserve the right to admit as students only those whose training qualifies them to make the best use of the Laboratory and its facilities for study and research. Applicants for admission to the Laboratory should state what work in botany or zoology they have already done, and what course they would like to pursue the present season.

A good reference library will be placed at the service of students, and a collection of algæ will serve to guide students in marine botany. In addition to the regular lectures given in connection with the laboratory work, evening lectures will occur two or three times a week, illustrated by the aid of a magic lantern. The lantern is provided with a vertical attachment and with large and small cells, in which forms of life may be placed and their structure exhibited on the screen. A microscopic attachment to the lantern will enable lecturers to demonstrate points in minute anatomy, and a large collection of lantern slides of biological subjects will furnish the means for comparison of many allied forms and structures.

The evening lectures will be open to the public, and persons interested may secure admission to the entire course.

Arrangements have been made with residents at Cold Spring Harbor to provide very good and comfortable rooms, with board, a few minutes' walk from the laboratory, at rates varying between six and eight dollars per week.

A new dining-room has been provided close by the Laboratory, and excellent board will be provided to such officers and students as may choose to avail themselves of it at $5 per week. It is expected that a majority of the officers and students will board at the dining-room and take rooms at the residences near by. The expense in this case will be as before, between seven and ten dollars for board and room.

Accommodations can be secured at either of the large, excellent, and quiet hotels that overlook the harbor, and are fifteen minutes' ride by boat or carriage from the Laboratory, at rates varying between eight and fifteen dollars per week, according to the size and location of rooms. The hotels are known as the Glenada, Laurelton, and Forest Lawn.

Full information will be given concerning rooms and board to anyone who signifies an intention of becoming a

student at the laboratory, and both board and room may be engaged in advance by application to the director of the Laboratory.

For further particulars inquire of Professor Franklin W. Hooper, Brooklyn Institute of Arts and Sciences, N.Y., or of Professor Herbert W. Conn, Wesleyan University, Middletown, Conn. Applications for admission as students should be sent to the Institute.

THE MARINE BIOLOGICAL LABORATORY.

THE corps of instructors this year consists of Dr. C. O. Whitman, director, professor of zoology, Clark University; editor of the *Journal of Morphology;* H. C. Bumpus, associate professor of zoology, Brown University; E. G. Conklin, professor of biology, Ohio Wesleyan University; Pierre A. Fish, instructor in physiology and anatomy, Cornell University; Jacques Loeb, professor of physiology, Bryn Mawr College; W. A. Setchell, instructor in botany, Yale University; Sho Watase, assistant in animal morphology, Clark University; W. M. Wheeler, assistant in animal morphology, Clark University; Ryoiche Takano, artist; G. M. Gray, laboratory assistant; J. J. Veeder, collector.

In addition to the regular courses of instruction in zoology, botany, and microscopical technique, consisting of lectures and laboratory work under the direct and constant supervision of the instructors, there will be a number of lectures on special subjects by members of the staff. A course of lectures in embryology will be given by Professor Whitman; in biological physiology, by Dr. Loeb; and two or more courses in invertebrate zoology, by Dr. Bumpus and Dr. Wheeler.

There will also be ten or more evening lectures on biological subjects of general interest. Among those who may contribute these lectures and take part in the discussions upon them may be mentioned, in addition to the instructors above named, the following: Dr. H. Ayers of the Lake Laboratory; Professor H. H. Donaldson, Clark University; Professor William Libbey, Jun., Princeton College; Dr. Warren P. Lombard, Clark University; Professor Charles Sedgwick Minot, Harvard Medical School; Professor E. S. Morse, Salem; Professor H. F. Osborn, Columbia College; Professor W. T. Sedgwick, Massachusetts Institute of Technology; Professor E. B. Wilson, Columbia College.

The Laboratory is located on the coast at Wood's Holl, Mass., near the Laboratories of the United States Fish Commission. The building consists of two stories — the lower for the use of teachers and students receiving instruction, the upper exclusively for investigators. The Laboratory has aquaria supplied with running sea-water, boats, a steam launch, collecting apparatus, and dredges; it is also supplied with reagents, glassware, and a limited number of microtomes and microscopes. By the munificence of friends the library will be provided henceforth not only with the ordinary text-books and works of reference, but also with the more important journals of zoology and botany, some of them in complete series.

The Laboratory for investigators will be open from June 1 to Aug. 30. It will be fully equipped with aquaria, glassware, reagents, etc., but microscopes will not be provided. In this department there are twenty-four private laboratories supplied with aquaria, running water, etc., for the exclusive use of investigators.

Owing to the growth of the Laboratory and the great demand for tables, the trustees have voted to enlarge the present building so that a spacious new wing will be ready for use on July 1. Those who are prepared to begin original work, but require supervision, will occupy tables in the general laboratory for investigators, paying for the privilege a fee of fifty dollars. The number of such tables is limited to ten. An elementary course in investigation will be introduced this season, designed to meet the needs of those who have completed the general courses in the Students' Laboratory. Definite problems of limited scope will be assigned and worked out as a means of training in the ways and methods of research. The fee for this course also will be fifty dollars, and the number of tables will likewise be limited to ten. For the completion of any considerable piece of investigation, beginners usually require from one to three full years. It is not expected, therefore, that the holders of these tables will finish their work in a single season. The aim is rather to make a secure beginning, which will lead to good results if followed up between sessions, and renewed, if need be, for several successive years.

The Laboratory for teachers and students will be opened on Wednesday, July 6, for regular courses of seven weeks in zoology, botany, and microscopical technique. The number admitted to this department will be limited to fifty, and preference will be given to teachers and others already qualified. By permission of the director, students may begin their individual work as early as June 15 without extra charge, but the regular courses of instruction will not begin before July 6. Though more advanced students who may wish to limit their work to special groups will have an opportunity to do so, the regular course in zoology, in charge of Professor Bumpus, will embrace a study of the more typical marine forms and elementary methods of microscopical technique. Mr. W. A. Setchell will have charge of the work in botany. The tuition fee is thirty dollars, payable in advance. Applicants should state whether they can supply themselves with simple and compound microscopes. Microscope slides, dissecting and drawing instruments, bottles, and other supplies, to be finally taken from the Laboratory, are sold at cost. Further information, if desired, may be had by addressing Professor Hermon C. Bumpus, Wood's Holl, Mass.

Applications for places in either department should be addressed to Mrs. Anna Phillips Williams, secretary, 23 Marlborough Street, Boston.

Rooms accommodating two persons may be obtained near the Laboratory, at prices varying from $2 to $4 a week, and board from $4.50 to $6. By special arrangement, board will be supplied to members at The Homestead at $5 a week.

A Department of Laboratory Supply has been established in order to facilitate the work of teachers and others who desire to obtain materials for study or for classes. It is proposed to furnish, e.g., certain sponges, hydroids, starfishes, sea urchins, marine worms, crustaceans, mollusks, and vertebrates, preserved in good condition, at fair prices. Orders for the coming college year should be given as soon as possible. Circulars giving information, prices, etc., may be obtained by addressing the Department of Laboratory Supply, in care of the secretary.

Wood's Holl, owing to the richness of the marine life in the neighboring waters, offers exceptional advantages. It is situated on the north shore of Vineyard Sound, at the entrance of Buzzard's Bay, and may be reached by the Old Colony Railroad (2½ hours' from Boston), or by rail and boat from Providence, Fall River, or New Bedford. Persons going from Boston should buy round-trip tickets ($2.85).