of physiology and a professor of pathology. The maximum salary for these positions is fixed at $5,000.

ARCHEOLOGICAL WORK IN ARIZONA

DURING the past season the Committee on American Archeology of the Archeological Institute of America offered properly qualified students the privilege of joining the field expeditions of the Institute in Colorado, Utah and New Mexico. A number of students availed themselves of the opportunity to participate in the practical work of exploration, mapping and excavation of ruins in the San Juan and Rio Grande basins. These expeditions closed on October 1.

Through the courtesy of the Secretary of the Smithsonian Institution the committee is authorized to announce that the government excavations at Casa Grande, in the Gila Valley, Arizona, will be resumed about November 1, under the direction of Dr. J. Walter Fewkes, to continue during the fall and winter, and that students may arrange through the Archeological Institute to participate in the work at this site. As government institutions are not permitted to accept volunteer services, Dr. Fewkes is authorized to pay a limited number of students (not to exceed ten) for their services in connection with the work a nominal salary of ten dollars per month, it being understood that they provide for their own traveling expenses and subsistence. This nominal salary will about cover field subsistence at Casa Grande.

Students desiring to avail themselves of this opportunity should correspond with the undersigned as early as convenient. Applications should be accompanied by the recommendation of the professor under whom the applicant has studied. EDGAR L. HEWETT,

Director of American Archeology
ARCHEOLOGICAL INSTITUTE OF AMERICA,
1333 F STREET, WASHINGTON, D. C.,
October 21, 1907

BRITISH MUSEUM MODEL OF EURYPTERUS

IN the Upper Silurian rocks of the island of Oesel, in the Baltic, are found the fossil remains of an arthropod called *Eurypterus Fischeri*. This animal is of interest as one of an extinct group of arthropods that appear to have been allied to the modern Limulus or king-crab, as well as to the scorpions. These particular fossils have a further interest in that the chitinous substance of the outer coat of the animal has been preserved unaltered in chemical and physical composition. Thus Professor G. Holm, of Stockholm, has been able to dissolve the remains out from the rock by means of acid, and to mount them on glass slides in Canada balsam. On the preparations thus obtained, he based an elaborate description, published in the *Memoirs of the Academy of Science,* St. Petersburg (Ser. 8, Vol. VIII., No. 2, 1898). It can now be said that the structure of this species is known better than that of any other extinct arthropod. Several of Professor Holm's preparations preserved in the geological department of the British Museum are quite marvelous, and it is difficult to believe that one is looking at a fossil at all, still more one dating from the Silurian Epoch.

The perfection of these specimens and the interest of the animal suggested to members of the staff of the British Museum (Natural History) the advisability of preparing a complete model of it, and such a model in colored wax, of about twice the natural size, has now been made under the direction of Dr. W. T. Calman and Dr. F. A. Bather by Mrs. Vernon Blackman, whose beautiful models of plants, of the parasite of malaria, and of the tsetse fly are well known to all visitors to the Natural History Museum in the Cromwell Road.

The model was first placed on exhibition on the occasion of the visit of foreign geologists to the Centenary of the Geological Society of London and evoked their enthusiastic admiration. It measures 23 x 15 cm. The wax of which it is made will stand any extremes of temperature likely to be met with in a museum, and the colors are believed to be quite permanent; they are based upon those of the recent *Limulus,* and Sir Ray Lankester has shown great interest in their selection. The model which, it may be mentioned, has been subjected to the careful scrutiny of Professor

Holm himself, certainly looks quite as natural and life-like as any specimen of a recent arthropod exhibited in the museum.

The geological department hopes to have a limited number of copies of this model, which it is prepared to exchange with other museums. Naturally a model of this nature, which has taken a very long time to make, demands an exchange of considerable value, but for information on this matter inquiries should be addressed to the keeper of the geological department, Natural History Museum, Cromwell Road, London, S. W., England.

THE RESEARCH LABORATORY OF PHYSICAL CHEMISTRY OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

This laboratory opened on September 1 for its fifth year. Professor G. N. Lewis has been appointed acting director of the laboratory, in place of Professor A. A. Noyes, who is temporarily acting as president of the institute. Investigations are being carried on in the laboratory by sixteen men of whom ten are devoting their whole time to research work. The new members of the research staff are Professor Carl von Ende (Ph.D., Göttingen), Mr. John Johnston (B.Sc., St. Andrews) and Mr. Roger D. Gale (S.B., Massachusetts Institute of Technology). Mr. R. B. Arnold (S.B., Rose Polytechnic Institute) enters as a candidate for the degree of doctor of philosophy. This degree was conferred last June on three of the research workers in the laboratory, Messrs. Raymond Haskell, R. B. Sosman and M. A. Stewart.

As in the past, a considerable part of the research work bears upon the problems of conductivity in aqueous solutions at high temperatures. The results of the numerous investigations in this field, which have already been completed in this laboratory, have recently appeared in a comprehensive memoir published by the Carnegie Institution. A new form of conductivity bomb, capable of withstanding very high pressures, has recently been constructed. In this bomb the vapor-pressure, density and compressibility of water up to the critical point are being studied, as well as the influence of pressure upon the electrical conductivity of solutions. Closely allied investigations are being made upon electrical transference in mixed salt solutions, the solubility of salts in water at high temperatures, and the dielectric constant of water up to its critical point.

In another field of investigation which is receiving special attention in this laboratory several investigations are under way. These are directed towards the determination of the common electrode potentials, and of the free energy of important chemical reactions. Indirectly but vitally connected with these researches is an investigation of the specific heat of gases at very high temperatures, which is now being undertaken by Professor H. M. Goodwin and Dr. H. T. Kalmus.

The general scheme of qualitative analysis, developed by Professor A. A. Noyes and Dr. W. C. Bray, is being extended to include the detection of the acids. Other investigations begun in previous years on the hydration and the true transference numbers of the ions, on the electromotive force produced in a solution by rotating it at a very high rate of speed, and on the properties of the solutions of metals in liquid ammonia, are being brought to a successful conclusion. Mr. C. A. Kraus, who is carrying on the last-named investigation, has succeeded in finding the missing link between the metallic and the electrolytic conductor, and has thus obtained a new point of attack for the problem of the electron.

During the past year a gift of $500 has been received from the William E. Hale Research Fund and one of $3,000 from a private source in support of the work of the laboratory. In addition, Professor A. A. Noyes has received a grant of $2,000 from the Carnegie Institution for assistance in carrying on the researches above referred to on the conductivity of aqueous solutions.

THE CHICAGO MEETING OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

The program for the *entire meeting* will be issued on Monday, December 30. Copies may be obtained at hotel headquarters and at the