

Dunbar, of Yale, R. T. Chamberlin, of Chicago, Branson and Mehl, of Missouri, and Bridge, of the Missouri School of Mines. In addition there were more than twenty petroleum geologists from Kansas and Oklahoma. To L. W. Kesler, of Wichita, president of the Kansas Geological Society, is due much of the credit for the success of the conference.

THE COMMITTEE ON SEISMOLOGY OF THE BRITISH ASSOCIATION

FOR thirty-one years a committee appointed by the British Association has published an annual report on seismological investigation. Under the chairmanship of Professor H. H. Turner, it works in close association with an international body which with financial help from the Royal Society is trying to bring up to date summaries of the observed details of earthquakes all over the world. Summaries up to the end of 1923 have been issued, and those for the greater part of 1924 are well in hand. From these exact knowledge of the transmission of earthquake shocks is gradually being obtained, and the existence of anomalous cases is being verified.

When it happens that there are a number of good recording stations reasonably near the center of an earthquake, special information can be derived from their records as to the nature of the upper layers of the earth's crust. The Jersey and Hereford earthquakes of 1926 yielded specially useful results in that respect. British earthquakes have been rare, but in August, 1926, there was one at Hereford and Ludlow, on January 24, 1927, one in Scotland and on February 17 last one in Jersey. Yorkshire appears to have had an earthquake at Tadcaster on a recent evening, but seismological apparatus is not of a kind that can be carried about, and the members of the committee in their report to the section were reticent as to this manifestation.

The committee reported that the Palestine earthquake of July 11, although serious and causing much local injury and many deaths, was not of unusual violence. The intensity of its indications on the Oxford seismograms was much less than in the case of the earthquake in China on May 22, although the latter was at a much greater distance.

The University of Oxford has sanctioned the extension of the university observatory to provide a home for two Milne-Shaw pendulums, and a bequest of £1,000 from the late Professor John Milne, one of the chief founders of seismology, has been put in a trust fund, the income to be at the disposal of the chairman for the time being of the seismological committee of the British Association.

THE NATIONAL ARBORETUM

PLANS for the establishment of the National Arboretum, authorized by the last congress, have been discussed, according to *The Museum News*, at informal meetings of the newly appointed advisory council. With the probability that an appropriation for the purchase of land will be passed at the next session, along with the deficiency bill, of which it forms a part, various phases of the project are now receiving consideration.

The Department of Agriculture has estimated that about a year will be necessary, in which to acquire land, before the actual laying out of the grounds can begin. In the plans already discussed, emphasis has been laid upon the research features, which are to be somewhat subordinated to recreational aspects.

The site, which has been tentatively selected, lies upon the Anacostia River, within four miles of the center of Washington. Part of the land is now under government ownership, and is being reclaimed from its original swamp condition. The location of the arboretum at this point means that eventually it will lie along or near the proposed new parkway entrance to the city. A new boulevard, which will connect Washington with the northern and eastern cities will, at some future time, be opened up along the Anacostia valley, in which the arboretum site is also located.

It is pointed out by officials of the Department of Agriculture that the selection of Washington for the site of an arboretum will secure an average climatic condition about midway between that of the extreme northern states and those along the southern border. They also predict that there will be very close cooperation between the various institutional herbaria, city and state botanical gardens and the various propagating stations operated by the federal government in California, Florida, Georgia, Maryland and other states. The work of introducing foreign plants will be greatly facilitated thereby and the agricultural explorations of the government will also assist in the building up of the herbarium.

BIOLOGY AT THE CALIFORNIA INSTITUTE OF TECHNOLOGY

THE trustees of the California Institute of Technology have voted to establish a department of biology and to erect at once biological laboratories; so that the institute may, in the autumn of 1928, initiate major lines of research and offer courses of study, both graduate and undergraduate, in that science. Professor Thomas H. Morgan, now professor of experimental zoology at Columbia University, has accepted the position of chairman of the new divi-

sion of biology, and will organize its various branches. Ample funds have been provided for the endowment, construction and equipment of the laboratories by members of the Board of Trustees of the institute and by the General Education Board.

As in the existing departments of the institute, emphasis will be placed primarily on research and graduate study; and, even in these directions, no attempt will be made to cover at once the whole science of biology, but rather, efforts will be concentrated on the development of those of its branches which seem to offer the greatest promise as fields of research. As rapidly as leaders can be found, it is proposed to organize groups of investigators in general physiology, genetics, biophysics, biochemistry, developmental mechanics, and perhaps later experimental psychology. The choice of these fields of modern research implies that emphasis will be laid on the intimate relations of biology to the physical sciences. That a closer association of these sciences with biology is imperative is becoming more and more apparent as indicated by the development of special institutes for such work. In England, Germany, Russia, Scandinavia and France research institutes, specializing in different biological fields, yet primarily concerned with the applications of mathematical, physical and chemical methods to biological subjects, have developed in recent years. The latest example is a gift of thirty million francs to the Paris Academy of Sciences to organize an Institute of Physico-Chemical Biology, for the purpose of studying "the physico-chemical mechanism of the phenomena of life."

The California Institute is undertaking this development of biological research by the application of physical and chemical methods not only because of its intrinsic importance, but also because the close association with the strong research departments of physics and physical chemistry of the institute can not fail to contribute greatly to its success. Most physiological laboratories have in the past, for practical reasons, been associated with medical schools; and few of them have been in intimate contact with the research staffs and had the use of the research facilities of laboratories which are primarily devoted to fundamental investigations in the physical sciences.

For the study of biology the institute will in 1928 and thereafter make the following provision. It will introduce into its four-year undergraduate course in science, which in its last two years now has options in physics, chemistry, mathematics and geology, a new option in biology. This option will include those fundamental biological subjects that are an essential preparation for work in any special field of pure or applied biology; and the four-year course as a

whole will in addition afford a far more thorough training in the basic sciences of physics, chemistry and mathematics than students of biology, medicine or agriculture commonly receive. This undergraduate course will be supplemented by a fifth-year course, leading to the degree of master of science in biology, in which students may specialize in study and research in various branches of the science. Special opportunities will also be offered for the pursuit of more advanced courses and extended researches leading to the degree of doctor of philosophy, to students desiring to become college teachers, research men, or professional experts.

SCIENTIFIC NOTES AND NEWS

SIR CHARLES SCOTT SHERRINGTON, O.M., professor of physiology at the University of Oxford, will give three lectures under the Edward K. Dunham Lectureship for the Promotion of Medical Research in the Amphitheater of the Harvard Medical School at five o'clock on Monday, October 10, on "Observations on Stretch Reflexes"; Thursday, October 13, on "Modes of Interaction between Reflexes," and Monday, October 17, on "Some Factors of Coordination in Muscular Acts."

THE faculty of the Medical School of the University of Wisconsin gave a dinner recently at the Maple Bluff Country Club in honor of Dr. Aristides Agramonte, professor of bacteriology, University of Havana, and Dr. Salanos Ramos, dean of the medical school of that university, which was attended by about sixty-four physicians, President Glenn Frank, of the University of Wisconsin, and members of several faculties. Dr. Charles R. Bardeen, dean and professor of anatomy, was toastmaster; Dr. Frank welcomed the visitors, who are on a tour of inspection of medical schools, and Dr. Agramonte spoke of health work in Cuba and the development of the medical school of the University of Havana, which was founded in 1728.

PROFESSOR H. E. ARMSTRONG, the distinguished British chemist, and Mrs. Armstrong celebrated their golden wedding on August 30, on which occasion there was presented to them a portrait of Professor Armstrong by T. C. Dugdale. At the same time there was presented an illuminated album, signed by a large number of workers in chemical science.

F. C. ELFORD, of the U. S. Department of Agriculture, has been elected president of the World's Poultry Congress, the fourth meeting of which will be held in England in 1930.

DR. KARL SIEK, professor of surgery in the University of Hamburg, has been appointed honorary