gard to these phenomena and inaugurates studies in regard to them.

COMMISSION ON CONTINENTAL AND OCEANIC STRUCTURE

This commission is concerned with the study and exploration of the structure of the crust of the earth, especially through geophysical methods and techniques. Since a large part of the crust is covered by the sea, the commission is at present chiefly concerned with the promotion of the study of the suboceanic crust, which is possible only by geophysical methods. The ultimate aim is to make it possible for the geologist to compare what he learns in this way with what he thinks he has learned on land through the application of all available methods. The problem is too large for any private or public venture of any one nation, so the purpose of the commission is to encourage international cooperation. An American, Field, is president of this commission.

For the union as a whole and for associations, Americans have held presidencies as follows: Union, Bowie, 1933–36; Geodesy, Bowie, 1919–33; Terrestrial Magnetism and Electricity, Bauer, 1927–30, and Fleming, 1930–39; Seismology, Heck, 1936–39. Bauer was secretary of Magnetism, 1919–1927. Vice-presidencies have been held by seven Americans, and numerous others have served on executive and special committees.

The officers of the union for the Washington meeting will be D. LaCour, of Denmark, president, and H. St. J. Winterbotham, of Great Britain, secretary general. The Washington meeting will be similar to those held in Europe. During the ten days which it will last there will be at least two general assemblies, meetings of associations and their committees and of their joint commissions. These official duties will be interspersed with suitable entertainment and visits to the many activities related to geophysics as well as objects of more general interest in or near the National Capitol. Plans have been made for more extended trips before and after the meeting which would give an opportunity to see some of the extended geophysical activities of the country. At the proper time a complete announcement will appear in SCIENCE.

THE JUBILEE MEETING OF THE INDIAN SCIENCE CONGRESS

By Professor R. R. GATES
KING'S COLLEGE, UNIVERSITY OF LONDON

THE invitation from the Indian Science Congress Association to over fifty British scientists as well as others from overseas and from foreign countries, to take part in the twenty-fifth session meeting at Calcutta, from January 3 to 9, led to a meeting which was unique in many features. The British party, numbering over a hundred in all, landed at Bombay on December 17. After two days of receptions, dinners, lectures and sightseeing, the party left by a special train in which the members lived during a long tour ending at Calcutta on January 2. A detour southward was made first to the native state of Hyderabad, where the party were guests of the Nizam. Two days were spent in the city of Hyderabad and surrounding country, where the Osmania Mohammedan University, still in process of construction, was visited. The Golconda fort, on a hill 400 feet high, is a grim medieval stronghold built to contain a large population. At Daulatabad another remarkable hill fort was seen, with passages hewn out of solid basalt. Seventeen miles from Aurangabad, the party proceeded by car to view the temples carved out of the basalt caves in the hillsides at Ellora, and farther to the north the beautiful colored frescoes in the Buddhist caves at Ajanta, dating from about 200 B.C. to 600 A.D.

The next stop, at Sanchi in Bhopal, was to see the collection of Buddhist stupas on a hilltop above the river Betwa. These are probably the oldest buildings in India, some dating from the time of Asoka in the third century B.C. They are still visited by pilgrims from China and Japan. In a day at Agra the Taj Mahal, the fort of Akbar, the palace and museum were seen. Delhi and vicinity, where Christmas was spent, contains endless monumental relics of the Mogul period, as well as the great government buildings of New Delhi and the Imperial Institute of Agricultural Research, where much work for Indian agriculture is being done.

Dehra Dun was next visited, where the Forest Research Institute is probably the largest of its kind in the world. Here can be seen a great display of Indian timbers (botany section) and the fungal (mycology section) and insect pests (entomology section). Also methods of testing timbers, as well as a utilization plant where such processes as paper-making from bamboo and the impregnation of whole logs with "ascu" as a preservative instead of creosote are carried out. A motor journey up the mountains to Mussoorie on a ridge at an altitude of 6,600 feet in the foothills of the Himalayas afforded a magnificent view of the plains below and the distant snowy range of the Himalayas to the northward.

At Sarnath, near Benares, are the relics of stupas which saw the beginnings of Buddhism in the sixth century B.C. Benares itself, one of the world's oldest cities, is studded with Hindu temples, and the four-mile stretch on the high north bank of the Ganges is a continuous panorama of oriental architecture, temples, shrines, mosques, bathing ghats and burning ghats—where pilgrims flock in thousands to bathe in the sacred waters. A special convocation of the Hindu University of Benares was held in a huge marquee, and a number of honorary degrees were conferred. The aim of this university, which was opened in 1921, is to combine the best of ancient Indian culture with the science and culture of the West.

Some members left the train at Calcutta, but the majority continued on to Darjeeling, nearly 400 miles northwards, where they obtained an exceptionally clear view of the mighty Himalayan peaks.

The week in Calcutta was crowded not only with scientific meetings held at various colleges of the university, but with many forms of hospitality, including dinners, luncheons, teas and garden parties. The session was formally inaugurated by His Excellency the Viceroy of India, who was accompanied by the governor of Bengal. The Science Congress is organized in thirteen sections, including the usual sciences and, as befits a tropical country, additional sections of entomology, medical and veterinary research.

The Proceedings, or abstracts of papers, fill a volume of 309 pages. The membership for the meeting was very large, but its numbers are somewhat indeterminate. An indication of the interest displayed by the general public may be obtained from the fact that a public lecture by Sir James Jeans was attended by 3,000 people, while thousands more clamored for admission. In addition to the program of papers, numerous lectures were given by members of the party at all the places visited.

An excellently illustrated handbook of the field sciences of India, edited by Dr. S. L. Hora, was issued to members, and overseas visitors received a useful guide-book to the places visited during the tour. The various sectional programs contained a number of discussions, especially in the biological sciences. To cite a few: the dissemination of cereal rusts in India; animal ecology in relation to India; blood groups and racial classification; nutritional diseases of India; the application of statistics to agriculture; discrepancies between the chronological testimony of fossil plants and animals; the absorption of salts by plants; the species concept in the light of cytology and genetics; river physics in India; colloids in biology, medicine and agriculture.

A special excursion down the river Hooghly to the Botanical Garden at Sibpur was held in connection with the celebration of the one hundred and fiftieth anniversary of the foundation of these gardens. The famous banyan tree in the gardens has now lost its central trunk and the basal portions of the horizontal spreading branches, through age, but the rest of the branches remain and continue their growth, held in place by the roots which descend to the soil. The Royal Asiatic Society of Bengal, the oldest scientific society in India, and Law's aviary were other places visited by many, as well as the Victorian Memorial, the Natural History Museum, which held a special exhibition of modern Indian painting, and the Bose Research Institute.

Following the meeting, the main party of delegates returned immediately by special train to Bombay *via* Southern India, stopping at Madras, Bangalore and Mysore. I was able to spend a month traveling through Southern India and Ceylon before sailing from Colombo. During this period as state guest in Mysore, Cochin and Travancore, many unforgettable sights were witnessed. The vegetation ranged from spiny scrub near Madras and elephant bamboo jungle and tea and rubber plantations in the Nilgiri Hills, to the lagoons, coconut groves and mangroves of the Malabar coast, the wind-swept sand dunes of Cape Comorin and the vicinity of Adam Strait and the luxuriant rain-forests of Ceylon.

The racial types of India are of equal interest, and the Deccan and Southern India in particular constitute a veritable anthropologists' paradise. No other part of the world is so rich in ethnic diversity. The un-Hinduized hill and jungle tribes of India are estimated to reach some 25,000,000 in numbers, but they are rapidly changing their customs and many are already becoming intermixed with civilized Indian types. This great field for investigation has only been touched by the anthropologists now available in India, though several of them are doing active work. The blood groups, in particular, of nearly all these tribes, of which there are 40 or so in Travancore alone, remain to be tested.

The Kurubas in the elephant jungles of Mysore were one of the most primitive tribes seen. They have only temporary habitations in the forest, but are invaluable to the forestry officers because of their intimate knowledge of the jungle and its inhabitants. The more advanced Todas in the vicinity of Ootacamund were said to be rapidly dying out. The Uralis near Lake Periyar build their habitations in trees to protect themselves against the elephants. The Kannikars inhabit the malarial zones in the hills of Southern Travancore and number over 6,000, but some of them are obviously of mixed blood. The Puliyas of Travancore have somewhat negroid features and temperament. They are now much mixed, but many represent

a remnant of an original substratum in the coastal population. Many other tribes await fuller study.

The visit of the British delegation to India will undoubtedly react in many ways as a stimulus to the progress of Indian science. The most important scientific problems for India are biological. India is mainly an agricultural country of peasant villages. Her enormous and rapidly increasing population and the relatively primitive farming methods still employed render the problems of food production of prime importance in the economy of the country. Great irrigation schemes have extended agriculture over large areas which were formerly sterile. The Imperial Council for Agricultural Research was formed to stimulate the various lines of research concerned with crop production. This is done partly through grants to the numerous agricultural and plant breeding stations, for specific pieces of research bearing on the improvement and better utilization of plant crops and domestic animals.

Yet India's fundamental problem is that of population. So long as the population multiplies up to the limits of subsistence, any increase in the food supply affords only temporary improvement in the economic condition of the people. This distinctive problem of the East has yet to find a solution.

SCIENTIFIC EVENTS

AWARDS OF THE LALOR FOUNDATION

THE Board of Trustees of the Lalor Foundation have announced the selection of winners of five awards from the Lalor Foundation for research in chemistry for the academic year 1938–39. These awards comprise three fellowship grants of $2,500 each and two supplemental awards of $1,250 each. The recipients were chosen from a group of thirty-eight candidates.

The geographical areas in which the applicants received their undergraduate or advanced scientific training are represented by colleges and universities in more than twenty-four states, the District of Columbia, Canada and three foreign countries.

It is pointed out that the broad distribution of the institutions represented argues well for the public recognition of the opportunity to students of promise and ability under these awards and also indicates the wide area from which the Lalor Foundation is drawing persons desirous of achievement in the various fields of chemical research.

The recipients of the awards are:

Dr. Leland J. Haworth, of the University of Wisconsin, to continue his work with Professor F. G. Keyes in the Research Laboratory of Physical Chemistry at the Massachusetts Institute of Technology, on the fundamental properties of materials at low temperatures.

Dr. R. S. Livingston, associate professor at the University of Minnesota, to spend a sabbatical year working with Professor Frank, the Johns Hopkins University, on the study of photosensitized chemical oxidations.

Dr. Lucy Pickett, assistant professor at Mount Holyoke College, to carry on studies of absorption spectra of pure hydrocarbons with Professor Henri at the University of Liége, in Belgium, and for work at Harvard University. Dr. Pickett has also been awarded a fellowship by the Committee for the Relief of Belgium.

Dr. Walter W. Pigman, of the University of Maryland, for a year's leave of absence from his position in the Bureau of Standards in Washington, to work with Professor Helferich, of Leipzig, on the chemical nature and constitution of enzymes.

Dr. John W. Stout, of the University of California, to continue his researches with Professor Giauque on the thermal and magnetic properties of various substances at the lowest temperatures available by adiabatic magnetic cooling.

The selection committee acting for the foundation consisted of Dr. Roger Adams, director of the department of chemistry of the University of Illinois; Dr. Charles A. Kraus, of Brown University, president-elect of the American Chemical Society; Dr. Arthur B. Lamb, director of the Division of Chemistry of Harvard University, and C. L. Burdick, secretary of the Lalor Foundation.

CENTENNIAL OF THE MEDICAL COLLEGE OF VIRGINIA

THE fourth and final symposium of the series commemorating the Centennial of the Medical College of Virginia will be held on April 28, 29 and 30, with Dr. George R. Minot, professor of medicine at the Harvard Medical School and director of the Thorndike Memorial Laboratory, as the Stuart McGuire lecturer. The annual lectures are combined with the symposium this year. Other speakers on the program will be: Dr. H. E. Jordan, assistant dean of the department of medicine and professor of histology and embryology, University of Virginia; Dr. O. H. Perry Pepper, professor of medicine, University of Pennsylvania School of Medicine; Dr. Nathan Rosenthal, Mount Sinai Hospital, New York City; Dr. Alexis F. Hartmann, associate professor of pediatrics, Washington University School of Medicine; Dr. Harvey B. Stone, associate professor of surgery, the Johns Hopkins University School of Medicine; Dr. Edward D. Churchill, John Homans professor of surgery, Harvard Medical School, and Dr. Walter Bauer, associate professor and tutor in medicine, Harvard Medical School.