THE OXFORD EXPEDITION TO THE GUIANA RAIN-FOREST

A PARTY of scientific men from the University of Oxford, with some colleagues from Cambridge, started on July 19 from London in the *Ingoma* for British Guiana. According to the report in the London *Times* the expedition, which is led by Major R. W. G. Hingston, is composed of zoologists and ornithologists, an entomologist, a botanist and a surveyor, and will principally investigate the wild life of the Guiana rain-forest. The expedition is being sent out under the auspices of the Oxford University Exploration Club. Through the friendly interest of the vice-chancellor, the university gave the scheme its fullest support, and went so far as to vote a grant just after hearing of the deficit in its last year's finances. A very substantial contribution from the Percy Sladen Fund put the expedition on its feet; the Royal Society made a further grant, and help was also forthcoming through the West India Committee and the good offices of the Exploration Club's president, Col. John Buchan, M.P. The Royal Geographical Society and the Royal Botanic Gardens, Kew, undertook the entire expense of attaching a surveyor and a botanist. The Colonial Office and the Governor of British Guiana have been generous in their assistance, and the expedition sails with nothing left undone that any one could do to ensure its success. Much free transport in Guiana has been promised by the Colonial Government, and the cost of the Atlantic passage has been considerably reduced by the generosity of the Harrison Line.

Arriving at Georgetown early in August, the expedition will proceed, with the advice and aid of the government of the colony, to a locality north of the Essequibo, where it will form a base camp from which the surveying party will operate, while the scientists begin intensive work on the spot. A main object of the expedition is to get into the canopy of the rain-forest in order to study at close quarters the many more or less unknown animals which live there, 200 feet above the ground. To this end it is bringing out a variety of appliances, including Schermuly rocket apparatus, B.S.A. line-throwing guns, "dogs and spikes" to hammer into the trunks, and so on; if one method fails another ought to succeed. The generosity of the firms which have presented or lent much valuable equipment, ropes and other apparatus, such as the wireless for communication with Georgetown, enables the expedition to face this task of illuminating the obscure life of the tree-top zone with a minimum of handicaps.

Several of the members must return in October to keep their Michaelmas term, or for other reasons, but about half will remain till December, and will not be home until January, 1930. The expedition is composed as follows:

Major R. W. G. Hingston (naturalist to Third Everest Everest Expedition; second-in-command, entomologist to Oxford University Greenland Expedition, 1928), leader and entomologist.

Frank Buckland (Oriel, Oxford), zoologist.

M. J. Cresswell (New College, Oxford), operator for wireless and tree-climbing apparatus.

J. E. Duffield (Dept. of Zoology, Oxford), zoologist.

S. T. A. Livingstone-Learmonth (Trinity, Cambridge), taxidermist and assistant surveyor.

B. D. Nicholson (Balliol, Oxford; ornithologist to O.U. Greenland Expedition, 1928), ornithologist.

E. M. Nicholson (Hertford, Oxford; ornithologist to O.U. Greenland Expedition, 1928), ornithologist.

O. W. Richards (Brasenose, Oxford, and Imperial College of Science), entomologist.

P. W. Richards (Trinity, Cambridge), botanist.

N. Y. Sandwith (Keble, Oxford, and Royal Botanic Gardens, Kew), botanist.

L. Slater (St. Catharine's, Cambridge), surveyor.

SURVEY OF TIDES AND CURRENTS BY THE U. S. COAST AND GEODETIC SURVEY

A NATION-WIDE plan for comprehensive data regarding the tides and currents of estuaries all over the coast lines of the United States is being worked out by the U. S. Coast and Geodetic Survey. The program for these comprehensive surveys, according to oral announcement made to the *U. S. Daily*, includes the Atlantic and Pacific coasts, on which surveys already have been made and others are in prospect, and embraces among others the Hudson River from the head of navigation at Albany down to the Spuyten Duyvil in upper New York City.

The latest actual operations in carrying on this program are on the Long Island Sound, where for a stretch all the way from Throg's Neck, at Pelham, New York City, sweeping northeastwardly to Orient Point, about opposite New London, Connecticut, Coast Survey parties are now engaged in investigations and observations.

When these are completed, which it is expected will be during September, the same parties will turn back and proceed up the Hudson River from the Spuyten Duyvil to Albany, along the lines of heavy river navigation traffic. Parties also will establish new current stations on the Thames River to aid in the intercollegiate boat races that are regular features on that waterway.

"These surveys," Captain R. S. Patton, director of the Coast and Geodetic Survey, stated orally, "are of the utmost importance from an engineering standpoint, especially in harbor improvements, in sanitary engineering, in bridge building and other activities on the waterways of the country. Besides the Long Island survey which we have just begun and on which we shall continue work this summer, we have finished similar surveys of Chesapeake Bay and its tributaries, Delaware Bay and River, New York Harbor, San

Francisco Bay, Boston and Portsmouth Harbors and Southeastern Alaska."

It is probable that, besides their value for the reasons mentioned, they will be of value for other purposes of commerce and industry. According to a statement of Herbert F. Prytherch, of the Bureau of Fisheries, these tide and current surveys will prove of practical value in scientific oyster culture because of the fact that oysters spawn and develop better in waters slightly tempered by the warmer surface water circulated by means of tidal current. That statement was made in the case of studies of the subject at Milford Harbor, Conn., on Long Island Sound.

Captain P. C. Whitney, chief of the Tides and Currents Division of the Coast and Geodetic Survey, announced that the survey will make an investigation of the work now in progress along Long Island Sound. Officially designated, the area under survey comprises "Long Island Sound and tributaries from Throg's Neck on the west to Little Narragansett Bay on the east." The personnel is under instructions to take advantage of every opportunity in periods of favorable weather for observations at stations located at exposed places in this territory.

At the control stations, observations will be continued during the period that observations are made in the whole particular section, but at stations other than "control stations" observations are being made for periods of 25 hours each. Where the surveys constitute what are called cross-sections, as many stations as practicable are being occupied simultaneously.

The observations of currents are made by both poles and meters. The poles are standard 15-foot devices weighted at the bottom with sheet lead or lead casting. The observations are made with the poles every half hour and the direction of the current is determined by use of a prelorus fastened to the taffrail or otherwise. Meter observations are made half-hourly at three depths.

The tidal observations are made with portable automatic tide gauges for periods of one or more days while the current observations are being made in the same vicinities. These tidal observations will be made at Throg's Neck, Willets Point, Bayside, City Island, Port Washington, New Rochelle, Glen Cove, Roslyn, Lloyd Harbor Light, Stamford, Shippan Point, Sheffield Island, South Norwalk, Saugatuck River, Northport, East Bridgeport and Orient Point.

THE ADLER PLANETARIUM AND ASTRONOMICAL MUSEUM

ALL who have interested themselves in the popular dissemination of science have realized the difficulties that are encountered when attempts are made by lectures or demonstrations to present the complex phenomena in form which will be intelligible and inspiring to laymen. In the field of astronomy an instrument has been devised under the incentive of Dr. Oskar von Miller, director of the German Museum in Munich, and with the cooperation of the Carl Zeiss Works in Jena, which portrays in an inspiring way the heavens and all the phenomena which arise from the motions of the celestial bodies. This instrument, known as a planetarium, is largely the creation of Dr. Bauersfeld, of Jena. It projects the stars of the heavens upon the interior surface of a great dome. The bodies of the solar system have separate, individual projectors and by means of suitable mechanism all the motions of the heavens are reproduced—of course, in general, greatly accelerated.

The first of these instruments was completed in 1924. At the present time there are fifteen in Germany, one in Austria, two in Italy, and one in Russia. It is the unanimous testimony of all who have visited these planetaria that in them has been achieved a means of instruction and entertainment of superlative merit. Dr. Strömgren, of Copenhagen, writes, "Never before has a means of entertainment been provided which is so instructive as this, never one which is so fascinating, never one which has such general appeal. It is a school, a theater, a cinema in one; a schoolroom under the vault of heaven, a drama with the celestial bodies as actors."

Mr. Max Adler, of Chicago, has presented to that city the first of these instruments to come to America. Under his gift of $500,000 there is being erected on the lake shore, near the Field Museum and the Shedd Aquarium, a beautiful building to house this instrument and an astronomical museum. The building is 160 feet in diameter, dodecagonal in form, with a central circular hall seventy feet in diameter, above which is the dome. This central hall is the planetarium room: the broad corridors about it house the museum features, research instruments, offices, lecture room and library. So far as possible, the exhibits in the museum will be in action so that the actual phenomena or method of operation can be clearly seen. A considerable number of exhibits have already been collected. The building will be finished and ready for opening to the public on the first of January, 1930.

Professor Philip Fox, for the past twenty years director of the Dearborn Observatory, has been appointed director of the Adler Planetarium. He sails for Europe on the twenty-seventh of July to inspect various continental museums and the German planetaria, especially those in Munich and Jena.