

On the Fourth Floor.—A room for inorganic preparations; a room for organic preparations; a photographic room; four rooms for researches in physical chemistry.

On the Roof.—An asphalted flat with a table, gas and water.

All the floors are connected by a hydraulic passenger-lift.

Dr. Mond has not only furnished the laboratory with the most modern instruments and appliances for researches in pure and physical chemistry, but he has also placed in the hands of the managers of the Royal Institution an ample annual endowment, so that the laboratory may be maintained in a state of thorough efficiency, the object of the donor being to give every assistance and encouragement within the limits of the endowment to scientific workers.

The laboratory (the affairs of which will be managed by a Laboratory Committee appointed by the managers of the Institution) will be under the control of two directors, who will be aided in the work by competent assistants. The managers of the Royal Institution have appointed as directors Lord Rayleigh and Prof. Dewar.

It is intended to open the laboratory for work by the middle of October. The trust deed provides that no person shall be admitted to the laboratory as a worker who has not already done original scientific work, or in the alternative, who is not, in the opinion of the Laboratory Committee, fully qualified to undertake original scientific research in pure or physical chemistry; and that no person shall be excluded from admission by reason of his or her nationality or sex.

Admission to the laboratory, and the supply of gas, water and electricity, as far as available, will be free of charge; but any person using the apparatus, will be responsible for any damage done while in his possession.

Applications for admission are to be made to Mr. Robert L. Mond, Honorary Secretary to the Laboratory Committee, at 20 Albemarle Street.

The conditions of Dr. Mond's endowment are as liberal as the gift itself, and we have no doubt that the results which will follow will demonstrate the importance of both as means of advancing science. We regard the foundation of the laboratory as marking a most important step in the history of British science; for it provides a means whereby the edifice of scientific knowledge can be built up by master hands. British Governments are said to base their assistance to science mainly on the principle of helping voluntary effort. Perhaps, now that Dr. Mond has shown what can be done, the Government will show its interest in science by establishing a similar laboratory of a national character.

BORING A CORAL REEF AT FUNAFUTI.

LETTERS have just come to hand from Prof. Sollas stating that he has started from Sydney to carry out the project of putting down a boring through the atoll of Funafuti. By this time, if all has gone well, the expedition has probably started work.

It may be remembered that about six years ago, a strong committee was formed by the British Association, with Prof. Bonney as its chairman, and Prof. Sollas as secretary, "to investigate a coral reef by sounding and boring." The intention was to carry out the suggestion made by Darwin in his book on "Corals and Coral Islands," and to put to the test of fact the rival theories on the origin of these extraordinary limestone masses. After some years of preliminary thought and suggestion, a definite project began to take shape in 1894, when an application for a grant was made to the Government Grant Committee. The outcome of this was an application to the Admiralty for the service of a surveying vessel, which was most generously given

for May of this year, and grants of money in aid were made by the Government Grant Committee and the Royal Society itself. A smaller executive committee of the latter body was formed, including the following names: Prof. Bonney (chairman), the President and Officers of the Royal Society, Mr. Wolfe Barry, Mr. Crookes, Mr. F. Darwin, Prof. Edgeworth David, Captain Field, Sir A. Geikie, Prof. Judd, Dr. J. Murray, Prof. Anderson Stuart, Admiral Wharton, with Prof. Sollas and Mr. W. W. Watts (secretaries), and preparations were concluded for making a start in time to leave Sydney in H.M.S. *Penguin* on May 1, under the command of Captain Field.

Meanwhile Prof. Anderson Stuart, of the University of Sydney, whose sympathy had been enlisted, entered warmly into the proposal. He took immense trouble in discussing with missionaries, sailors and travellers, the prospective merits of a large number of islands for the purpose of the investigation. Further he obtained from the Department of Mines in New South Wales the loan of a valuable set of diamond-drilling plant, and used his influence to overcome the natural difficulties which presented themselves in obtaining permission to use such apparatus on a waterless island in the Pacific. The committee is greatly indebted to this gentleman and to Mr. W. H. J. Slee, the Chief Inspector of Mines and Superintendent of Diamond Drills to the Government of New South Wales, for all the care and trouble they have taken in selecting the machinery and stores for this purpose, in engaging for the use of the expedition some of the most experienced foremen in the colony, and in obtaining a contribution towards the wages expense of the expedition.

Prof. Stuart's recommendation of the Island of Funafuti agreed with Admiral Wharton's knowledge of the island and the group to which it belongs, and it fortunately happened that further sounding and exploring of the group would furnish results of use to the Admiralty, so that a topographical and magnetic survey, together with sounding and current observations, could be carried on while the boring was being executed in the island.

Prof. Edgeworth David, from the University of Sydney, happened to be visiting England while preparations were in progress, and he furnished a most valuable means of communication with helpers in Sydney; and through this fortunate circumstance, the committee was able to come into closer touch with the Sydney committee in order to provide more completely for the regular work and such emergencies as could be foreseen. It was hoped that either Prof. David, or Mr. Pitman, the Government Geologist of New South Wales, would be able to take part in the expedition, but unfortunately neither gentleman could arrange to be away at the time requisite. Mr. Hedley, from the Australian Museum, has, however, been able to go, and he will utilise his opportunities for collecting and making observations in natural history.

Prof. Sollas, who is sent out by the committee in chief charge, will regard the boring work as the principal aim of the expedition, and will only be able to utilise his spare time in any other work. All of his observations, however, he intends to devote to the primary object of elucidating the structure and origin of the reef. It is therefore a good thing that Mr. Stanley Gardner, an enthusiastic Cambridge naturalist, has been able to accompany him, and he purposes to devote himself to biological work of such a nature as to bear directly on the origin and growth of reefs.

Funafuti is a typical atoll, submerged for the most part on its western side, but above water for a long strip on its eastern side. It is about fifteen miles in circumference and about seven miles in longest diameter, is one of a group of atolls situated due north of the Fiji group, and is about in latitude 10° S., and longitude 179° E. The

lagoon has a good entrance, and provides firm anchorage. There are about 400 inhabitants, with a native missionary and a white trader; but there is no good supply of water on the island.

Apparatus is being taken for boring about 1000 feet, but it is not anticipated that the bore will reach more than 700 feet in the time allotted, although three shifts will be working night and day, but not on Sundays, for the inhabitants are strict Sabbatarians. Delays are almost certain to occur, for the rock will be in places soft and cavernous, and the occasional dropping of the crown, resulting in probable injury to the diamonds, is not unlikely. For this reason the Department of Mines in New South Wales has provided steel cutters, which will be used whenever the nature of the rock permits it. The hole will start at four inches diameter, and it may be necessary in the later stages to drop to three inches, for which apparatus will be at hand.

The necessity for an investigation into the submarine structure of a coral reef is so well known to the readers of NATURE, that it is unnecessary to enter into any minute particulars. The explorers are instructed to bring back a core which will show what the under parts of a typical atoll are made of, and thus make known, what there has never been an opportunity of studying before, the foundations and under-structure of a reef which has not received sufficient uplift to clear the water. The different parts of this core will almost certainly indicate how its component rocks have originated—by living coral growing on coral *in situ*, on coral débris, on other types of organic rocks, or on a platform of denudation or deposition.

"Of the cores and of such other specimens as may be collected by the expedition (not referring to specimens collected by the volunteers in their private capacity), the first set will be ultimately presented to the British Museum, the second to the Ministry of Mines at Sydney."

In conclusion, I may be allowed to point out that though a large sum of money has been granted by the Government Grant Committee and by the Royal Society, it would have required very much more if the Admiralty had not made a most speedy and generous response to the request of the Royal Society. Even with that help, it would have been impossible to do the work so soon, or even probably at all, if further ready and kindly assistance had not been received from individuals mentioned above, and from the Department of Mines of the Government of New South Wales. The help thus rendered has probably reduced by three-fourths the total cost of the exploration, and it will be readily understood that the English committee feels a lively gratitude, not only to the Admiralty and its advisers, but to our good friends in New South Wales, amongst whom it is a pleasure to name Prof. Anderson Stuart, Mr. Slee, and Prof. Edgeworth David, not forgetting Sir Saul Samuel, the Agent-General of the Colony in England.

W. W. WATTS.

SIR JOSEPH PRESTWICH, D.C.L., F.R.S.

THE most eminent of British geologists has just passed away, and those who last Saturday stood around his grave amid the chalk hills of his pleasant country home at Shoreham, near Sevenoaks, felt that they were paying a last tribute to a veteran who had out-lived all the associates of his prime, who had completed all his earthly tasks, and had gone to rest full of honours, and revered by all who knew him.

Joseph Prestwich was born in 1812 at Clapham, and after passing through elementary schools in London and in Paris, he proceeded to the famous grammar school of Dr. Valpy at Reading, and completed his education at University College in Gower Street. At this college his

thoughts were directed to science by the lectures of Edward Turner on chemistry, and of Dionysius Lardner on natural philosophy. Turner, moreover, introduced the subjects of geology and mineralogy into his course, and thereby Prestwich gained those first lessons which aroused his interest and led him by force of circumstances to devote his leisure to geological studies. Had he been free to take up a profession he might, indeed, have given his special attention to chemistry. He was, however, destined to enter into commercial life, and until he was sixty years of age he was busily engaged in the city as a wine merchant. Assiduous and successful as a man of business, he yet contrived, from his earliest years in the office, to give great attention to geology, and he devoted all the leisure he could command to this subject, first of all as a means of relaxation, and finally because his interests were centred in the study. In early years his business-journeys enabled him to see and learn much about the general geology of England and Scotland; and when still a youth he spent his holidays during two successive years in studying the district of Coalbrook Dale in Shropshire, in mapping the various strata exposed at the surface from the Silurian rocks to the New Red Sandstone and Drifts, in marking the lines of fault, in noting in detail the character of the Coal-measures, and in gathering together the fossils from the several formations. The masterly memoir which he wrote on this area was communicated to the Geological Society of London in two portions in 1834 and 1836, being completed when the author was but twenty-four years of age. Meanwhile he had paid a visit to the north of Scotland, and had given some account of the Ichthyolites of Gamrie in Banffshire, a task which he undertook at the suggestion of Sir Roderick (then Mr.) Murchison. This was his first paper published in the *Transactions* of the Geological Society, of which he had been elected a Fellow in 1833.

Later on he came to devote his special attention to the Eocene formations in the neighbourhood of London, and in course of time he thoroughly investigated the entire area of the London Basin. In particular he defined and named the Thanet Sands and the Woolwich and Reading Beds; and he studied the sequence of organic remains in the London clay, and the subdivisions of the Bagshot series. In these researches he paid especial attention to the lithological changes of the strata and to their fossils, so that he could picture the physical conditions under which the several formations were deposited. He extended his observations into the Hampshire Basin, and showed that the Bognor beds formed part of the London clay, and eventually he proceeded into France and Belgium to correlate the subdivisions there made with those he had established in this country. This great work among the Eocene strata occupied much of his time for nearly twenty years, and it served to fully establish his reputation not only as a keen and accurate observer, but as a most philosophical geologist. Another great achievement soon awaited Prestwich, and that was the investigation of the valley gravels supposed to contain the works of man in association with extinct mammalia. Boucher de Perthes had in 1847 announced such discoveries in the Somme Valley, but they had received little attention. The somewhat similar discoveries in Kent's Cavern, by MacEnery, had likewise been neglected. Attention was, however, forcibly directed to the subject by the discoveries made in Brixham Cave in 1858, and Dr. Falconer then induced Prestwich to examine the evidence brought forward in the valley of the Somme. The results of these researches, which were carried on in conjunction with Sir John Evans, and which were followed by a study of the English evidence at Hoxne, in Suffolk, in the Ouse Valley, and elsewhere, are well known. The contemporaneity of man with the Mammoth and other Pleistocene mammalia was fully established,