

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 outlived 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,

and the antiquity of man came to be the most absorbing topic of the day. That vexed question still remains a matter under discussion, although Prestwich, in some of his later articles, has sought rather to reduce than to extend the time-limits of man's existence.

Subjects of practical importance from time to time engaged his attention. In 1851 he published "A Geological Inquiry respecting the Water-Bearing Strata of the country around London," a work which at once became the standard authority on the subject, and has lately been reissued with appendices. The author took a prominent part on the Royal Commission on Metropolitan Water Supply in 1867, and his services were again in request on the Royal Coal Commission, to the reports of which, published in 1871, he contributed accounts of the Bristol and Somerset Coal-field, and of the probable extent of Coal-measures beneath the Secondary rocks of the south and south-east of England. Agreeing generally with the conclusions of his friend Godwin-Austen, he was led to infer that concealed coal-fields might extend from Somersetshire eastwards to the neighbourhood of Folkestone. Subsequent explorations at Dover have shown the correctness of these theoretical views.

Prestwich was elected a Fellow of the Royal Society in 1853, and was appointed a Vice-President in 1870. In that same year he was chosen President of the Geological Society, and in the course of his two addresses he dealt with the subjects of deep-sea researches, and water-supply.

His attention had been given at various intervals to the later Tertiary deposits, and in 1871 his three great papers on the structure of the Crag-beds of Suffolk and Norfolk were published by the Geological Society. So much had been written by others on these very fossiliferous strata, that the author had not scope for so much originality as was the case with his Eocene researches. These later papers were, however, characterised by the same exhaustive treatment of the subject, in the record of many sections, and in the enumeration of the organic remains. His memoirs on the Pliocene or Crag formations were eventually followed by a series of articles dealing with more recent deposits. In the meanwhile Prestwich, who had retired from business in 1872, was offered the chair of Geology at Oxford, vacant through the death in 1874 of John Phillips. It came rather as a surprise to his friends that a man who had achieved such distinction and had earned repose should again go into harness. A young and ardent teacher would, however, at that time have been out-of-place, and, as events proved, no one better than Prestwich could have been selected to fill the post with such advantage to the University.

One result of his labours in Oxford was his large and handsomely illustrated work, in two volumes, entitled "Geology Chemical, Physical, and Stratigraphical"—a work in which he opposed the strictly uniformitarian teachings of some geologists, and urged that, though the agents were similar in kind in past ages, they were not similar in degree to those of the present day. Retiring from Oxford in 1888, Prestwich again surprised his many friends by his renewed activity. Paper after paper issued from his pen, dealing with the most difficult problems connected with the later superficial deposits—notably his memoir read before the Royal Society on the "Evidences of a Submergence of Western Europe and of the Mediterranean Coasts at the close of the Glacial or so-called Post-Glacial Period." He dealt also with the rudely-made plateau flint-implements of the Chalk Downs, many of them found near his Kentish home. Although individually they would not attract much notice, he maintained that these rudely-chipped flints bore traces of human workmanship, and collectively showed evidence of a peculiar type of earlier date than the ordinary Palæolithic implements.

These later writings of Prestwich have initiated many new lines of inquiry, even if they have failed to carry conviction to all his readers.

The last honour bestowed upon him, in the early part of this year, was that of knighthood, which he was unable to accept in person from Her Majesty owing to his feeble health. He died on June 23, at his home, Darent Hulme, near Shoreham. H. B. W.

NOTES.

THE Albert Medal or the Society of Arts has been awarded, with the approval of H.R.H. the Prince of Wales, the President of the Society, to Prof. David Edward Hughes, F.R.S., "in recognition of the services he has rendered to arts, manufactures, and commerce by his numerous inventions in electricity and magnetism, especially the printing telegraph and the microphone."

THE Swiss Society of Electrical Engineers is organising an International Electrical Congress, which is to take place at Geneva from August 4 to August 9 next, under the presidency of M. Turrettini. The following subjects are to be discussed at the Congress: (1) Magnetic Units, (2) Photometric Units, (3) Transmission and Distribution of Power to Great Distances by means of (a) Direct Currents, (b) Alternate Currents, (4) Protection of High-pressure Overhead Electric Lines against Atmospheric Discharges, (5) Various Disturbances caused by Electric Traction. Further information can be obtained from the Bureau du Congrès International des Électriciens, Université, Genève.

It has been proposed that some token of esteem be presented to Prof. N. Story-Maskelyne in recognition of his distinguished services to mineralogical science, and to commemorate his long connection with the University of Oxford. The presentation is intended to take the form, if possible, of a portrait, and it is believed that contributions not exceeding £2 in amount will be sufficient for the purpose. A number of men of science, both at home and on the continent, have already promised their support. Contributions will be received by Prof. A. H. Green, F.R.S., or Prof. H. A. Miers, F.R.S., University Museum, Oxford.

THE Board of Managers of the New York Botanical Garden, have issued the first number of a *Bulletin*, containing the Act of Incorporation, and a map of the site for the Garden granted by the Commissioners of Public Parks. By agreement with the Trustees of Columbia College, the botanical library and herbarium belonging to that institution will be deposited in the Botanical Garden. The endowment fund of 250,000 dols. required by the Act of Incorporation has now been fully subscribed. The President of the Board of Managers is Mr. Cornelius Vanderbilt; the Secretary, Prof. N. L. Britton.

MR. AUSTIN CORBIN, who was killed a few days ago in New Hampshire, had acquired a herd of fifty buffalo, which he kept in his preserves in that State. It was his intention to lend the animals for an indefinite period to the city of New York, and a plot of eighty acres in Van Cortlandt Park, in the northern (annexed) portion of the city, had been prepared for them, having been surrounded by a fence seven feet high. The plan will be carried out by his representatives, and the herd will be moved in the autumn; the delay being caused by apprehension that change of climate during hot weather might prove pernicious. This measure may avert the threatened extinction of the buffalo, which has now been almost extirpated on the western plains.

MR. J. H. T. TUDSBURY has been appointed Secretary of the Institution of Civil Engineers, in succession to Mr. James Forrest, who has retired.