

The Persulfates of Rubidium, Cesium and Thallium. A. R. Foster and E. F. Smith.

The Chemical Composition of Butter Fat. C. A. Browne, Jr.

Halids and Perhalids of the Picolins. P. Murrill.

JAS. LEWIS HOWE.

WASHINGTON AND LEE UNIVERSITY.

*THE COLLECTIONS OF NATURAL HISTORY
AT SOUTH KENSINGTON.**

THE collections in the Natural History Museum at South Kensington have recently been considerably enriched by means of exploring expeditions which have brought home from various parts of the world collections of great scientific interest and value. The late Sir William Flower did much to encourage scientific studies on the part of travellers in remote countries, and he was always ready to coöperate in the organization of expeditions and in giving official aid in the determination of collections brought home by explorers. His successor at the Museum, Professor Ray Lankester has lost no time in evincing his complete accord with the ideas of his predecessor in this respect, and indeed it is already evident that he favors a great development of this policy. The fact is becoming more and more generally recognized that it is the business of a national museum of natural history not merely to preserve for scientific study and public instruction the specimens acquired by presentation or by purchase from dealers and others, but to obtain objects by the deliberate exploration of regions which are likely to yield rich harvests of new and important material. This idea has, we are glad to note, been encouraged by the authorities of the Museum. It is seldom now that an important expedition organized by private enterprise leaves these shores without either

the explorer himself being in a measure instructed as to the best means of obtaining specimens and supplied with the necessary apparatus for collecting or taking with him one or more trained naturalists.

The natural history branch of the British Museum benefited greatly by the results of the expedition to Sokotra, which, under the liberal auspices of the Royal and Royal Geographical Societies and of the British Association, was organized by Mr. W. R. Ogilvie-Grant, representing the British Museum, and Dr. H. O. Forbes, director of the Liverpool Museum, with the generous aid of the committee of that institution, for the purpose of investigating and making collections of the natural history of that island. Dr. Forbes will, we believe, give an account of the geographical results of this expedition in Section E at the forthcoming meeting of the British Association at Dover. As regards its zoological work, which was its main object, the general results can be described as most successful. Sokotra does not seem to be rich in its mammal fauna. Only one mammal was recorded from it before Messrs. Forbes and Grant explored the island. They, however, obtained eight distinct species, including a wild ass, goat, Arabian hare, rat, two species of bat, and the Arabian baboon, of which two living examples were brought to England for the Zoological Gardens. The avifauna is very rich, as many as 62 species, represented by nearly 600 specimens, being secured. Eight of the species were new to science. Twenty-three species of reptiles, represented by 350 specimens, 8 of the species being new; 20 species of marine fish, represented by nearly 60 specimens, and large collections of land shells and insects containing many undescribed forms were also included in the harvest. The butterflies are especially numerous, several of the species being very beautiful and hitherto unrecorded.

* From the *London Times*.

Another expedition which has yielded results of considerable geological and zoological interest is that undertaken this summer by Dr. J. W. Gregory, of the Department of Geology, to the West Indies, special leave of absence being granted to him by the trustees. The particular object of Dr. Gregory's journey was the examination of the geology of the island of Antigua, but in the course of his voyage he visited such little-explored and out-of-the-way islands as Anguilla, Barbuda, and St. Kitts. The first-named was once a flourishing British colony, but is now derelict by whites. During his stay on this islet Dr. Gregory made a collection of fossils and of the fauna of the place which promises to be of remarkable interest and quite new to the Museum. He also brought back a very large series of specimens from other West Indian islands, and obtained *data* which will enable him to make an important contribution to our knowledge of their geological history.

The Museum availed itself of the opportunity of making some acquisitions of particular interest by means of the expedition sent out by the Hon. Walter Rothschild to the Galapagos Archipelago, off the coast of Ecuador. The fauna of these islands is a rapidly expiring one. Many of the species of birds discovered by Darwin during the voyage of the *Beagle*, no longer exist, having been exterminated by the convicts who, to the number of about 200, are sent to work on the Galapagos. The giant tortoises peculiar to the group have almost disappeared. Dr. Günther has told us that at the time of the discovery of this archipelago, in the 16th century, the tortoises were distributed in immense numbers over most of the islands; they are now restricted to three only—Albemarle, Duncan, and Abingdon. A search in which four persons were engaged for ten days, rewarded Dr. Baur, who visited Albemarle, the largest

island of the group, in 1891, with the capture of five adult specimens. The Museum obtained four very fine examples of this interesting and rapidly diminishing type of *Chelonian*, generally known as 'gigantic land tortoises,' besides a series of five hundred birds and a large collection of reptiles as its share of part of the results of the Rothschild expedition.

The ornithological section has just been enriched through the generosity of Mr. Weld Blundell and Lord Lovat, who have presented to the trustees the very fine collection of birds made by them during their recent adventurous journey in Abyssinia. In the course of their travels through the Galla country and Southern Abyssinia they passed over about 300 miles of country which had never been previously explored. The collection, which consists of 530 specimens, has not yet been thoroughly examined, but the ornithologists of the Museum, Dr. Bowdler Sharpe and Mr. Ogilvie-Grant, are already convinced that it is of very great interest. It includes 234 species, at least 18 being either new to science or not represented in the Museum series. The remarkable feature of this collection of Abyssinian birds in the extraordinary number of species obtained as compared with the number of specimens—a fact which says much for the discrimination of the explorers, who, being handicapped by want of cartridges, had to be cautious in not wasting shots. An idea of the prolificness of the country in bird life may be gathered when it is stated that on entering a new valley the two travelers, having already obtained over 200 species, secured a starling, two small finches, a kingfisher, a reed-warbler, a swallow, and a weaver, all new to their collection and six of the birds not even seen before. The value of the gift is much enhanced by the perfect manner in which the skins were prepared for the cabinet. Credit for this must be given to

Mr. Harwood, the taxidermist who accompanied the expedition and by his work materially assisted Mr. Weld Blundell and Lord Lovat in forming so fine a series of birds.

The mission despatched to Sierra Leone by the Liverpool School of Tropical Diseases for the investigation of malaria may be expected to send home some interesting specimens. Mr. E. E. Austen, the dipterologist of the British Museum, is a member of the party. He will, of course, give most attention to the special objects of the mission—the connection of malaria with mosquitoes—but, besides collecting these winged insects and acquiring valuable knowledge as to their habits and life histories, he will endeavor, as far as possible, to make collections of other groups, some of which are very incompletely represented in the Museum. With reference to this question of mosquitoes and malaria it may be added that, owing to the official steps taken by the Colonial Office, the Foreign Office, the India Office, and the missionary societies, the British Museum will soon be in possession of a unique collection of these insects. As a result of the official circular issued on the subject, hundreds of mosquitoes have, we are informed, already arrived at the Museum from every part of the British Empire, and these are believed to be only a very small portion of the consignments which are to follow in course of time.

SOME NEW DATA FOR CONVERTING GEOLOGICAL TIME INTO YEARS.

WHILE conducting the Union Pacific Expedition through central Wyoming last August, I came upon what appears to be some valuable data for converting geological time into years. For a number of days we were encamped on the rim of Bates' Hole, near Lone Tree Cr., and studied the Miocene beds, which are quite extensive in

that region. Bates' Hole is a vast depression produced by the erosion of Tertiary beds and varies from six to twelve miles in width, and approximates twenty miles in length. In depth it varies from 500 to 1500 feet below the rim, and is one vast expanse of rough and broken country, surrounded by bluffs so precipitous that up to this late date there has been but a single wagon road made to enter it from the southern end; and this is far from being ideal. The bluffs that surround this very singular depression take on all of the peculiar erosion topography seen in the 'Bad Lands' elsewhere, and in many respects surpasses any of the 'Bad Land' scenery yet described. The Miocene beds are made of whitish bands chiefly and in the vicinity of Lone Tree Cr., there are many slopes of about 30° reaching upwards from the valley, and above them terrace after terrace of harder bands that represent the castle like erosion. The slopes, as well as in many places the bluffs, are partially covered with pine trees (*Pinus murryana* Eng.). The trees on the slopes are stunted, gnarly and knotty, and are strongly marked by their great struggle for existence under the most unfavorable conditions. The oldest of these trees vary in diameter from eighteen inches to two feet, and have been recording the rate of erosion on these slopes for about 300 years.

Erosion has been so rapid that the oldest trees are now standing upon their stilt-like roots, with their trunks elevated from the slope some three or four feet. The rate of erosion appears to have been uniform with the growth of the trees. The trunk of the sapling remained on the ground; while the trunk of a tree six inches in diameter was often several inches above the surface, and the tree a foot in diameter was already upon stilts. On account of the shortness of our stay, absolute measurements of a large number of trees could not be made. Nor