

THE RED SEA COAST.¹

MR. CROSSLAND, as marine biologist to the Sudan Government, has been resident for some years in the neighbourhood of Suakin, and has had ample opportunities to become intimately acquainted, not only with this portion of the Red Sea coast, but also with the inhabitants of this interesting part of Africa. Living in the course of his work in close acquaintance with some fifty or sixty employees, among whom were Arabs from Sinai and Yemen, Negroes from the Upper Nile, and especially Hamites, the descendants of the original inhabitants of north-eastern Africa, he finds that they range in intelligence between much the same limits as the uneducated class of European lands. The social and religious conditions of these three nationalities are well described and illustrated by numerous instances which came under the author's notice, and his descriptions of them provide a valuable addition to our knowledge of these peoples. In the arid region which they inhabit, the life of the Hamitic nomad tribes is a hard one, and the extremely local character of the scanty rainfall and the consequent scarcity of forage for their camels and flocks impose on them the necessity for constantly shifting their encampment. While the Hamites are the camel-owners of the district, the Arabs and their Negro slaves hold almost a monopoly of the sea traffic in their coasting vessels, "Sambuks," in which they cruise up and down the Red Sea, and it is on the coast-belt that they come into contact.

A short chapter on corals introduces us to an account of the building of the reefs. Here a good account is given of the growth of the shore-reefs, with examples from the Red Sea and from other places, and of the erosion and deposition which is going on at various points by the tidal currents where these are sufficiently developed. At Port Sudan the tidal range is extremely small, being rarely more than 30 cm., but at other parts of the Red Sea this is greatly exceeded. The book concludes with a very instructive chapter on the tectonic structure of the Red Sea, which is a welcome addition to Suess's general discussion of it, and to the more detailed work of Hume, Ball, and Blaukenhorn in the northern portion.

Mr. Crossland considers that the sandstone hills of the coastal plain were deposited previous to the extensive faulting of the Red Sea area, which eventually resulted in three parallel fault-blocks. Of these the first and nearest to the Red Sea hill-

ranges once formed a barrier reef near the foot of the mountain, and a coastal plain was formed behind it. Further movements produced an outer barrier reef on another fault block, and within this now a coastal plain has been built up. The present barrier itself is being formed on a third and outlying fault-block, and the deep lagoons so typical of this coast lie within it. These descriptions,



An elderly Bishari. From "Deserts and Water Gardens of the Red Sea."

which have largely appeared in the *Journal of the Linnean Society*, show what an interesting field awaits the physiographer and the geologist along these shores of the Red Sea. The descriptions both of the people and of the country are excellently true to life, and furnish an interesting and accurate account of a little-known region, though the discomforts of residence there during the hot season

¹ "Desert and Water Gardens of the Red Sea." Being an Account of the Natives and the Shore Formations of the Coast. By Cyril Crossland. Pp. xv+158+xl plates. (Cambridge University Press, 1913.) Price 10s. 6d. net.

of the year are made light of, and the difficulties which the arid climate offers to the detailed examination of an extensive tract of such country have to be experienced in order that they may be fully appreciated
H. G. L.

THE LAWES AND GILBERT CENTENARY FUND.

JUST a hundred years ago was born John Bennett Lawes, followed three years later by his life-long collaborator, John Henry Gilbert; together they carried on their scientific work until the end of the nineteenth century, and now preparations are being made to commemorate the year of Lawes' birth by rebuilding the laboratory in which so much of the pioneer work in agricultural science was done. The issue of the Annual Report on the Rothamsted Experiments reminds us of the historic claims of that institution to all the assistance the public can give it.

Lawes began his agricultural experiments so far back as 1838, but though those early essays led to the invention of superphosphate and so incidentally to the fortune from which he so liberally endowed the Rothamsted Station, the experiments, properly speaking, did not begin until 1842, when Gilbert became associated with them. From that time some of the famous fields began to take shape, and by 1852 had settled down to that scheme of manuring which has never since been changed; in consequence, the plots now supply data as to the effect of fertilisers both upon the crop and upon the soil which are not merely unrivalled in their trustworthiness, but are constantly being re-interpreted as the science of the nutrition of the plant develops. In 1855 the laboratory was built from subscriptions raised as a testimonial to the value of Lawes' work, and it is this laboratory, now out of date and becoming structurally unsound, that the Rothamsted Committee seeks to replace.

Lawes died in 1900, Gilbert in 1901, and that first long and honourable chapter in the history of Rothamsted was closed. With the appointment of a new Director, Mr. A. D. Hall, in 1902, came the desire for a fresh outlook upon the old experiments; new points of view had arisen, particularly the physical and biological aspects of the soil had become important. The first necessity was to get together a body of workers, for one man could no longer cover so complex a field, and to find adequate accommodation for them, because the arrangements of the old laboratory, though equal to the routine determinations which Gilbert needed, were extremely primitive. Unfortunately, the endowment of the Lawes' Trust provided no margin for extension; still the laboratory was reformed, a few voluntary assistants were secured and new ground broken. After a time Mr. J. F. Mason built a new wing for bacteriology and enabled Dr. H. B. Hutchinson to join the staff, and a little later the Goldsmiths' Company added to the endowment so that the services of Dr. E. J. Russell could be secured.

Up to that time no assistance came from Government, but with the creation of the Development Fund in 1910, the Rothamsted Station became recognised as the Institute for the investigation of the soil and the nutrition of the plant, and received an adequate endowment. The first result was that the Committee was able not only to add some experienced workers to the staff, but also to take a long lease of the home farm containing the classic fields and to embark upon the erection of an additional laboratory with all modern conveniences of electric supply, vacuum and air current, etc. At that point Mr. Hall resigned the Directorship, and was succeeded by Dr. Russell, who has no sooner got the new laboratory opened than he has set about the replacement of the old one which, even were it adaptable to modern methods of work, has for years been giving trouble owing to original defects in construction.

Subscriptions have been received from all parts of the world, the farming societies, large and small, in Great Britain, have contributed in a way that shows their increased appreciation of research, but nearly 1000*l.* are still wanted to complete the 6000*l.* that it is necessary to raise from the public. The laboratory is expected to cost 12,000*l.*, towards which there is reason to expect the Development Commissioners will give a sum equal to that raised from other sources, so now is the time for everyone interested in the welfare of this *doyen* of institutions for agricultural research to send along their donations from which the Rothamsted Station will reap a double benefit.

THE LIFE-HISTORY OF THE EEL.¹

MANY articles in NATURE have dealt, during recent years, with the above subject; but its interest is not exhausted, and we here welcome the appearance of three new contributions to the long-debated question of the eel.

Dr. Grassi's work is the first publication of the Italian Royal Commission on "Thalassography," and in these first-fruits the commission gives promise of a great return from its systematic exploration of the Mediterranean Sea. Mr. Lea's paper is one of the many beautiful and interesting monographs which have already been based on the collections made by Sir John Murray and Dr. Hjort in the deep waters of the Atlantic. Dr. Bowman's paper is a brief but interesting note, based on the work of the Scottish research vessel *Goldseeker*.

In a long and learned introduction Dr. Grassi relates the history of our knowledge of the life-history of the eel; and while this history has been often summarised, it is here told more completely than ever. Dr. Grassi goes back even to Aristotle,

¹ "Metamorphose der Muränen: Systematische und Oekologische Untersuchungen" (Text Italienisch). By Dr. Battista Grassi. Pp. x+211 + xv plates. (Jena: Gustav Fischer, 1913.) Price 50 marks.

"Murænid Larvæ from the *Michael Sars* North Atlantic Expedition, 1910." By Einar Lea. In vol. iii. of the Scientific Reports of the Expedition. Pp. 59+6 plates. (Bergen: John Grieg, 1913.)

"The Distribution of the Larvæ of the Eel in Scottish Waters." By Alexander Bowman, D.Sc. Fishery Board for Scotland, Scientific Investigations, 1912, No. 11 (December, 1913).