

and seals, the petrel and the albatross, the fishes and cephalopods, the Portuguese Man of War and the coral reef, with the seaweeds, the microscopic plankton, and the phenomena of phosphorescence, with the winds and the clouds, with the waves and their measurement. They have also something to say regarding old sea monsters and old sea customs and chanteys.

Captain Carpenter was a lieutenant on the *Challenger*, and has had other opportunities of deep-sea work; his collaborator, Captain Wilson-Barker, served afloat for twenty years, in part in connection with deep-sea telegraph cable work; so the joint authors have been for a long time in intimate association with the life about which they write. There is a pleasant directness in the book, and a not less pleasant smell of the sea. There are numerous excellent illustrations, many of them

Africa, which will take teachers and pupils in that interesting country further into the heart of things than a more informative primer is likely to do. While it is thoroughly objective, dealing mainly with the succession of flowers in a country with a fascinating flora, it touches things imaginatively as well as scientifically, and aims at the culture of appreciation and delight as much as at the diffusion of knowledge. There is a very interesting foreword by Prof. Patrick Geddes, and Mr. Allerston has supplied a fine set of illustrative photographs of characteristic South African plants. We wish the book good speed.

THREE NATURALIST-TRAVELLERS.¹

THE chief feature common to these three books is that they deal with the researches of British naturalists in the belt of country which, from the Arctic Ocean to Equatorial Africa, lies along the boundary between Eurafica and Asia.

(1) Mr. Bury's "Arabia Infelix" describes the eastern wall of the Great Rift Valley in south-western Arabia. The land lies low for about thirty miles from the Red Sea at Hodeida; it then rises by bold precipices to the height of from eight to ten thousand feet, whence the plateau sinks gradually eastward to the Great Red Desert of Arabia, at the level of from three to four thousand feet. The road inland to Sanaa begins its steep ascent through "The Gate of the Mountains," where a huge rock has fallen across the ravine and made a natural arch. By scaling cliffs of appalling steepness, up which the Turks have had the temerity to plan a railway, it rises to the height of 9000 ft. It passes through various zones of vegetation. The spurs and ravines are terraced for coffee or clad in thick jungle. The ravines are

so steep and narrow "that one may almost touch the tree-tops which grow out of them, and so overgrown that only a green twilight penetrates to their recesses, where the lurid blooms of the snake-onion flame among the fern and the giant cobra drowns in the hush of noon." So steep are the precipices that "it gives one a crick in the neck to count the coffee-gardens up those outrageous steeps, while wondering if they are garnered with a derrick."

Mr. Bury writes with a unique knowledge of this part of Arabia, and his short book is packed with information. Unfortunately there are scarcely any references to the former literature,

¹ (1) "Arabia Infelix; or, The Turks in Yemen." By G. W. Bury. Pp. x+213. (London: Macmillan and Co., Ltd., 1915.) Price 7s. 6d. net.

(2) "Alone in the Sleeping-Sickness Country." By Dr. F. Oswald. Pp. xii+219. (London: Kegan Paul, Trench, Trübner and Co., Ltd., 1915.) Price 8s. 6d. net.

(3) "A Summer on the Yenesai (1914)." By M. D. Haviland. Pp. xii+328. (London: Edward Arnold, 1915.) Price 10s. 6d. net.

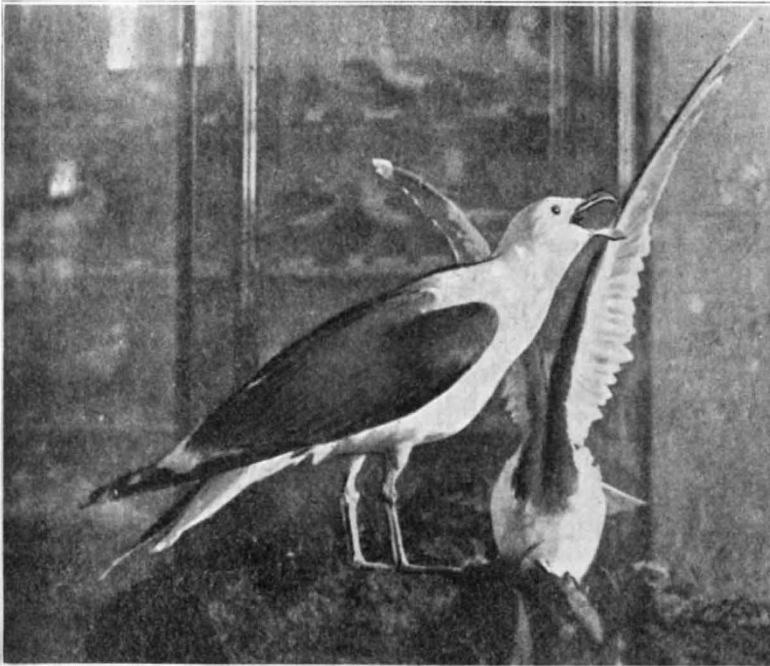


FIG. 3.—Black-backed gull. From "Nature Notes for Ocean Voyagers."

old friends, others delightfully fresh (Fig. 3). We believe that many amateurs will enjoy this book very much and profit by it in proportion. It ought to be in all ship libraries.

We must note, however, that the authors would have been well advised if they had availed themselves of the services of some competent naturalist to remove numerous inaccuracies which are as flies in the ointment. Thus it is a blemish to speak of the parrot's beak of the sea-egg, of the air cells beneath the gannet's skin being the main factors in the bird's powerful flight, of the parrot-like beaks of the puffin, of the Ctenophora progressing by small hairs (cilia) which outline their bodies, or of Noctiluca as a small jelly. The figure of the octopus (on page 81) with irregularly branched arms requires some explanation.

(3) Miss Ritchie has written a delightful informal introduction to nature study in South

and no account of the structural geography, which is perhaps its most interesting feature. Mr. Bury is an ornithologist, and the natural history notes of most value are those dealing with the birds, the agriculture, and the climate. The book is enlivened with many flashes of humour, partly his own and partly quoted from the Arabs, such as the letters found on the bodies of those who fell in the war of 1871. "To my brother Gabriel. —, son of —, is coming to you; admit him to Heaven. (Signed) Mohamed Eyad, Emir of the Faithful."

Mr. Bury begins with a synopsis of the history of Yamen, and ends with a forecast of its political future. He hopes, in the interests of both Turks and Arabs, that the present war will lead

work on the geology of Armenia, visited the eastern shore of the Victoria Nyanza to search thoroughly some Miocene deposits which have yielded fragments of *Dinotherium hobleyi*, the most important palæontological discovery yet made in British East Africa. Dr. Oswald ransacked the beds, and traced them further inland, and obtained fragmentary remains of a fossil tortoise, an extinct elephant, the first baboons found fossil in equatorial Africa, and the first fossil Protopterus. He also found evidence of the once larger size of the Victoria Nyanza, as its beaches occur three hundred feet above the present lake level. He contributes a very interesting account of his experiences. He unintentionally interviewed a leopard, and was discovered by the ticks that

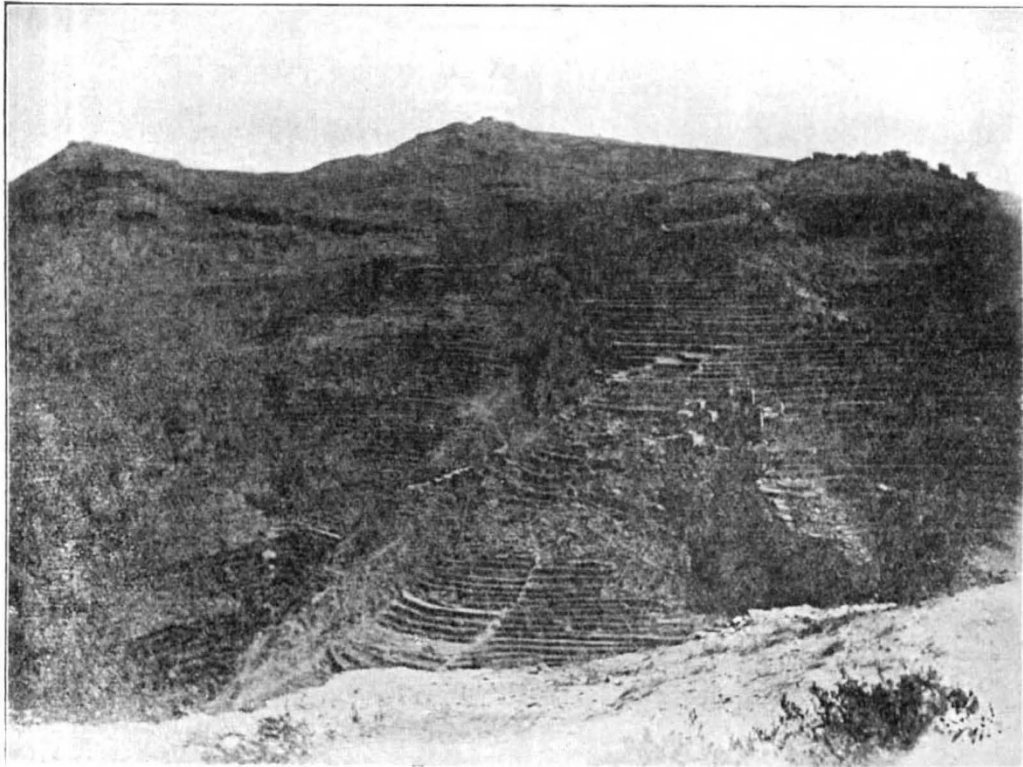


FIG. 1.—Field Terraces. From "Arabia Infelix; or, The Turks in Yamen."

to its independence, though he is obviously very doubtful whether the natives can manage the country by themselves. He appears to think that the best hope for Yamen is its annexation to the Aden Protectorate. He recognises the sterling merit of the individual Turk, and refers to Turkey's disastrous plunge into war with sympathetic commiseration; he attributes it largely to national anger at our retention of the two new battleships, for they had been built by public subscription, to which the Turks contributed their utmost as a religious duty. As he remarks, we should not like our subscriptions for a new cathedral to be arbitrarily diverted for the building of a mosque.

(2) Dr. Oswald, who is well known from his NO. 2373: VOL. 95]

carry relapsing fever, by tsetse fly, and other disease-spreading insects. He writes about the country with a naturalist's sympathy and insight. Even the white ants impressed him more as useful soil-makers than as destructive pests. He is too fond of animals to help the reduction of the diminishing herds of antelopes, and he strongly condemns the uselessness of killing the game to prevent the spread of sleeping sickness, since other animals and even insects can harbour the infection. The author has proved that the Miocene beds which he went to examine are disappointingly barren; but he has contributed a very useful addition to the geology of this part of British East Africa.

(3) Miss Haviland is a well known ornitholo-

gist, who visited the northern Yenisei to continue the researches of Seeborn and Popham on the nesting habits of the birds which breed there. She tells the story of her expedition in a brightly-written volume, illustrated by excellent photographs, but lacking a map. The party consisted of four, of whom two, Miss Czaplicka and Mr. Hall, are wintering in the country of the Ostiaks, and may thus throw further light upon the affinities of these people. The declaration early in the book that "the journey across Asia by the Trans-Siberian Railway can never be anything but unspeakably tedious" is not an encouraging start; for though the author only saw the line in its most uniform section, the statement shakes faith in her geographical insight. But as soon as she reaches the Tundra she shows a truer appreciation of the country, and in many a graphic sentence expresses the charm of the northern nights, "when darkness was never deeper than a soft twilight glow, and the mysterious shining spears

of city life and the impossibility of European settlement in the Tropics.

Miss Haviland spent most of her time photographing the nesting birds around Golchika on the estuary of the Yenisei; her chief prize was a curlew-sand-piper's nest, which was first taken by Popham in 1897. From that district she returned on the timber ships by which Mr. Jonas Lied is endeavouring to maintain annual communication between the Yenisei and western Europe, an enterprise on which depends the future of several Siberian industries. Her account of the Kara Sea in September will be a useful supplement to Nansen's account of his outward voyage with Mr. Lied at the beginning of the season.

J. W. G.

PROF. W. GRYLLES ADAMS, F.R.S.

BORN at Laneast, Cornwall, on February 16, 1836, William Grylls Adams, Emeritus Professor of Natural Philosophy in King's College, London, died at Broadstone, Dorset, on April 10, 1915, aged seventy-nine years. He was educated in a private school in Birkenhead, and entered St. John's College, Cambridge, of which afterwards he became a fellow. In 1865 he was elected professor of natural philosophy and astronomy at King's College, London, in succession to Clerk Maxwell, who had been appointed to the Cavendish professorship at Cambridge. In the same year he contributed to the *Philosophical Magazine* an article on the application of the principle of the screw to the floats of paddle-wheels, his sole contribution to applied mechanics. He took part in the eclipse expedition of 1871 to Sicily. In that year he investigated the action of a bundle of parallel glass plates on the polarisation of light, the results being published in vol. xli. of the *Philosophical Magazine*.

The next few years of Adams's life were very active. In 1872 his scientific merits were recognised by his election to the fellowship of the Royal Society. In 1875 he delivered the Bakerian lecture, on the forms of equipotential curves and surfaces, and lines of flow. The lecture was an exposition of an almost entirely experimental investigation of the curves which result when electric currents are passed through sheets of tinfoil between electrodes placed at different points; but some attempt was made to realise also some cases of three-dimensional flow. This paper has proved to be one of classical interest. In the same year he communicated to the Proceedings of the Royal Society a paper on the change of resistance produced by magnetisation in iron and steel. He observed a difference between the effects of longitudinal and transverse magnetisation. When the magnetisation was longitudinal, the electric resistance of hard steel was dimin-

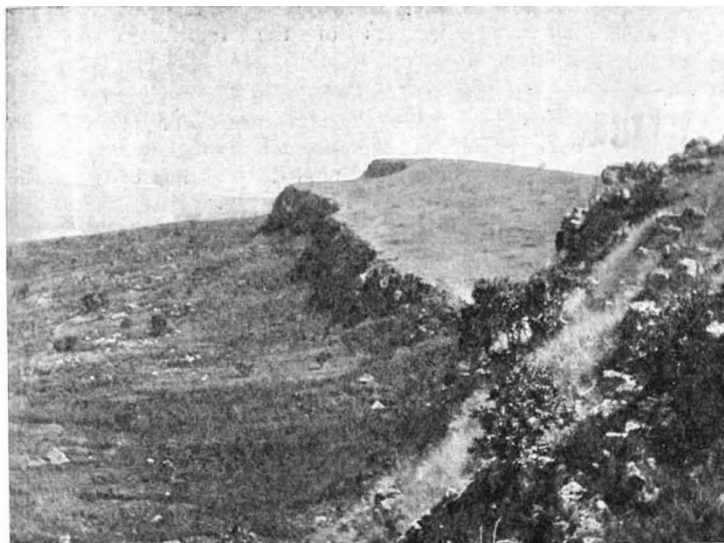


FIG. 2.—Manga escarpment, seen from the south-west. Note the numerous huts of the fertile district of Kitutu at the foot of the cliffs. From "Alone in the Sleeping-sickness Country."

of the Aurora Borealis mingled with the glamour of a night-long dawn." She is very sympathetic to the people, though she gives a lurid picture of the prevalent drunkenness, for her visit was before the famous Ukaz of the Tsar which stopped the sale of spirits. She aptly summarises some of the most striking features in Russian conditions and culture. Russia she describes as "a country of enormous possibilities, of the crudest paradoxes. With the most autocratic government, hers is the most democratic society in the world; with a Church whose function has dwindled into the effete repetition of ritual, religion is the very fibre of her people."

In illustration of the severity of the climate Miss Haviland repeats the widespread saying that the population would die out at the third generation if not renewed by immigration; the statement is probably as trustworthy for Siberia as it is when asserted to prove the unhealthiness