

occurs outside the epidemic and endemic areas of yellow fever in East Africa, Arabia, India, Indo-China, China, Japan, the East Indies, Australia, and some of the Pacific Islands. It may be asked, how is it that yellow fever is not a disease of the last-named countries? The reply is because the disease has never been introduced into them, and epidemiologists are keenly alive to the fact that the conditions existing therein are probably just as favourable for its spread there as in the localities in which it exists. Should the disease ever be introduced into the East, and increasing facilities and rapidity of travel are favourable for such an event, the consequences probably would be disastrous. The impending opening of the Panama Canal, for instance, is recognised as a menace to China so far as the introduction of yellow fever is concerned, and efficient precautions will doubtless be taken to prevent such an occurrence.

The various subdivisions of the book deal respectively with the history and geographical distribution

of the disease by the mosquito. The first to direct attention to this fact was Beauperthuy (1850-60), who taught in no uncertain manner that the agent which propagated yellow fever was the "house-haunting mosquito." Finlay, of Havana, came to the same conclusion in 1881, and undertook direct experiments to substantiate his views, with a certain amount of success, but it was only after years of bitter controversy and Ross's discovery of the part played by mosquitoes in the transmission of malaria that the American Commission in 1899 definitely established the rôle of *Stegomyia* in the transmission of the disease. The prevention of yellow fever therefore resolves itself into (a) the destruction of *Stegomyia* by removal of breeding places, "screening" of water receptacles, fumigation of dwellings, oiling of ponds, &c.; (b) prevention of mosquito bites by wire-gauze screening of windows and doors so far as possible, and the use of the mosquito net; and (c) segregation and careful screening of the sick, so as to prevent

access and infection of the mosquitoes. Fortunately, in one sense, the *Stegomyia* mosquito is largely a domestic species, and its breeding places are almost exclusively artificial collections of stagnant water, including all receptacles in which, by accident or design, water is caught, stored, and not repeatedly renewed, such as old pots and tins, flower-pots, tanks, tubs, broken crockery, bottles, &c. Boyce says he has never found it breeding more than 50 to 100 yards from the abode of man. This fact renders the extermination of this species of mosquito a far easier matter than in the case of the anophelines which convey malaria. The practical outcome of such anti-mosquito measures may be realised when it is stated that by their adoption yellow fever has been completely stamped out in



FIG. 2.—A row of upturned bottles used to make an edge to a flower-bed in Freetown, Sierra Leone. Favourite receptacles for *Stegomyia* larvae. From "Yellow Fever and its Prevention."

Havana, which up to 1909 always suffered severely from the disease. The book is admirably illustrated, and concludes with a summary on quarantine administration.

R. T. H.

of yellow fever, its symptomatology and treatment, pathology, epidemiology, entomology, and prophylaxis. While forming a treatise for the use of the medical and sanitary office, its style is such that it can be understood by any educated individual, and should thus be of service to Colonial governors and members of legislative assemblies and municipalities of localities where the disease may occur. The author considers that yellow fever is an endemic and indigenous disease of Central, and the northern part of South, America, of the West Indies, and of West Africa, and a record is given of the principal outbreaks occurring there and in other parts during the past two centuries.

The portion of the book which will probably appeal most to the general reader is that dealing with prophylaxis, the prevention of the disease. The epidemiology of yellow fever was a mystery to the older observers, and they were divided into two camps, the "contagionists" and the "non-contagionists," who considered it a "place disease," and in different outbreaks the facts seemed equally favourable to either; this, of course, was due to the transmission of

THE JOURNALS OF THE FIRST SURVEYOR-GENERAL OF INDIA.<sup>1</sup>

IN 1906 Sir Rennell Rodd, G.C.V.O., now British Ambassador at Rome, presented to the Victoria Memorial Collection at Calcutta a small quarto volume containing the journal of his great-grandfather, Major James Rennell, F.R.S., which covered a portion of the period which he spent in India. The present editor, Mr. T. H. D. La Touche, was desired by the Director of the Geological Survey of India to see whether it contained anything of geological interest, but though such information is wanting except in so far as striking and important changes have taken place in the courses of rivers in Bengal since Rennell's

<sup>1</sup> "The Journals of Major James Rennell, First Surveyor-General of India." Edited by T. H. D. La Touche. *Memoirs of the Asiatic Society of Bengal*, vol. iii., pp. 95-248.

surveys, the journal is of the highest interest for its careful and precise account of the physical aspects of the country, its climate, crops, communications, &c.

The period covered by the journal is from May, 1764, to March, 1767. Rennell had just received a commission as probationer engineer in the fort then being erected at Calcutta, near Fort William, and was ordered on May 6 to make a survey of the Ganges eastward of Jelenghee, in order to find out the nearest passage from the Ganges to Calcutta in the dry season, and to report fully on the appearance and products of the country passed through to Mr. Vansittart, the Governor of Bengal. This journal was then kept in pursuance of the Governor's orders, and in it we find daily notes on the weather, the width and depth of the river at high and low water, with many notes on the navigability of the channels traversed, until August 4, when the expedition came to an end.

Six weeks later he started on a second expedition to survey the Ganges from the point reached in the former expedition as far as Dacca, where he was taken ill. As soon as he had recovered he carried his survey to the junction of the Meghna and the Ganges, which his observations show to have then been about a degree farther north than it now is. This expedition ended in May, 1765, and besides carrying out his own surveys, we see from the "Journal" that he was also occupied in collecting from others all such material as would be of service in compiling a general map of Bengal. After two months engaged in surveying on the Meghna and Brahmaputra Rivers the "Journal" passes to the fourth expedition undertaken at Lord Clive's orders in order to form a general map of Bengal, for which distances were to be taken in a cursory manner, only latitudes being used to correct them. In February he was seriously wounded in a fight with a body of Sanashi fakirs, and incapacitated from work until June, but so effectively had he pushed on his survey that on Lord Clive's sudden departure at the end of January, 1767, Rennell was able to supply him with a map of Bengal and a part of Bahar, and another of the Ganges from Patna to Kananj, on the scale of 10 miles to one inch. On January 1, 1767, he notes that he was appointed Surveyor-General, and mentions the four officers who were appointed as his assistants, among whom he apportioned the country to be surveyed.

A large collection of itineraries, latitudes, observations for magnetic variation, and various memoranda complete the volume, which gives a vivid picture of the conditions under which the first surveys in India were carried out. At this time few instruments of precision were available, and his surveys were made with a compass and the chain, while he employed a Hadley's quadrant for the determination of latitudes. Even with such simple equipment he worked with remarkable accuracy, and many places fixed by him are found by subsequent measurement to agree closely with their true positions, though his instruments left much to be desired, as errors of 6 and 8.5 inches in his chain length, which are recorded among the memoranda of his "Journal," show. It was no doubt his own skill in carrying out route surveys and controlling them by astronomical observations that prejudiced Rennell at first against Major Lambton's procedure of triangulation.

The "Journal" is a record of the highest interest, and geographers are much indebted to the editor for his labours, and to the Asiatic Society of Bengal for publishing it, together with a map of Bengal and Bahar from Rennell's "Bengal Atlas" to illustrate it.

H. G. L.

## NOTES.

A STONE has recently been put up in Teddington Church in memory of Stephen Hales, who, in addition to being a distinguished man of science, was for fifty-one years the faithful vicar of that parish. He died in 1761, and was buried under the tower in what now serves as the entrance to the church. The fact that Hales was so buried was perfectly well known, and it is hard to say why a morning paper should assert that a number of learned men have hitherto sought for his tomb in vain. It was also known that the gravestone was being worn by the feet of Teddington congregations, and this it was that suggested the erection of a mural tablet on which the epitaph might be permanently preserved. The necessary funds were raised by subscriptions from a number of leading botanists. The students attending a course of lectures on the history of botany at University College, London, also materially helped with contributions. The Vicar of Teddington, the Rev. A. Cazalet, has taken a kindly interest in the scheme, and has been good enough to put up the tablet on the wall close to the burial place of Hales. The inscription is as follows:—"Beneath is the grave of Stephen Hales. The epitaph, now partly obliterated but recovered from a record of 1795, is here inscribed by the piety of certain botanists. A.D. 1911. 'Here is interr'd the body of Stephen Hales, D.D., Clerk of the Closet to the Princess of Wales, who was Minister of this Parish 51 years. He died the 4th of January, 1761, in the 84th year of his age.'"

MR. W. LEO BULLER has presented to the Dominion Museum, Wellington, New Zealand, an extremely valuable collection of about 700 Maori ethnological specimens which had been collected by his illustrious father, Sir Walter Buller, the well-known authority on the birds of New Zealand. The benefaction includes a large and representative collection of valuable historical greenstones, including both personal ornaments and weapons; a number of house carvings; a large pataka; a large carved war canoe with all its ornamental fittings, and a small, beautifully modelled light canoe; a collection of stone tools, adzes, &c., including the largest and finest stone adze at present known; a specially valuable collection of Maori garments, two being dog-skin cloaks in a perfect state of preservation, which were acquired in 1838; a number of other objects of Maori workmanship, many of which are of historic interest. In addition to these specimens, the collection will be completed by sending out to New Zealand the objects now in the Imperial Institute collected by Sir Walter Buller. It is difficult to overestimate the value of this donation, and when the gift was announced in the New Zealand Parliament by the Prime Minister it was received by members with expressions of very warm appreciation. We may now anticipate with confidence that the Dominion Government will at last build a museum to house its natural history and ethnological specimens, the value of which cannot be reckoned in money, but which are contained in an inflammable "old shed of a museum." It is satisfactory to know that the new specimens will be under the care of Mr. Hamilton, the director of the Dominion Museum, who has himself made valuable contributions to our knowledge of the arts and crafts of the Maoris.

NEWS has just reached us of the death, on January 12, of M. T. Durand, member of the Royal Academy of Belgium, director of the State Botanic Garden, and general secretary of the Royal Botanic Society of Belgium.