

and plantains, and appearing doubly beautiful from the presence in a state of nature of those luxuriant tropical productions so often admired at home in the conservatories of Kew and Chatsworth. The canoes passing to and fro with their motley crews of Negroes and Indians, and the vultures soaring overhead or walking lazily about the beach, served to occupy attention until the custom-house officers arrived, inspected, and permitted them to go on shore. The Portuguese, previous to the independence of Brazil, being masters of the country, not only forbade commerce to foreigners, but also spread abroad reports that the Amazon, owing to numerous falls and other obstacles, was dangerous for navigation. Later voyages, however, proved not only the falsehood of these reports, but also the facility of navigating this greatest artery of the continent, and disclosed to commercial men the real channel through which the immense natural resources of Brazil and the neighbouring countries might be most readily exchanged for the manufactures of Europe. The Government of the United States appears ready to take the lead; and early in 1851 Lieut. Hendon set out from Lima to explore the Amazon from the distant sources of the Marañon, in Lake Lauricocha, to its entrance into the Atlantic. His mission was to explore the valley of the Amazon, to sound its streams, and to report as to their navigability,—to examine its fields, its forests, and the capabilities of its rivers, active or dormant, for trade and commerce with the States of Christendom,—and to make known to the spirit and enterprise of the age the resources which there lie concealed, awaiting but the touch of civilization and the breath of the steam-engine. Though scarcely sixty miles from the Pacific, the party had already crossed the dividing ridge which separates the waters of the Pacific from those flowing into the Atlantic, bound on their way to meet the river of the Great Republic, and to unite for all practical purposes of commerce and navigation the mouths of the Amazon and Mississippi; yet from the head waters of the one stream to those of the other, the distance to be traversed is not less than ten thousand miles. Planned and arranged with their usual judgment and sagacity, the American Expedition consisted of but a small and select party; for had it been on a larger scale it must have broken down with its own weight.

This has been too often the case in our own experience, and wherever large and costly Expeditions have been sent out by Government, failure has been the rule and not the exception, while the modest and untrammelled explorations of private individuals, in some few cases assisted by a public grant, but not impeded by Government instructions, have often been crowned with success. Most of the Government Arctic Expeditions, from that of Sir John Franklin to the present day, have been failures, when loss of life and expenditure have been taken into account; while Rae, with but scanty means, all but proved the existence of the North-west Passage, and Inglefield, in a *four months' trip*, penetrated further to the north than had ever before been done in that direction. The losses incurred by most of the great Expeditions sent by Government to explore Africa, whether up the Congo or the Niger, are in the recollection of all; as are also the successes of Mungo Park, of Lander, of Livingston, of Os- well and of Galton. Thus likewise in Australia, the expedition under Grey and Lushington, originating with a private society, which only asked for one thousand pounds wherewith to commence operations, was taken out of the hands of the originators, and sent out under the auspices of Government. The failure of this unlucky ex-

ploration is well known; but it is not equally understood that the failure was accompanied, perhaps caused, by an outlay of not less than eleven thousand pounds of public money.

The work before us may be quoted in proof of the preceding remarks. Mr. Wallace, unaided by a grant from Government, proceeded to the unhealthy alluviums of South America, proposing to cover his expenses by the sale of his collections in natural history,—and he informs us that he has succeeded in doing so. During several years, he coolly encountered and overcame all difficulties; but the great geographical achievement of his exploration was the ascent of the Rio Negro from its junction with the Amazon, and the subsequent ascent of the Uaupés,—a rapid tributary of the former. On the Amazon itself he encountered the “piroróco” which he describes as follows:—

“We had gone in shore at a sugar estate to wait for the tide, when the agent told us we had better put out further into the stream, as the piroróco beat there. Though thinking he only wished to frighten us, we judged it prudent to do as he advised; and while we were expecting the tide to turn, a great wave came suddenly rushing along, and breaking on the place where our canoe had been at first moored. The wave having passed, the water was as quiet as before, but flowing up with great rapidity. As we proceeded down the river, we saw everywhere signs of its devastations in the uprooted trees which lined the shores all along, and the high mud-banks where the earth had been washed away. In winter, when the spring-tides are highest, the ‘piroróco’ breaks with terrific force, and often sinks and dashes to pieces boats left incautiously in too shallow water. The ordinary explanations given of this phenomenon are evidently incorrect. Here there is no meeting of salt and fresh water, neither is the stream remarkably narrowed where it commences. I collected all the information I could respecting the depth of the river, and the shoals that occur in it. Where the bore first appears, there is a shoal across the river, and below that, the stream is somewhat contracted. The tide flows up past Pará with great velocity, and entering the Guamá river comes to the narrow part of the channel. Here the body of tidal water will be deeper and flow faster, and coming suddenly on to the shoal will form a wave, in the same manner that in a swift brook a large stone at the bottom will cause an undulation, while a slow-flowing stream will keep its smooth surface. This wave will be of great size, and, as there is a large body of water in motion, will be propagated onwards unbroken. Wherever there are shallows, either in the bed or on the margin of the river, it will break, or as it passes over slight shoals will be increased, and, as the river narrows, will go on with greater rapidity. When the tides are low, they rise less rapidly, and at the commencement a much less body of water is put in motion: the depth of the moving water is less, and does not come in contact with the bottom in passing over the shoal, and so no wave is formed. It is only when the body of water in motion, as the tide first flows in, is of sufficient depth, that it comes in contact with the shoal, and is, as it were, lifted up by it, forming a great rolling wave. * * It appears therefore that there must exist some peculiar formation of the bottom, and not merely a narrowing and widening in a tidal river to produce a bore, otherwise it would occur much more frequently than it does. In the Mojú and Acarrá the same phenomenon is said to take place; and, as these rivers all run parallel to each other, it is probable that the same bed of rock running across produces a somewhat similar shoal in all of them. It may also easily be seen why there is only one wave, not a succession of them; for, when the first wave has passed, the water has risen so much that the stream now flows clear over the shoal, and is therefore not affected by it.”

Arrived at the village of Montealegre, a letter of introduction to Senhor Nunez soon procured Mr. Wallace and his companions an empty house, consisting of two parlours, several small sleeping rooms, a large verandah and a closed yard behind; but after sunset the mosquitoes

A Narrative of Travels on the Amazon and Rio Negro; with an Account of the Native Tribes, and Observations on the Climate, Geology, and Natural History of the Amazon Valley. By Alfred R. Wallace. With a Map and Illustrations. Reeve & Co.

FILLED with an earnest desire of beholding with his own eyes the luxuriance of animal and vegetable life said to exist in tropical lands, this patient and laborious traveller broke through the trammels of business and the ties of home, and started in the beginning of 1848 for the River Amazon. On the morning of the 26th of May, after a short passage of twenty-nine days from Liverpool, the vessel anchored opposite the southern entrance of the Amazon; and the pilot having come on board in the afternoon, he next morning took the ship with a fair wind up the river, which for fifty miles could only be distinguished from the ocean by its calm and discoloured waters, the northern shore being invisible, while the southern was ten or twelve miles distant. Early on the 28th, the rising sun in a cloudless sky revealed to the longing eyes of the voyagers the city of Pará, surrounded by dense forests, overtopped by palms

poured on them in such swarms as to render necessary a resort to the usual protection of the locality—and after a few days' residence, Mr. Wallace says,—

“We found them more tormenting than ever, rendering it quite impossible for us to sit down to read or write after sunset. The people here all use cow-dung burnt at their doors to keep away the ‘praga,’ or plague, as they very truly call them, it being the only thing that has any effect. Having now got an Indian to cook for us, we every afternoon sent him to gather a basket of this necessary article, and just before sunset we lighted an old earthen pan full of it at our bedroom door, in the verandah, so as to get as much smoke as possible, by means of which we could, by walking about, pass an hour pretty comfortably. In the evening every house and cottage has its pan of burning dung, which gives rather an agreeable odour; and as there are plenty of cows and cattle about, this necessary of life is always to be procured.”

This interesting book is rendered doubly valuable by the sound notices which it contains of the physical geography, geology, zoology, climatology, vegetation and aborigines of the Amazon Valley, together with various vocabularies, a map and other illustrations.

Returning to England in the brig Helen from these shores,—the brig took fire and went down with all the traveller's hard-earned treasures, leaving him and the crew to buffet the waves of the Atlantic in leaky boats, and with scant provisions, for ten days and nights. When he was at length rescued by the ship *Jordeson*, about 200 miles from the Bermudas, Mr. Wallace, with truly characteristic coolness, tells us—

“It was now, when the danger appeared past, that I began to feel fully the greatness of my loss. With what pleasure had I looked upon every rare and curious insect I had added to my collection! How many times, when almost overcome by the ague, had I crawled into the forest and been rewarded by some unknown and beautiful species! How many places, which no European foot but my own had trodden, would have been recalled to my memory by the rare birds and insects they had furnished to my collection! How many weary days and weeks had I passed, upheld only by the fond hope of bringing home many new and beautiful forms from those wild regions; every one of which would be endeared to me by the recollections they would call up,—which should prove that I had not wasted the advantages I had enjoyed, and would give me occupation and amusement for many years to come! And now everything was gone, and I had not one specimen to illustrate the unknown lands I had trod, or to call back the recollection of the wild scenes I had beheld! But such regrets I knew were vain, and I tried to think as little as possible about what might have been, and to occupy myself with the state of things which actually existed.”

After all these vicissitudes the reader will be glad to learn—as he may in another column of our journal—that Mr. Wallace, undismayed at his perils by land and sea, is about to start in H.M. brig *Frolic*, for a long pilgrimage to the Islands of the Eastern Archipelago.