INFLUENCE OF GEOLOGICAL CHARACTER ON THE PROGRESS OF EUROPEAN COLONISATION.

No man has done more for the promotion of discovery in the far east than Mr. Windsor Earle; and no man has more frequently seen others run away with the credit of his discoveries. The number of literary daws who strut about with Earle's feathers sticking in their tails, is incredible. As well as the author of the line himself, he may say "Sic vos non vobis melificates apes." Something Mr. Earle has just done towards vindicating his title to some of his discoveries by reprinting with notes some of his contributions to the "Journal of the Indian Archipelago." From this *brochure* we extract the following interesting observations. To one (or at most two) of Mr. Earle's *dicta* we may demur, but, on the whole, we have been struck both with the originality and justice of the remarks in this paper:

The highly productive character of the volcanic regions of the Archipelago is strikingly illustrated by the fact, that during the three first centuries of European occupation, the agricultural settlements were formed exclusively on islands traversed by the volcanic band; the small establishments kept up at Malacca, Macassar, and on Timor, having been maintained solely for the purpose of coercing the maritime trade. The early enterprises of the Portuguese were not of a nature calculated to result in permanent occupation. The first successful "plantation" was established in 1565 by the Spaniards in the Philippines, where a happy mixture of force and priestly influence brought the natives into a condition which rendered their labour available, and the plantations have gradually extended through the volcanic islands of the group to Mindanao, where they are progressing as rapidly as the intolerant spirit of Islamism will permit in its eastern stronghold. The Dutch commenced the same career about half a century later in Java and the Moluccas, but force only was employed in training the natives, except at Amboyna, where as orderly, well-conducted, and perhaps as well-informed a community as will be found in the more secluded parts of Europe, shows how great a blessing the Dutch rule might have proved, had native improvement met with equal encouragement elsewhere. As it is, were the influence of the Netherlands power in the East to cease at this moment, scarcely a trace of their stewardship would be discernible at the commencement of the next century, except in Amboyna and the neighbouring groups, where the conversion of entire communities not only to the precepts, but also to the practices of Christianity, will leave indelible traces of some better principle having been introduced than that of sordid gain.

The English East India Company entered the field rather late in the day, on the west coast of Sumatra. Their success was never very brilliant, and when the course of European policy led to the transfer of their Sumatran settlements to the Netherlands government, they were resigned without a sigh. Indeed, our nation is not well calculated either to form or maintain tropical agricultural settlements, at least on the principles that have hitherto obtained. The spirit that leads our countrymen to attack a Canadian or Australian forest, axe in hand, revolts at the system vulgarly called "nigger driving," which has been found necessary to successful agriculture among the Polynesians of Java and the Phillippines, as well as with the negroes of Brazil and the southern states of North America. The eminent success that has attended British colonial enterprise in those regions where Anglo-Saxon perseverance can be brought to bear directly on the clearing and cultivation of new lands, and the want of success that ever met our attempts to carry on the cultivation of those tropical plantations in the east and west which were obtained by conquest—for England has rarely attempted, and never succeeded, in initiating a purely agricultural settlement within the tropics—are equally attributable to that spirit which prompts the emigrant to prefer winning his way by the strength of his own right hand, to urging weaker races to labour that he may reap the fruit.

A sort of compromise has been effected in this settlement (Singapore) by employing self-imported free labour in cultivating the soil; and those enterprising planters who have been actively employed for years past in converting the jungle of our island into spice gardens, probably never contemplated that they were initiating a system which is calculated sooner or later to produce an entire change in the face of nature throughout the "Further East." It must be familiar knowledge that the Indian Archipelago is now much more appreciated in Europe than was the case twenty, or even ten years ago, when it was almost a *terra incognita*, except to those whose commercial transactions led them to take an interest in its affairs. The fact of a few of its thousand islands affording the principal means of support to two European monarchies, is alone calculated to draw attention to those territories which are still unoccupied. That the British will take the lead in the advance that must happen some time or other, may be inferred from the circumstance of their being the only nation possessing territory in this part of the world capable of managing the people of China, whose countless myriads present the most available sources of labour.

I will close this Essay with a few remarks on "Climatology," a branch of the science of physical geography intimately connected with the subject of colonisation, whether European or Asiatic. The superior salubrity of countries of the primary formation is evidenced by the absence of endemic disease throughout those regions of South-eastern Asia and Australia, which partake exclusively of the primary character—a fact which those who have long resided in the Straits Settlements, as well as those who have sought and found health, during a temporary sojourn, will have no difficulty in affirming, as far as this neighbourhood is concerned. This peculiarity, for such it is in countries situated under the Equator, is in a great degree attributable to the nature of the soil, which rapidly absorbs the moisture, and is free from those deleterious particles which render the smell of the newly turned up ground in volcanic regions sickening, and almost nauseous. Here, however, the fragrance that accompanies the breaking up of new lands, is scarcely inferior to that which invigorates the husbandman in Europe, and renders cultivation the most healthful occupation that can be pursued.

The influence which this comparative salubrity exerts on the character of European enterprise in this settlement, is sufficiently apparent. We see little of that anxiety to snatch a hasty harvest, which is so prominently displayed in those tropical regions where the nature of the climate renders a protracted residence irksome, and even dangerous to Europeans. That the comparative advantage we enjoy in this important particular, coupled with the favourable nature of our geographical position, will sooner or later make Singapore the Constantinople of the Far East, can scarcely be doubted. As a general rule, the inland parts of primary regions, as far as known, possess a healthful climate—in fact, the mode of life adopted by the Jakuns of the Malay Peninsula, and by the native tribes of Australia, could not be pursued with impunity in countries subject to febrile influences. Mr. Gray, who crossed the peninsula from Malacca to Pahang, and Mr. J. R. Logan, who has more recently explored the uplands of Johore, suffered only from fatigue while traversing the jungles; and Dr. Leichhardt crossed the Australian continent from south to north without being detained for a single day by the illness of a member of his party, except on one occasion, in which some of his companions had been desperately wounded by the natives. It was not until he reached Port Essington that he discovered for the first time that malaria existed in Australia, and he expresses no small amount of surprise thereat in the lectures he delivered soon after his return to Sydney:—

"I will here mention that the sea breeze at Victoria is extremely weak, and I think that Captain Macarthur is right in attributing partly to this fact, the fever, from which the garrison has several times severely suffered. It is extremely difficult to assign any other reason for the want of salubrity. The country is undulating and hilly; the soil is sandy, and absorbs rapidly the heaviest showers; the forest is open, and the mangrove thickets which cover the mouths of the creeks, scarcely deserve the name of swamps, as they are washed by the tide, and form no accumulation of vegetable matter which might produce the miasma or malaria which generally renders tropical countries so dangerous. After rain the air is fresh and pure, the ground dry, and a walk most agreeable. Those localities which are freely exposed to the sea-breeze, as for instance, Croker's Island, are, according to Captain Macarthur, very healthy."—*Lectures delivered by Dr. Ludwig Leichhardt, at the Sydney School of Arts, the 18th and 25th days of August*, 1846, p. 13.

The facts alluded to by Dr. Leichhardt caused much anxiety to those interested in the settlement, and the writer was at one time rather actively employed in searching out the cause of an insalubrity which is not known elsewhere in Australia, by examining those spots in the neighbouring seas which were remarkable for their unhealthiness. The result will be found in the following extract. I must apologise for so often quoting from my own literary productions, but the peculiar nature of the inquiry, which was not calculated to prove attractive to travellers who happened not to be personally interested, affords me no other source of reference.

LAND-LOCKED HARBOURS.—"There are certainly not many such ports in the Indian Archipelago, but this very circumstance renders them the more valuable, and the European powers which possess territory in this part of the world, have repeatedly attempted to avail themselves of the advantages which they present for the formation of naval arsenals. The inner harbour of Amboyna, the capital of the Moluccas, is in every respect a perfect port, as far as security and convenience for shipping is concerned, while the anchorage abreast of the town, which is situated on the shores of the outer harbour, is exceedingly unsafe—indeed it is only near the fort, where a rocky bank extends a little more than a cable's length from the shore, that anchorage can be met with. This has induced repeated attempts on the part of the Dutch, during the last two centuries, to form arsenals on the shores of the inner harbour, but they were on each occasion obliged to desist, owing to the excessive mortality from fever that took place among the people employed. Strangers who visit the Indian Archipelago are often surprised to find that the land-locked harbours are neglected by the natives in favour of spots which present no palpable advantages. The chief commercial settlement on the Island of Lombok, which is resorted to by hundreds of ships, is situated upon an open roadstead, not only exposed to the westerly gales, but subject at all times to a rolling swell, which causes so dangerous a surf upon the beach, that communication is cut off for days together. Yet there is a land-locked harbour within the distance of a few miles, which affords perfectly secure anchorage, and is accessible to ships of the largest size; but here again the climate is so unhealty that its shores cannot be inhabited. The same rule applies to every spot similarly situated throughout the Indian Archipelago.

"What may be the causes of the insalubrity of these land-locked harbours can only be judged by inference, for malaria does not admit of analysis. That it is engendered by mangrove-swamps and by mud-banks exposed at low-water, I have not the least doubt, but at the same time the action of strong tides must tend to remove the impurities which create it, otherwise both Singapore and Sourabaya would be unhealthy. I have reason to believe also, that the effluvia produced by the action of a powerful sun on stagnant salt-water is highly unfavourable to the constitution.

"In taking under review the circumstances of the various settlements in these seas, it would appear that the most salubrious spots are those situated upon narrow straits. The banks of navigable rivers above the reach of the saltwater, hold the next rank. Open bays are by no means to be recommended; but land locked harbours appear to be perfect repositories for all that can be injurious to the constitution.

"The repeated failures that have attended the efforts of Europeans to form settlements in this part of the world afford support to the above view of the case. A secure harbour has always been a point of the first consideration, and although this can often be obtained in a strait, which at the same time would prove most convenient for merchant shipping, still the superior facilities for defence presented by a harbour with a single entrance have proved too attractive to be overlooked. The English East India Company have twice attempted to establish themselves upon the Andaman Islands, in the Bay of Bengal, at Port Cornwallis, and at Port Chatham; but the settlements were in both cases abandoned in consequence of the unhealthiness of the climate. More recently, the Dutch made a similar effort with the like result at Triton Bay, on the south-west coast of New Guinea, another land-locked harbour. It is singular that in the last instance the settlement was about to be formed on a narrow strait, near a spot which had been selected by the natives as the site of their principal village; but the intention was abandoned, chiefly on account of the strength of the tides. Indeed, the natives of these countries appear to form the best selections of spots adapted for occupation, although, as far as I could discover, even the more intelligent of the Indian Islanders had established no fixed rules, but were rather guided in their choice by instinct than from conclusions drawn from a course of reasoning. All the principal European settlements in the Archipelago were originally native towns, with the except of Batavia, the capital of Java. This spot was selected on account of its being a favourable position for a fortress, and at a convenient distance from the native capital, which was situated some miles inland."—*Enterprise in Tropical Australia*, p. 93, *et seq.*

The removal of the settlement to the outer part of the harbour of Port Essington was more than once contemplated, and would have been carried out, had not the authorities been in constant expectation of the receipt of orders to break up the establishment, from the first year of its existence—in fact, the interest in the settlement had subsided with the retirement of the minister under whose auspices it had been founded. Had the slightest encouragement or even approval been afforded by the cotton manufacturers of Manchester and Glasgow, they would not now have been solely dependent on foreigners for their supplies of the raw material; at least the results of the experiments in tropical agriculture carried on at Port Essington authorise this conclusion. A little agitation in the manufacturing districts would probably have been responded to, but support to colonial enterprise should be spontaneous, otherwise it may fail when most needed. I have entered into this subject rather more fully than I had intended, as Port Essington was the first European settlement founded on primary formations within the tropics for purely agricultural purposes, and it will probably be the last—at least, until the Anglo-Australians have had time to spread to the north coast, when the textile produce, whether wool or cotton, will probably be required for their own manufactories in the south.

If we may judge from the robust appearance of the mountaineers of Timor, Ceram, and Celebes, the climate of the higher regions of areas of upheaval is equal to that of the primary ranges. Indeed, I should be inclined to give the preference to the uplands of Timor, where the character of the country and its vegetation is so open and Australian as to induce a belief that one is breathing the mountain air of one of the Southern ranges. The coasts of upheaved tracts possess, however, a very doubtful character, those of Timor, especially, being notoriously insalubrious. An interesting essay on "Coral Reefs as a Cause of Fever,"* appeared in earlier numbers of this journal, and met with a considerable amount of opposition in various quarters. It is less difficult to demolish than to construct a theory, and such is the perversity of human nature, that the destroyers sometimes obtain the greater credit. If the author will consent to review his theory, making it applicable only to Fringing Reefs, in which the process of upheaval is constantly presenting fresh surfaces of living coral to be destroyed by the atmosphere, and discarding Atoll or Barrier Reefs, which are the characteristics of areas of subsidence, he will furnish a highly valuable contribution to medical topography, without incurring the liability of being pestered by opposition, at least on the part of those who have had the advantage of practical experience.

It will scarcely be necessary to enter into particulars concerning the climatology of the volcanic region. The Netherlands Government, by the recent acquisition of the Portuguese settlements on Solor and Flores, and by the establishment of what is intended to be a permanent settlement on the north side of the Great Eastern Peninsula of New Guinea, have now exclusive possession of all the countries of the Archipelago, south of the equator, which are traversed by volcanic bands. Some sixteen years ago I recorded expressions of regret that England had relinquished possession of the settlements in the Archipelago that had been captured during the last war. Subsequent experience, more especially a closer acquaintance with the character of the British emigrant as displayed in the southern colonies, has led me to qualify this opinion very materially. Each nation that has established itself in this part of the world is evidently pursuing the career for which it is best adapted. An Englishman would be as much out of his element in directing the forced labour of Java or the Philippines, as a Spanish Corregidor or a Dutch Opziener would be, if set to drive in a herd of wild cattle from the "bush," or to fell an iron-barked Eucalyptus with a broad axe.

* By Mr. Robert Little, a medical practitioner of great experience in tropical diseases, who had been a resident in Singapore during the previous 15 years.