that contain extensive alluvial deposits, composed chiefly of blue clay impregnated with marine salt, and rich in decomposed vegetable matter. On large plantations the trees are usually planted from twelve to fifteen feet apart, in the form of squares, and where irrigation is required, trenches are dug between them to admit the water passing through as often as it is necessary. In places where the rain is abundant, or where the soil is damp, the bananas grow best. It is generally at the end of nine months that the plants mature, and after that time the fruit can be gathered every week in the year, provided the plantation has been well kept, and has had a good start. At that time the trunk of the tree attains a height of eight or ten feet, and a girth of about thirty-six inches. From the trunk, which is porous and yields an excellent fibre, palm-like branches are thrown out to the number of six or seven. The bunch of fruit appears at the juncture of the trunk and branches, and consists of from four to twelve of what are termed "hands," each hand having eight to twelve bananas on it. A bunch of eight hands or clusters is counted as a full bunch; while those that have from five to seven are taken as a half bunch; bunches not less than five hands are styled third class, the others respectively first and second class. From the root of this tree several shoots or suckers sprout, each of which in turn becomes a tree, and bears a bunch of bananas, or they may be transplanted. After a bunch has been cut, the tree is usually felled; in fact, the tree is more frequently cut to gather the fruit. The manner in which the banana is cultivated is most easy, as very little skill or labor is demanded, nature doing almost all the work.

LETTERS TO THE EDITOR.

**** *Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

The editor will be glad to publish any queries consonant with the character of the journal.

On request, twenty copies of the number containing his communication will be furnished free to any correspondent.

Origin of the Galapagos Rookeries.

IT is generally supposed that animals now living in latitudes bordering the polar circles are naturally confined to the cool regions of the earth, and such is usually the case; but there are some remarkable exceptions to this rule. Such, for instance, are the rookeries of albatross, fur seal, and penguin at the Galapagos Islands.

That this equatorial group of islands is inhabited by a fauna usually confined to the high latitudes has long been known to Pacific navigators, and also to such celebrated naturalists as Darwin and Agassiz, who visited them years ago. Still, there seems to be no satisfactory explanation offered to show why the fauna of the cold latitudes should now exist at the equator.

It may be that neither of the above naturalists, while having knowledge of the rookeries of hair seal, knew that a small rookery of fur seal made its home under the almost inaccessible cliffs of Abingdon, or that albatrosses had their hatching place on the shores of Hood's Island, or that a small species of penguin frequented the shores of Albemarle.

Under the present climatic conditions of our globe, it is not likely that the fauna of the cold regions would have selected breeding places under the equator, especially when such rookeries are so far removed from their normal home in the high latitudes. As their inhabitants are never seen far from the land of birth, I for many years after my first visit to these islands was unable to supply myself with a satisfactory solution of the problem. I at first thought that the albatrosses may have made the passage from their tropical rookery to the high latitudes through the upper atmosphere, which their great power of flight would enable them to accomplish. But I have since come to the conclusion that the Galapagos rookeries are the relics of a frigid period, and that their progenitors sought out these seemingly unnatural breeding places at a time when the climate of the Galapagos was much colder than now.

When we consider the low temperature which the eastern Pacific waters must have possessed during the ice-age, when the lands of southern Chili, and the shores of North America as far south as Oregon, were launching icebergs into the sea to be floated directly towards the Galapagos by the prevailing ocean currents, we can conceive how during such a frigid age the fauna of the high latitudes found a fitting home within this portion of the tropics. And it is owing to the ocean currents which still move from the high latitudes along the North and South American coasts, and cool the Galapagos seas, and also to the strong attachment of such species of life for their breeding places, that they have been able to continue, a feeble remnant, until the present century. Moreover, the isolated situation of the Galapagos may have aided, at the close of the ice period, to prevent the abandonment of the rookeries for a more congenial latitude. The nearest lands now suitable and occupied by such species of animals, as before stated, are situated in the high latitudes, thousands of miles distant from the Galapagos, while the wide intervening seas afford no signs of the albatross, seal, or penguin; and it is the opinion of seamen who are acquainted with the Galapagos rookeries that their occupants are confined to the seas of that region.

The rookeries of sea-lions found on these islands, and so well described by Mrs. Agassiz, are also far removed from the usual breeding places of such animals, the sea-lions of California being their nearest neighbors.

The large tortoises which inhabit the Galapagos, and from which the islands derive their name, probably emigrated at an early date from the American coast, which is some four hundred miles distant; for I have noticed that they appear quite at home in the water.

The progenitors of the terrestrial iguanas found on Albemarle, probably lived in the ocean in the remote past, according to Darwin's opinion, and are consequently related to the sea iguanas which abound in those waters.

C. A. M. TABER.

Wakefield, Mass., May 16.

BOOK-REVIEWS.

A Journal of American Ethnology and Archæology. Edited by J. WALTER FEWKES. Vol. I. Boston and New York, Houghton, Mifflin, & Co., 1891.

Report of the Proceedings of the Numismatic and Antiquarian Society of Philadelphia for the Years 1887–1889. Philadelphia, printed for the society, 1891.

THE *Journal of American Ethnology* is scarcely such in the usual acceptance of the term. Its whole contents consist of three papers by the editor, all of them from his notes when connected with the Hemenway South-western Archæological Expedition. The first is entitled "A Few Summer Ceremonials at Zuñi Pueblo," principally descriptive of various dances. The second is on "Zuñi Melodies," the notes of which were obtained by Dr. Fewkes on phonographic cylinders exposed to the singing of various members of the Zuñi tribe, and subsequently taken down from the hearing with the aid of a harmonium. The instrumental study of the melodies is the work of Mr. Benjamin Ives Gilman, and is admirably presented. The third paper, accompanied with a map, describes a "Reconnoissance of Ruins in or Near the Zuñi Reservation." These ruins are those of the former residences of the Zuñi tribe, and are eighteen in number, though the reconnoissance is not asserted to embrace all that remain.

The *Journal* is admirably printed, well-illustrated, and full of excellent original material, although its title seems a misnomer.

The volume of proceedings of the Numismatic and Antiquarian Society of Philadelphia, edited by its efficient secretary, Mr. Stewart Culin, contains the usual lists, etc., and seven original papers, of all of which we can speak in terms of praise. One is by Mr. Culin himself, on a curious secret society among the Chinese in America, and two are by the Rev. Dr. W. M. Beauchamp, on the Onondagas and the early medals, crosses, rings, etc., found among them. Mr. B. S. Lyman, a high authority on all Japanese matters, describes an old Japanese standard foot measure; Mr. Frances Jordan, jun., speaks of aboriginal American wood-working; and the president of the society, Dr. Daniel G. Brinton, contributes a study of the character of American aboriginal poetry, and also an interpretation of a celebrated rock-inscription near Orizaba, Mexico, called "The Stone