

at Lowerre, Hastings, Sparta and Peekskill, by a very thin bed of Quartzite, probably representing the Georgian Quartzite of Dutchess county. Above this is a thick series of Crystalline Limestones, forming the river valleys of the Harlem, Bronx and other rivers, and underlying most of the navigable water ways in the vicinity of New York. The upper rocks are Mica-schists, which are probably of Hudson River age, and make most of the highlands of New York City and vicinity. These rocks are extensively folded in a general direction of N. 40° E., with occasional cross foldings, producing the cross valleys. The whole series is crossed by the Manhattanville Fault, running from Manhattanville, North River, southeastwards to the East River, between Ward's and Blackwell's Islands, into Astoria Bay. The fault, along which there has been a throw of a number of hundred feet, was long ago described by Professor Dana.

The second paper of the evening was by Captain J. J. Riley, entitled 'The Guano Deposits of the Islands of the Southern Pacific, and their Prehistoric Remains.' Capt. Riley considered in detail the depth, value and manner of working of the guano deposits in the Chincha Islands, off the southern coast of Peru, from which guano was first taken by Humboldt in 1804, and which have since been very famous for their guano deposits. Between 1850 and 1880 it is estimated that guano to the value of \$550,000,000 in gold was taken from three islands alone. The islands lie in the rainless region, and the preservation of the guano is due to the absence of water. Once in about seven years there is a season of quite a little rainfall, which has undoubtedly a great effect upon the guano, and was considered by Captain Riley to be the cause of the blacker bands in the layered deposits. Two burial tombs containing bodies of great antiquity have been discovered in the guano. The bodies were evidently those of royal personages, and apparently, from the evidence of slabs containing certain symbols, related to the Incas. These tombs were found at a depth of 35 and 68 feet, but it is not possible to state whether they were buried in the guano or later covered by it. The islands, three in number, are granitic in character, and

were covered by a varying thickness of guano, reaching in the more important island a depth of 203 feet in places. The exportation of guano has, however, ceased since 1880.

In the discussion Dr. Julien compared these islands with other guano-bearing islands of the West Indies, paying particular attention to the absence of any evidences of human remains showing life coincident with the formation of the guano.

The third paper, read by title, was by Mr. Stuart Weller, and entitled 'A New Crinoid from the Coal Measures of Kansas.'

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*Secretary.*

#### BOSTON SOCIETY OF NATURAL HISTORY.

THE first general meeting of the season was held November 3d, seventy-five persons present.

Mr. J. B. Woodworth spoke of Mr. Saville-Kent's work concerning the Great Barrier Coral Reef of Australia. He sketched briefly the chief results of the studies of Darwin and others upon the theory of coral reefs and showed a series of lantern slides giving a general view of the life upon the Great Barrier Reef. This reef stretches along the coast for a distance of more than 1,200 miles; the distance from the outer edge of the reef to the mainland varies from 10 to over 100 miles. The reef and adjacent waters abound in Nullipores, Madreporas, Alcyonarians, Holothurians, etc. The pearl and pearl-shell, Trepan and oyster fisheries are of very great importance.

SAMUEL HENSHAW,  
*Secretary.*

#### NEW BOOKS.

- Bau und Leben unserer Waldbäume.* M. BÜSGEN. Jena, Gustav Fischer. 1892. Pp. viii+230.
- Handbuch der Klimatologie.* JULIUS HAUN. Stuttgart, J. Engelhorn. 1897. 2d edition, revised and enlarged. Vol. I., pp. xii+404; Vol. II., pp. viii+384; Vol. III., pp. viii+576.
- Essai sur les conditions et les limites de la certitude logique.* G. MULHAUD. Paris, Alcan. 1898. 2d edition. Pp. viii+202. 2 fr. 50.