DISCUSSION AND CORRESPONDENCE.

CAUSES OF THE SUDDEN DESTRUCTION OF LIFE IN THE MARTINIQUE VOLCANIC ERUPTION.

To the Editor of Science: During many years of teaching geology I have held in opposition to most text-books on the subject that explosive gases are evolved during violent volcanic eruptions and that the flames seen by eye witnesses do actually exist, independent of lightning and the glow of the hot lava reflected from the jet of steam, etc., which are usually given as the explanation of the appearance of flames.

My view has been that the heat is sufficient to cause the dissociation of hydrogen and oxygen from the water, on coming suddenly into contact with highly heated lava; and in case of sea-water the chlorine would also be dissociated from the sodium.

These gases suddenly ejected with great violence and exploding in the air, above the crater, would produce precisely the effects witnessed on an unusually large scale at Martinique.

The people were mostly killed by the sudden explosion of a vast volume of hydrogen and oxygen, which will account for the sudden burning of flesh and clothes, as well as of the buildings and vessels.

The chlorine, at the same time, combining with some of the hydrogen would produce hydrochloric acid, a poisonous and suffocating gas, which would quickly kill most of those not instantly destroyed by the explosion.

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Yale University,
New Haven, Conn.,
May 14, 1902.

THE WHALE-SHARK (*Rhinodon typicus*) AS AN AMERICAN FISH.

To the Editor of Science: The notice by Mr. Barton A. Bean of "a rare 'whale-shark'" (Science, February 28, p. 353) is the first record of the *Rhinodon typicus* as a western Atlantic fish, but the species or an allied one has been several times noticed as a visitor to the Pacific coast of America. Mr. Bean has duly referred to my description of *Micristodus punctatus* in 1865. When I published that article I had serious misgivings lest the species would prove eventually to be congeneric with *Rhinodon typicus,* but the positive ascription to that form of simply conic teeth by such eminent authorities as Müller, Henle and others restrained me from identifying the California shark with it, and consequently I described the American form as the representative of a new genus and species. A comparison of the teeth of the California species with those of the Caribbean animal has led me now to consider them to be at least congeneric. The later notices of the dentition of individuals undoubtedly belonging to *Rhinodon* force on me also the conviction that all the selachians of like appearance are congeneric.

Mr. Bean, whom I had told that there was a considerable literature on *Rhinodon,* informs me that he has gone through the zoological and other records without finding any references other than the early one to *Rhinodon.* This absence of data is a striking illustration of how unsafe it is to conclude that because no references are found in the zoological records, no literature exists, and I now enumerate such articles as I happen to know about in which *Rhinodon* is mentioned.

Neglecting the general works in which *Rhinodon* (or *Rhineodon*) *typicus* has been described, we pass at once to the comparatively late notices.

In 1870 Professor E. Perceval Wright noticed its occurrence about the Seychelles Islands in a letter published in the 'Spicelegia Biologica' printed in Dublin. This I have not been able to consult as it is not in the libraries of Washington or Philadelphia.

According to Dr. Christian Lütken, however, Wright (p. 65) claimed that 'this shark, which is—the north whale excepted—the largest of living animals, * * * contrary to the general habits of the true sharks, is not a carnivorous but a herbivorous fish.'

In 1873, Dr. Lütken compared it with the basking shark, called by him *Selachus maximus,* in an article on the latter species in the 'Oversigt over det K. Danske Videnskabernes Selskab Forhandlinger * * * i Aaret' 1873 (pp. 47–66, pl. 2; résumé, pp. 8–10). A brief