DISCUSSION AND CORRESPONDENCE.

MARINE ZOOLOGY IN THE HAWAIIAN ISLANDS.

TO THE EDITOR OF SCIENCE: At a time when zoologists are making their plans for summer vacation work it seems opportune to direct attention to the advantages offered even in such a distant territory as the Hawaiian Islands. During a visit to the islands last year, under the auspices of the Carnegie Institution, for the purpose of studying the living corals, I was afforded the privileges of the public aquarium recently established near Honolulu, and the directors of the institution desire it to be known that they will be prepared to accord a similar courtesy to other zoologists visiting the islands for purposes of research.

The aquarium is a modest structure, erected a little over a year ago, and is under the control of the Rapid Transit Company, though the funds were largely provided by the generosity of different gentlemen interested in the welfare of the islands. It is most advantageously situated at Waikiki Beach, a suburb of Honolulu, and the adjacent coral flats constitute most favorable collecting ground. Though no special appliances beyond exhibition and experimental tanks are available, yet the advantages of these and a constant supply of sea-water appeal to any student desirous of carrying out investigations on living forms. Moreover, with a generosity which is very praiseworthy, the directors are prepared to make whatever reasonable adaptations may be required.

Our knowledge of the marine fauna of the Hawaiian Islands is becoming rapidly extended, mainly through the reports on the collections made by the U. S. Fishery Bureau, under the direction of President D. S. Jordan, during the two successive seasons, 1901 and 1902. The large addition to the number of species of fishes alone shows how very desirable was such faunistic work, and other groups are yielding a corresponding number of new forms. The physical conditions of the coral reefs have been studied in part by Professor A. Agassiz. Though the luxuriance of the life on the reefs does not equal that in the more distant Tahiti, Samoa, or the Philippine Islands, yet there is sufficient, particularly in such places as Kaneohe Bay, to satisfy the most ardent investigator.

For the student of terrestrial forms the islands are particularly interesting on account of the influence of introduced animals and plants upon an indigenous fauna and flora. Representatives from the east and from the west, from temperate and from tropical regions, here flourish, and against the pests a strong corps of entomologists is engaged in further introduction of possible remedial forms. The fact that the land shells of the islands served to supply the Rev. J. T. Gulick with material for the theory of isolation adds an interest to the evolutionary biologist. The ethnology and various departments of natural history are well cared for by Professor T. H. Brigham, of the Bishop Museum, and his staff of assistants.

As a last word of attraction regarding the situation of the aquarium one may quote from the 'Report on Collections of Fishes made in the Hawaiian Islands' by Professor O. P. Jenkins:

> Of all situations about the island of Oahu, the submerged reef which extends from the entrance of the harbor of Honolulu to some distance past Waikiki furnishes the most prolific supply of fishes, both as to number of species and amount of the catch. This reef at low water is from a few inches to a few feet under water and extends from one mile to two or three miles from the shore, where the water abruptly reaches great depths. Over the surface and along the bluff of this reef may be found representatives of most of the shore fauna of the Hawaiian Islands. This reef, so favorably situated, so accessible, and so rich in material, can not fail to be of increasing interest to naturalists who may have the good fortune to devote themselves to the study of its wonderful life.

J. E. DUERDEN.

RHODES UNIVERSITY COLLEGE,
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THE GREENE EXPLORING EXPEDITION.

TO THE EDITOR OF SCIENCE: The W. C. Greene Exploring Expedition consisting of Robert T. Hill, John Seward, Frank H.

Fayant and E. O. Hovey has finished its first exploration of the northern part of the Western Sierra Madre Mountains of Mexico. A summary account of the first half of the trip, from El Paso to Guaynopita, has been given to the readers of SCIENCE. The second half of the journey was no less interesting than the first and was fully as productive of scientific observations.

Leaving Guaynopita by pack train on March 11, the first stage of the journey was the climb of 3,500 feet out of the Yaqui (Aros) cañon in which Guaynopita is located on to the great mesa out of which the mountains of the region have for the greater part been carved. The contrast in vegetation between different parts of this section may be illustrated by the statement that fan-leaf palms flourish in the gorges near the river, while on the high mesa one finds the great long-leaf sugar pine predominant.

Our course lay southward for sixty or seventy miles along the broad plains and narrow divides forming the mesa, or connecting different parts of it, and we had abundant opportunity of studying the topography of the great Tutuaca Cañon, which is tributary to the Yaqui (Aros), and of observing the contest for the drainage of the plateau between the streams flowing to the west and those flowing to the east. The dissection of the plateau is more pronounced toward the west, and our cross-section of the cañon of the Tutuaca River from its eastern boundary at the edge of the Mesa Venado disclosed acid and basic lavas, tuffs, agglomerates and conglomerates through six thousand feet of beds. The western rim of the Tutuaca Cañon is near the important Dolores mineral district. Some of the extensive igneous action has been accompanied and followed by strong mineralization of veins. At Dolores a fifteen-stamp mill of the most up-to-date construction is just being completed under the supervision of Manager J. Gordon Hardy for the treatment of the rich gold and silver ores of the Alma Maria vein by the direct cyanide process.

Near Dolores we turned southward again and pursued our course along a series of high mesas, divides, arroyos and river channels until we reached the little Indian town of Yepachic. In this part of our route we passed through three or four fertile ranches and at Yepachic found the people (Tarahumares and Pimas) living for the most part from the tillage of a small alluvial plain surrounded by low mountains. Here we turned westward again and within a few miles reached the Cerro Boludo (Bald Mountain) district, which, like several others on our route, is characterized by a mineralized quartz vein twenty to eighty feet wide which can be seen traversing hill and vale for miles.

Six or eight miles south of Cerro Boludo lies the little Mexican camp of San Francisco, where a diminutive two-stamp mill feeds a primitive arrastra as a preliminary to pan amalgamation of the gold. Thence the Ocampo trail leads over a divide and across the deep cañon of the Rio de Mayo, down into and out of the Rosario arroyo before the great arroyo is reached in the bottom of which, at the junction of two branch arroyos, is crowded the mining camp of Ocampo—a place better known by its old name of Jesus Maria. This is the site of many rich gold and silver mines, the most famous of which is the Santa Juliana.

From Ocampo to Miñaca, 100 miles, the trail crosses the high mesa, which has a gentle slope eastward and is partly dissected by comparatively shallow cañons of varying depths. Miñaca, the present terminus of the Chihuahua and Pacific Railway, is in a beautiful broad basin about 7,000 feet above tide, which is traversed by the headwaters of the Rio Verde, a tributary of the Yaqui (Aros) River.

At Miñaca our party took train for Chihuahua and thence went by rail to El Paso, completing our noteworthy circuit in the western Sierra Madre Mountains of northwestern Mexico. The circuit was not very long, compared with the mileage of some expeditions, but the results along lines of physiographic, dynamic and economic geology are of importance and will be published as soon as they can be put into proper shape, while the photographs taken illustrate as completely as prac-

ticable the phenomena observed. Among others the problems of buried mountains, bolsen deserts, mesas and the structure of the western Sierra Madres have had much new light thrown upon them, if they have not been solved. EDMUND OTIS HOVEY.

NEWSPAPER SCIENCE.

TO THE EDITOR OF SCIENCE: In the interest of the dignity of scientific research I wish to repeat the statement, made by me on a former occasion, that I have not authorized the sensational reports concerning any work; and that I am in no way responsible for the idiosyncrasies of our daily press.

JACQUES LOEB.

BERKELEY,
May 27, 1905.

A BIOGRAPHICAL DIRECTORY OF AMERICAN MEN OF SCIENCE.

THE undersigned is compiling a 'Biographical Directory of American Men of Science.' It was begun as a manuscript reference list for the Carnegie Institution of Washington, but arrangements have now been made for its publication. The book should be ready in the autumn, nearly 4,000 biographical sketches being in type. The proofs have been corrected by those concerned, but in order to secure as great accuracy as possible a revised proof will be sent in the early autumn.

This letter is written with a view to securing biographical sketches from those living in North America who have carried on research work in the natural or exact sciences but who have not received proof of a sketch for correction. Some of those who were asked to send the information required did not reply even in answer to a second and third request, and there are, of course, many who should be included in the work but who for one reason or another did not receive the request for information.

It is intended that each biographical sketch shall contain information, as follows:

1. The full name with title and mail address, the part of the name ordinarily omitted in correspondence being in parentheses.
2. The department of investigation given in italics.
3. The place and date of birth.
4. Education and degrees with dates.
5. Positions with dates, the present position being given in italics.
6. Temporary and minor positions.
7. Honorary degrees and other scientific honors.
8. Membership in scientific and learned societies.
9. Chief subjects of research, those accomplished being separated by a dash from those in progress.

The undersigned will be under great obligations to those men of science who will send him biographical sketches of themselves or who will secure sketches from those who should be included in the work—those who live in the United States, Canada, Newfoundland, Mexico or Cuba, and who have contributed to the advancement of one of the following sciences: mathematics, astronomy, physics, chemistry, geology, botany, zoology, pathology, physiology, anatomy, anthropology, psychology.

The compiler of the book hopes that any assistance given him to make it as complete and accurate as possible will be at the same time a contribution to the organization of science in America.

J. MCKEEN CATTELL.

GARRISON-ON-HUDSON, N. Y.

SPECIAL ARTICLES.

THE NOMENCLATURE OF TYPES IN NATURAL HISTORY.

PRACTICAL work in the arrangement and cataloguing of 'types' and other museum material has shown us that the present nomenclature is not yet sufficient for critically distinguishing all the different classes of such specimens. Further, some of the terms which have been proposed for the purpose are already employed in other ways: for instance, *homotype* is in use in biology; *monotype* is the name of a printing machine; *autotype* is the term for a printing process. We wish, therefore, to submit the following system of nomenclature; and we hope that, in making it more complete, we have provided a scheme which will render efficient service in the labeling and registration of types and typical material.