his wide-reaching suggestions have found so little favor among later naturalists.

"In order to prove that natural history is a language which we learn and listen to, to our entertainment and profit and instruction, he holds it essential to prove that it is *nothing but* a language; that the relations between living things and the world about them, being ideal relations, cannot possibly be physical ones also; that our 'laws of biology' are not 'necessary' but 'arbitrary.'"

The belief in Monism which Haeckel places first in his articles of scientific faith naturally wakens in Dr. Brooks little response. It is a philosophical expression wholly unrelated to reality. Whether it is the highest of all possible human generalizations or a mere play on words, science has no means of deciding, and man has no other court of appeal save his own experience.

I have already reached the limit of my space, while the majority of the passages I had marked for quotation are still untouched. The stones which Dr. Brooks has chosen as 'Foundations of Zoology' will remain there for centuries, most of them as long as human wisdom shall endure. The volume is a permanent contribution to human knowledge, the worthy crown of a life of wise thought as well as of hard work and patient investigation. If there are any errors in statement or conclusion, from one end of the book to the other, the present writer is not astute enough to find them out, and Dr. Brooks' logic may permit him at least to doubt their existence.

The biologists of America have long since recognized Dr. Brooks as a master, and this volume, the modern and scientific sequel to Agassiz's 'Essay on Classification,' places him in the line of succession from the great interpreter of nature, whose pupil and friend he was. David Starr Jordan.

Stanford University.

FIELD-WORK OF THE JESUP NORTH PACIFIC EXPEDITION IN 1898.

The Jesup North Pacific Expedition was organized in 1897 by Mr. Morris K. Jesup, President of the American Museum of Natural History, for the purpose of investigating the ethnology and archæology of the coasts of the North Pacific Ocean between the Amoor River, in Siberia, and Columbia River, in North America, the whole expense of the expedition being defrayed by Mr. Jesup.

During the year 1897 the field-work of the expedition was confined to the coast and interior of British Columbia. In 1898 the work was taken up on a more extended scale. Parties were in the field on the coast of the State of Washington, in the southern interior of British Columbia, on the coast of British Columbia, and on the Amoor in Siberia. On both continents ethnological work as well as archæological work has been done. While the parties in charge of the work on the American continent returned with the beginning of the winter, the work in Asia is being carried on.

The collections made by the various field parties of the expedition in 1897 are now on exhibit in the American Museum of Natural History. These collections represent the results of archæological work in the interior of British Columbia and on the coast. The ethnological collections are particularly full in regard to the tribes of Thompson River, of northern Vancouver Island, and of the central parts of the coast of British Columbia. The Museum has commenced the publication of the scientific results of the expedition in the form of memoirs. Up to this time two numbers have been issued—'Facial Paintings of the Indians of Northern British Columbia,' and 'Mythology of the Bella Coola Indians,' both by Franz Boas. Other results of the explorations in 1897 are in preparation, and will be issued in the course of the year.

Among these are the results of archæological work in the interior of British Columbia, by Harlan I. Smith; a description of the Thompson River Indians, by James Teit; and a discussion of conventional art among the Salish tribes, by Livingston Farrand.

The field-work of the expedition during 1898 was in the hands of Dr. Livingston Farrand and Mr. Roland B. Dixon, in the State of Washington and in southern British Columbia. The archæological work in British Columbia has been carried on by Mr. Harlan I. Smith. Investigations on the Indians of the southern interior of British Columbia were continued by Mr. James Teit. The ethnological work on the Amoor River, more particularly among the Gilyak, was carried on by Dr. Berthold Laufer, and archæological investigations in the same region were in the hands of Mr. Gerard Fowke. Following is a statement of the outline of the work of these parties, so far as available at the present time.

THE INDIANS OF WESTERN WASHINGTON.

In the plan of operations of the expedition along the northwest coast of the continent there was included from the beginning such research as might be needed to fill in certain gaps in our knowledge of the Indian tribes, from Vancouver as far south as the mouth of the Columbia River. The work of Gibbs, Boas, Eells, Willoughby and others had determined with considerable certainty the affiliations of the many tribes of this region, and in certain instances fairly complete information had been obtained regarding their customs, language, mythology, etc. There remained, however, a district on the west coast of Washington, from Cape Flattery to Grey's Harbor, of which little was known, and which promised valuable results upon investigation. It was consequently upon this region that the efforts of the expedition in Washington during the summer of 1898 were concentrated, the work being intrusted to Mr. R. B. Dixon, of Harvard University, and the writer.

The stretch of coast-line mentioned is about one hundred miles in length, and inhabited only at a few points, where the Indians have formed villages at the mouths of streams. South of Cape Flattery, which with its immediate vicinity is included in the Makah Reservation, the Indians of that coast are of two tribes—the Quilleute and the Quinault. The Quilleutes are the more northerly, occupying two villages; the larger, known as Lapush, at the mouth of the Quilleute River, about thirty miles south of Cape Flattery, contains all the members of the tribe except a few families who live at Hoh, a cluster of houses some fifteen miles farther south. South of Hoh the coast is uninhabited for about fifteen miles, as far as Queets, the more northerly of the Quinault villages, which contains but a few individuals; while twelve miles farther down the coast, at the mouth of the Quinault River, is the main seat of the tribe, known by the whites as Granville, which is a sub-agency of the Indian Department, with a resident agent and post-trader. The climate of this region is mild throughout the year, but with an extremely high rainfall from October to June. Being freed from the hardships of the severe winters of the interior, these coast Indians find it a comparatively easy matter to procure the necessaries of life at all seasons. The waters teem with salmon and other fish; shell-fish are abundant and much used; seal are hunted in the late spring, particularly by the Quilleutes, whose situation is more favorable for that purpose; and in the woods, which extend down to the beach at all points, deer, elk, black bear, and many varieties of small game, are abundant. The staple foods, however, of both tribes mentioned, are salmon (which are caught in great numbers with large nets,

dip-nets, and spears) and berries, gathered at the proper seasons and dried. Of late years, with the development of the salmon-canning and hop-growing industries in the regions about Puget Sound and the Fraser River, the life of these Indians has undergone a decided modification, due to the annual exodus of all able-bodied members of the tribes to secure work in the canneries and hop-fields. Employment is given to women, and even to children, and in prosperous seasons very considerable sums are earned by families, which money is, however, as a rule, promptly and not wisely spent at the nearest shop or trader's; and the Indians return to their homes in the autumn with little to show for their three or four months' labor except the experience, largely social, which is, after all, probably the great inducement which draws them to the work.

This absence of the Indians from their villages was the greatest obstacle to the work of the expedition in these two tribes.

Upon arriving at Lapush, about July 1st, it was found that the Quilleutes had gone in a body to the Fraser River for the fisheries, leaving behind a few men too ill to be carried, and enough women to look after their needs. Some days were spent in obtaining such linguistic information as was possible with the scanty material to work upon, and then, reports from the Quinaults being more favorable, the expedition proceeded to Granville, where some thirty individuals were found, the remainder having also gone to the Fraser River. The prospects being better at this point, it was decided to settle down and begin work. Measurements, casts, and photographs were obtained, as well as a mass of information regarding the language, customs, traditions, etc., of the people. As it was desirable to collect as large a series as possible of measurements and casts, it was decided early in August that Mr. Dixon should proceed to the Fraser River, and prosecute that work as well as might be under the rather unfavorable conditions presented. This he did with entire success, obtaining a very valuable series of casts and measurements, as well as notes on the languages of both the Quilleutes and Quinaults, and later visited the Lillooet Indians in British Columbia before returning East.

The writer remained at Granville for some weeks longer, making researches and collecting ethnological material for the American Museum of Natural History, and about September 1st returned to Lapush to meet certain of the Quilleutes who had returned, and obtain further information regarding that tribe. The members of the expedition returned to New York about Oct. 1st.

Of the results of the summer's work, aside from the collections made for the Museum, may be mentioned as of particular importance the casts, photographs, and measurements for a systematic study of the physical anthropology of the tribes; the linguistic material, which proves beyond question the stock affiliations of both groups, the Quilleutes being shown to be of Chemakum origin (the true Chemakum tribe, which formerly had its seat near Port Townsend, being now extinct), while the Quinaults are of the extensive Salish stock, which occupies nearly all of the territory about Puget Sound, and sends this offshoot north along the coast. The traditions of the tribes, of which full collections were made, are extremely interesting, exhibiting the characteristics of the traditions of the northwest coast in general, and showing particular affiliations with the immediately adjoining tribes. A great many of the stories are identical in every detail in the two tribes, except for slight changes of name, although the tribes are of totally distinct stocks, and the language of each is unintelligible to the other. The well-known myth of the 'transformer' is found well developed

in both instances, and the tales of the Raven as culture hero and trickster, so well known among the Indians farther north, are heard here among the Quilleutes, while the same adventures are told of Blue Jay among the Quinaults, as is the case among the Chinook and other neighboring peoples in the south. These traditions will form an excellent basis for a comparative study of the mythology of the region.

Particularly valuable information in regard to the conventional development of design in basket ornamentation was obtained among the Quinaults, bearing out the theory that the common geometrical figures which are used so much are almost invariably conventionalized representations of natural objects, and, as a rule, of animals. Notes on the social life and beliefs of the Indians were also secured, and observations made on the influence of the so-called 'Shaker' religion, which has been gaining a strong hold on the natives of that section during the last half-dozen years. In general it is hoped that the work of the summer will contribute very materially to the solution of many of the problems, general and special, which are offered by the Indians of the Northwest.

LIVINGSTON FARRAND.

ARCHÆOLOGICAL INVESTIGATIONS ON THE NORTH PACIFIC COAST OF AMERICA.

THE archæological work conducted on the northwest coast of America, prior to the organization of the Jesup North Pacific Expedition, was not extensive. The available knowledge concerning it is largely confined to three publications—two by Dr. William H. Dall, on cave and shell-heap remains of the Aleutian Islands; and one by Mr. Charles Hill-Tout, a *résumé* of the archæology of the southwestern portion of British Columbia.

The archæological investigations which I carried on in connection with the Jesup Expedition during the past two years dealt chiefly with two problems: (1) examining the archæology of the southern interior of British Columbia; and (2) investigating the shell-heaps of the coast of Vancouver Island, together with those of the adjacent mainland.

In the southern interior of British Columbia, more particularly in the valleys of the Thompson and Fraser Rivers, now live tribes of the Salish Indians. This region is one of almost desert dryness. The houses of the Indians are covered with a roof of timbers and earth, and are partly underground. Unlike the tribes of the coast, who have such an abundance of the few staples —cedar, seal, salmon, and shell-fish—that they depend almost exclusively upon them, these people have to resort to a great variety of natural resources. Primarily among them may be mentioned the deer, which furnish them with skins for clothing, flesh for food, and bone and antler for implements. The sagebrush-bark is used for textile fabrics. Salmon are taken for food in the rivers, and berries and roots are obtained in the mountain valleys. Many objects are made of stone. They bury their dead in little cemeteries along the river, although an isolated grave is sometimes seen. Their method of burial in the ground, instead of in boxes deposited in trees, in caves, or on the ground, the conical form of their lodges, and their extensive use of chipped points of stone rather than of those ground out of stone, bone, and antler, ally their culture with that of the tribes of the East, and differentiate it from that of the coast people. None of the native peoples of British Columbia make pottery, and no pottery has been found by archæological work. Food was boiled by dropping hot stones into baskets or boxes containing it.

The archæological remains are found in the light sand of the valleys and hillsides. The wind is continually shifting this dry