THE JESUP EXPEDITION TO THE NORTH PACIFIC COAST.

IT will be remembered that in the spring of this year Mr. Morris K. Jesup, President of the American Museum of Natural History, provided the means for a thorough ethnological investigation of the northern portions of the Pacific coasts of Asia and North America.

It was decided to begin field work on the American coast, and in May a party consisting of Dr. Franz Boas, Dr. Livingston Farrand and Mr. Harlan I. Smith left New York in order to carry on anthropological investigations in British Columbia. In previous years the Committee of the British Association for the Advancement of Science appointed for studying the tribes of northwestern Canada had carried on investigations in British Columbia. This committee was about to conclude its field work. Since the territory in which the operations of the Jesup Expedition are to be conducted embraces the field of work of the committee, it seemed desirable to have the operations of both parties conducted on a common plan. The committee was desirous of completing its anthropometric survey of British Columbia and to obtain information on the Tinneh tribes of the interior of that Province. This work was entrusted to the party of the Jesup Expedition and has been done by Dr. Farrand and Dr. Boas.

During the past season the work of the Jesup Expedition was directed mainly to an exploration of the prehistoric remains of British Columbia, to a study of the Bella Coola Indians and of the northern Kwakiutl Indians. A special study of the art of the Indians of the North Pacific coast was included in the plan of work. In all these directions good progress has been made. The work was divided in the following way. Mr. Smith was charged with the archæological investigations; Dr. Boas and Dr. Farrand collected anthropometrical data, and Dr. Farrand undertook the study of the Chilcotin for the British Association for the Advancement of Science, and later on carried on inquiries on the sociology of the northern Kwakiutl. Dr. Boas investigated the Bella Coola Indians and later on studied the art of the northern tribes. He concluded his work with a study of the language of the northern Kwakiutl. In British Columbia Mr. James Teit and Mr. George Hunt joined the party, the former to assist in work on the Thompson River Indians, the latter to assist in work among the Kwakiutl tribes. Mr. Teit has promised to furnish for the expedition a description of the Thompson River Indians. Mr. Hunt's services were of the greatest value on account of his intimate knowledge of the Kwakiutl language and of the customs of the people.

The result of this summer's work may be summarized as follows: Mr. Smith investigated archæological remains at four points: at Kamloops, Spence's Bridge, at the famous burial ground at Lytton and at Port Hammond.

The remains found at Kamloops belong to a number of periods preceding contact with the whites. In all the sites objects made of shell, copper, bone and stone were found. The general shape of these objects suggest that the people using them were the immediate ancestors of the tribes inhabiting these regions at the present day. Most of the material was found buried in shifting sand, owing to which fact the original order has been much disturbed.

The remains found at Lytton were of a character similar to those found at Kamloops. While a thorough investigation of the finds may show that there existed differences in the cultures of these regions, the general characteristics of the material are much alike. In both places the

finds were made in ancient burials or in caches.

At Port Hammond Mr. Smith investigated a number of shell heaps. These have a thickness of $4\frac{1}{2}$ feet or less, and the remains found in the heaps were ascertained to be not intrusive. A number of skeletons and well-preserved artefacts were found. There is no difference in the character of the objects found in the lowest layers and in the higher layers. Judging by the size of trees growing on the shell heaps, these sites must have been deserted for a considerable length of time, but there is no evidence pointing to a very great antiquity of the remains. Further conclusions cannot be drawn until the material obtained in these localities has been subjected to a thorough investigation.

Dr. Boas' investigations on the Bella Coola gave some results of considerable interest. Previous inquiries had shown that the Bella Coola possess a highly developed mythology. Further studies have shown that they are the only tribe on the North Pacific coast that have systematized their mythology. While among them we find most of the elements of the mythologies of the neighboring tribes, this material has been so elaborated that instead of a multitude of spirits we find a number of deities, each with its proper functions. The Bella Coola believe that there are five worlds, an upper heaven over which rules the supreme goddess Qamaits. The lower heaven is the home of a number of deities, the most powerful of whom is the sun, called by the Bella Coola 'Our Father' and 'The Sacred One.' The deities reside in a house located in the zenith. It is called 'House of Myths.' The thoughts of these deities are put into action by four brothers, who live in a separate room in the rear of the house. Here also reside ten brothers, to whose care the winter ceremonial is entrusted. The sun walks from east to west every day. In the east in heaven sits the 'Bear of Heaven,' watching the 'Place of Dawn.' On the west is the pillar, which prevents the sun from passing into the lower world. Twenty-four watchmen are appointed to look after the sky and to keep it in good order. Three others fly around the sun watching his course. At winter solstice and summer solstice are stationed two watchmen, whose duty it is to prevent his tarrying at those places. Our own world—the earth—is an island in the ocean. In the far east a god is sitting, who holds a strong bar in both his hands. Stone ropes are tied to this bar by means of which the earth is held in place. In the far west is the salmon land. The world underneath ours is that of the ghosts. Everything there is the reverse of what it is here. The ghosts walk on their heads. When it is winter here it is summer there, When it is daylight here it is night-time there. The deceased may return to life by being born again. When a ghost dies his soul goes to the lowest world, from which there is no return. The year is divided into two periods. In summer the 'canoe of the salmon' stays in our world. In October it returns to the salmon country and at the same moment the 'canoe of the winter ceremonial' arrives. As soon as this canoe reaches the banks of the river the whole tribe embark and are conveyed to the 'House of Myths,' in heaven. At the same time the female spirit of the winter ceremonial, of which there is one for each village, leaves her abode in the mountains and shows herself. At the time of the winter solstice the 'canoe of the winter ceremonial' returns and the 'canoe of the salmon' arrives from the salmon country. These mythological ideas are the foundation of the calendar of the people, which has twelve months, two indefinite periods around the solstices and five months between the solstices.

The traditions of the Bella Coola are, to a great extent, totemic. Only members of the clan have the right to relate their traditions and to use the carvings based on their traditions. This has led to a system of endogamic marriage which was intended to prevent the acquisition of clan rights by other clans. This system is breaking down under the influence of the Kwakiutl system of exogamic marriage.

Investigations on the art of the Indians were mainly based on the consideration that the process of conventionalization will probably progress the farther the more difficult the treatment of the surface to be decorated. It seemed that no surface offers greater difficulties than the human face, and for this reason a considerable number of facial paintings were collected. The results of this collection met the expectations, since a number of highly conventionalized designs, some of purely geometrical character, were obtained. In addition to these a number of designs from house fronts and from edges of blankets were obtained.

The studies on the languages of the Kwakiutl Indians cannot very well be summarized in a few words. Texts were obtained in two dialects, the Awikyenok and the Kwakiutl proper, which will probably form a satisfactory basis for a full treatment of these dialects.

On account of the difficulties encountered in previous work on the physical characteristics of the tribes, it was deemed desirable to base the work on better material. Previous collections consisted of measurements and brief descriptive notes of types. These latter proved to be very unsatisfactory on account of the vagueness of the terms employed. Photographs obviate this difficulty to a certain extent, but not adequately, owing to the effects of perspective forshortening. For this reason it was deemed desirable to try if the subject can be treated more advantageously by means of a systematic collection of plaster casts, which will facilitate comparison. This seemed particularly important, since the study of the physical types of the coast of the North Pacific Ocean must form one of the most important subjects of investigation of the Jesup Expedition. A series of one hundred casts have been obtained, representing four distinct types of British Columbia. The collection will be subjected to a critical examination in order to ascertain the usefulness of the method of investigation. The collection was made by all the members of the party. Each cast is accompanied by four photographs of the subject on a scale of about 1:5, front view, two profiles and one half profile. These photographs were taken by Mr. Harlan I. Smith.

Dr. Farrand, in his work among the Chilcotin, obtained considerable ethnological information, both as regards mythology and general customs. In both these fields striking evidence of the influence of contact with neighboring tribes was found; thus in certain myths details of clearly coast origin, along with those bearing unmistakable marks of the interior, were found grafted upon otherwise independent Chilcotin stories. In social organization the Chilcotin, unlike the Tinneh tribes immediately to the north of them, show few signs of coast influence. No traces of clan organization were seen. Recognized relationship was regarded as a bar to marriage, but this recognition was apparently not carried further than cousins of the first degree. The general condition and habits of the tribe have been greatly changed during the last thirty years, owing to the establishment of reservations upon which most of the people have been settled who thus abandoned the wandering life to which they were formerly accustomed. A few families

still decline to come in to the reservations and keep up their old semi-nomadic life in the mountains.

As to the social organization of the Heiltsuk it was found that the tribe contains four clans—the eagle, wolf, raven and killer whale. There is nothing corresponding to the phratries of tribes farther north, but the individual clans are strictly exogamous, and marriage is also forbidden with members of corresponding clans in certain other tribes. Descent is mixed, maternal and paternal, but preference is shown for the clan of the mother. In the case of a single child it almost invariably takes the maternal clan. There were formerly three social classes—nobility, common people and slaves. The nobility or chiefs were of different ranks, higher position being obtained by means of the potlatch. A member of the lower classes, however, could never obtain nobility.

A very considerable number of specimens were collected by the expedition which will materially increase the scientific value of the collections from the North Pacific coast in the American Museum of Natural History. The new material consists mainly of archæological collections from Kamloops, Lytton and Port Hammond; an ethnological collection from Spence's Bridge, another one from Chilcotin Valley. From the northern part of the coast a very full collection of masks and carvings illustrating mythology of the Bella Coola was obtained. Another collection illustrates the arts and ceremonials of the Kwakiutl and of the Nootka. Finally the large collection of casts and photographs of Indians must be mentioned.

Ethnology is deeply indebted to Dr. Jesup for inaugurating this important investigation, which, we may hope, will help to settle finally a number of the most difficult problems regarding the early history of mankind.

*EXPERIMENTAL MORPHOLOGY.**

In looking at the progress which has been made in the study of plant morphology I have been as much impressed with the different attitudes of mind toward the subject during the past 150 years as by the advance which has taken place in methods of study and the important acquisitions to botanical science. These different view points have coincided to some extent with distinct periods of time. What Sachs in his 'History of Botany' calls the 'New Morphology' was ushered in near the middle of the present century by Von Mohl's researches in anatomy, by Naegeli's investigation of the cell and Schleiden's history of the development of the flower. The leading idea in the study of morphology during this period was the inductive method for the purpose of discerning fundamental principles and laws, not simply the establishment of individual facts, which was especially characteristic of the earlier period when the dogma of the constancy of species prevailed.

The work of the 'herbalists' had paved the way for the more logical study of plant members by increasing a knowledge of species, though their work speedily degenerated into mere collections of material and tabulations of species with inadequate descriptions. Later the advocates of metamorphosis and spiral growth had given an impetus more to the study of nature, though diluted with much poetry and too largely subservient to the imagination or idealistic notions.

But it was reserved for Hoffmeister,† whose work followed within three decades of the beginnings of this period, to add to the

*Address of the Vice-President before Section G—Botany—of the American Association for the Advancement of Science, Detroit, 1897.

† Bibliographical details will be appended when the address is published in the Proceedings of the Association.