EXPEDITIONS TO THE ALASKA MILITARY HIGHWAY 1943-1944

The Alaska Highway, for many years an apparently unattainable dream of American travellers and vacationists, has suddenly, under the necessity of war, become an actuality. It is not yet open to the general public, but presumably it will become so after the war. Public interest in the building of the road, and pride in its accomplishment are taking form in hopeful plans—millions of them—for automobile trips to northern British Columbia, Yukon or Alaska. Perhaps few people have realized, however, that the road opens to naturalists some of the most inaccessible areas of northwestern America—vast stretches of wilderness situated between the Mackenzie and Yukon River basins, and in southwestern Yukon and adjacent Alaska. The opening has taken place rapidly, rather than by slow stages, so that nearly all of the new highway is through a relatively unmodified and unspoiled wilderness. Before the building of the road the only inhabitants were a few scattered Indians, and an occasional trapper or trader. Only a few hardy prospectors and geological surveyors, and still fewer students of plants and animals, had made hurried and expensive trips into the more remote districts. The solutions for a whole series of problems having to do with the systematic relationships and geographic distribution of the fauna and flora, the structure and development of biotic communities, and the migrations of plants and animals, including prehistoric man, have awaited an examination of these regions.

In addition to the more purely scientific attractions of the highway, it presents also some unique opportunities in applied biology. One of the greatest problems in modern studies of land utilization and the reasonable conservation of our natural biological resources is the difficulty of estimating long-term natural potentialities in the land. One of the best clues to a solution of this problem, and very often the only one, is in the kind and distribution of native vegetation and animal life under the conditions that obtained before the coming of white men. Those who have tried to gather such information for regions that have long been
under settlement are keenly aware of the unsatisfactory nature of the scattered material that has to be sifted laboriously out of early records. Most such records were made by persons whose knowledge of natural history was extremely sketchy, and who could not dream of modern ideas and methods. The new road therefore offers an extraordinary opportunity to describe a vast new region in terms that should be of use in setting up a rational program of biological exploitation.

The Arnold Arboretum, in collaboration with certain other institutions, sponsored two expeditions to the Alaska Highway in the summer seasons of 1943 and 1944. In 1943 approximately the southern two-thirds of the road were covered, between Dawson Creek, B.C., and Whitehorse, Yukon, while the journey of 1944 extended the survey from Whitehorse to the Alaska terminus at Fairbanks. The field party of 1943 included, in addition to the writer, Dr. Charles S. Denny, who was then at Wesleyan University in Connecticut, but who is now with the U.S. Geological Survey at Washington, Dr. Donovan S. Correll, then of the Botanical Museum at Harvard, Mrs. Lucy G. Raup, and Karl and David Raup. Dr. Correll collected mosses and served as assistant in handling the vascular plants, while Mrs. Raup collected the lichens. Dr. Denny is a geologist whose primary purpose was a survey of the glacial features of the region. In 1944 Mrs. Raup continued the lichen collections and served as general assistant in all of the botanical work, as did also the two boys, Karl and David. Dr. Denny’s geological investigations were ably carried forward by Mr. John H. H. Sticht of the Department of Geology and Geography at Harvard. A highly interesting and diverting phase was added to the work during the second season by Mr. Frederick Johnson, an archaeologist and anthropologist of the Robert S. Peabody Foundation for American Archaeology at Andover, Massachusetts. Dr. Stuart K. Harris of Boston University served as cook to the expedition of 1944. At the same time he collected birds and small mammals and occasionally assisted with the plant collecting.

The two trips were financed by generous grants from several sources. In addition to the Arboretum’s contributions, the botanical work was supported by grants from the Milton Fund at Harvard, the American Philosophical Society, the American Academy of Arts and Sciences, the National Academy of Science, and the Society of the Sigma Xi. In both seasons the geological work was supported financially by the Geological Society of America, and the expenses of Mr. Johnson’s archaeological studies were paid for by the Peabody Foundation. Invaluable assistance was given by the Department of Mines and Resources in Canada, principally through the loan of field equipment.

Even with adequate financial assistance, the expeditions would not have been possible at all had it not been for the all-important transportation facilities that were supplied by the Northwest Service Command of the United States Army. Arrangements for this were made through the Joint Economic Committees of Canada and the United States, an organization that was formed in June, 1941, in part for the purpose of gathering and correlating information on the natural
resources of western Canada and Alaska. In fact our two expeditions were originally suggested by representatives of the Joint Economic Committees, and were carried out under the combined auspices of the Committees and the Arnold Arboretum. The Army command supplied the field parties with all necessary transportation on the highway, and made it possible to purchase subsistence supplies from the Army depots. It would be difficult to express too great an appreciation of the efficiency and good will with which the officers and men of the Army carried out their part in the program.

With the exception of the means of transport the parties were quite independent so far as living facilities were concerned. There are no regular stopping places for unattached civilians along the road, so that a complete set of camping gear had to be carried. Only on rare occasions was it possible to find bunk space in barracks or in abandoned construction camps. During the period of active construction excellent meals could be had at the civilian labor camps, but later this became nearly impossible.

The Alaska Highway can be reached from the outside world by four routes. The easiest is by way of Edmonton, Alberta. From here there is both a railway and an automobile road to Dawson Creek, B.C., which is the southern terminus of the highway. A second route is by way of Skagway, Alaska, which is reached by boat from Seattle, Vancouver, or Prince Rupert. A narrow-gauge railway, the "White Pass and Yukon," leads from Skagway to Whitehorse and so to the highway which passes westward through the latter place. The third route is by boat to Anchorage, Alaska, and thence by the Alaska Railway to Fairbanks. The fourth is by boat to Valdez and then by the Richardson Highway to Big Delta, a place on the new highway about 100 miles east of Fairbanks. There is now an alternative to this last route, by a new road leading from Gulkana to Slana and finally to Tok, which is on the main highway in the upper Tanana Valley.

In 1943 our party left Dawson Creek on June 8th and made its first base camp at the Beatton River, about 150 miles north of Dawson Creek. There it remained until July 4th. The Beatton River crossing is in the outer foothills of the Rockies, at an altitude of about 3200 feet. Many shrubs and trees were just breaking their winter buds there in the second week of June, and frosts were not uncommon at night. The next base camp was at Summit Pass, where the highway runs westward through the front range of the Rocky Mountains. The altitude in the pass is about 4200 feet above sea-level, and within about 300 feet of the mountain timberline. The situation proved exceedingly favorable for alpine collecting, and we stayed there from the 7th to the 28th of July.

The next camp, from July 30th to August 7th was at Watson Lake, in the plain of the upper Liard valley. A few collections were made enroute there from Summit Pass, notably at a hot spring near the lower crossing of the Liard River. Whitehorse was reached on August 9th, but the party stayed there only long enough to replenish supplies, and left on the afternoon of the 10th for the return
trip. The last camp of the season at which large collections were made was at a point between Little Atlin and Teslin Lakes, where the road passes between two precipitous mountains. By August 21st, when the expedition left this place, the season was well advanced, with hard frosts occurring frequently. The time between August 21st and Sept. 5th was given to a rather leisurely trip back to Dawson Creek, with frequent stops for pictures, notes, and miscellaneous collections.

The 1944 expedition left Boston on May 31st and went directly to Whitehorse by way of Vancouver and Skagway. After transportation and supplies had been arranged for at Whitehorse, the first base camp of the season was made at Pine Creek, about 100 miles to the west. This is in the valley of the Alsek River, close up to the northern base of the Coast Range. About 2½ weeks were spent here, from June 14th to 30th, and then a new camp was set up near the eastern end of Kluane Lake. Kluane Lake proved to be quite rich in archaeological and geological as well as botanical interest, and was used as a center of operations until July 26th. From there we drove directly to Fairbanks, where we remained from July 28th to August 1st. A base camp was then established in the Tanana Valley about 180 miles east of Fairbanks, and collections were made from neighboring valleys, hills, and mountains. August 16th and 17th were spent travelling again, this time back to Burwash Landing which is near the western end of Kluane Lake. About a week was devoted here to the last serious collecting of the season. Frosts had already come, and most plants had matured and lost their seed. Three days were used for a fine trip by boat to the north shore of the lake and to the head of a long northern arm that reaches some 20 miles back into the mountains.

Two or three days were devoted to fall collecting and a search for Indian artifacts at Pine Creek, the scene of the first camp of the season. On returning to Whitehorse, we did not retrace our route back to the United States by way of Skagway and the coast, but continued on down the highway to Dawson Creek. This was a leisurely trip similar to that of the fall of 1943, with frequent though brief stops along the way. The weather was fine, and the frosts had brought out the autumn color in all its glory. Days or parts of days were spent at Teslin Lake, Watson Lake, Muncho Lake, and Summit Pass. A camp of several days was made at the Buckinghorsse River, and, finally, three days at Dawson Creek saw the party packed and ready for home.

The road itself is remarkably good. It is of ample width and well-graded, with a gravel surface. The original track had some bad hills and turns, but with local straightening and rerouting most of these have been eliminated. The distance from Dawson Creek to Fairbanks is about 1600 miles.

In terms of landscape the region of the highway can be divided roughly into eight districts. At the southern end it begins in the agricultural country of the upper Peace River, where broad expanses of gently rolling arable land, at an al-

PLATE VII. Natural prairie in valley of Pine Creek, about 100 miles west of Whitehorse. View southward across the Alsek valley to the Dezadeash Mountains.
titude of about 2000 feet, are separated by remnants of ancient plateaus that rise a thousand feet or so higher. Northward from Ft. St. John the road soon leaves this country and rises to the higher plateaus and outer foothills of the Rockies. It remains at elevations ranging from 3000 to 4000 feet for about a hundred miles, then descends gradually to the Muskwa River at Nelson. There are some fine views westward in this area, for the road follows in many places the western rim of a high escarpment from which one looks across a broad valley to the high peaks of the mountains.

Summit Pass is about 100 miles west of Nelson. It is reached by way of the north fork of the Tetsa River which rises in the Pass. Scenically this is one of the more striking areas along the highway. Towering limestone mountains whose summits reach to about 7000 feet above sea level stand on either side, with still higher peaks a short distance back. Two small lakes in the pass add greatly to its charm. The Tetsa valley and the pass mark the beginning of the third topographic district. It is ruggedly mountainous and extends northward about 120 miles to the lower crossing of the Liard River. The scenery is beautiful throughout most of this stretch, particularly in the Toad and Trout River valleys. Muncho Lake, at the head of the Trout River, is especially attractive.

The fourth district is the broad upper basin of the Liard River, traversed by the road from the lower crossing which is near the mouth of the Trout to beyond Watson Lake and the upper crossing. The surface of the Liard Plain is for the most part gently rolling, with the mountains visible from the road only in the distance or not visible at all. It is continuously forested, and after the breathtaking scenery of the Rockies is apt to be monotonous to the traveller. Watson Lake, however, is a delightful place in spite of the low relief of the surrounding country. Other points of interest are the hot spring near the lower crossing, and Lower Post, an old trading establishment along the Liard near the mouth of the Dease River.

After leaving the Liard plain the road winds westward up the valley of the Rancheria River to the continental divide in the Stikene Mountains. These mountains are not so rugged as the Rockies, and differ markedly in form because they are of igneous rocks. The divide itself is not a spectacular pass, but rather a broad upland marked by muskegs, lakes, and rather low mountain summits. The road descends the western slopes by way of the Swift River valley.

The sixth topographic district is the great lake country of the upper Yukon basin. Teslin Lake is the first large body of water met with as one goes from east to west. This is a narrow lake some 90 miles long, surrounded by low mountains in the northern part. The highway follows its northeastern shore for about 40 miles, then turns westward across the Teslin River. From here on there is a succession of lakes—Squanga, Little Atlin, Marsh—to within a few miles of Whitehorse. Whitehorse is on the Lewes River, at the head of navigation on the Yukon system. West of this place the route leads across a plateau country to the Alsek
River valley. Beginning about 50 miles west of the town, semi-open prairie country appears, with lofty snow-covered peaks in the background. The only large body of water encountered beyond Whitehorse is Kluane Lake, situated in the mountains about 50 miles beyond the Alsek. The whole region of the Dezadeash valley and Kluane Lake is perhaps the most charming section traversed by the entire highway. It has greater variety in color, form, and vegetation than any other district. The prairies and alpine meadows are veritable gardens, set in the most picturesque mountain landscape imaginable.

Beyond Kluane Lake the road crosses a series of large streams that issue from the high ranges to the south and finally find their way into the Yukon. These are the Duke, Donjek and White Rivers, all with deep valleys and broad gravel beds. West of the White the route leads through a wide region of lakes and muskegs to the Alaska border and the upper Tanana valley. Scenically this section is rather uninspiring, but it has great topographic significance because in it the transition is made from a glaciated to an unglaciated region. The surface becomes more subdued in relief, and the hills have long rounded slopes with V-shaped valleys between them. The upland valleys are broad, with gentle, even slopes to the lakes or streams that occupy them. The whole surface is a "mature" one, developed by a long period of erosion and solifluction (movement of soils under the influence of frost) without the effects of glacial scouring or deposit.

The last notable topographic division is the Tanana valley itself, which the road follows all the way to Fairbanks. It is a broad valley, bounded on the north by the unglaciated Yukon Plateau, and on the south by the mountains of the Nutzotin and Alaska Ranges. These mountains, with one exception, appear only in the distance on the southern horizon. The exception is between Tok and the Robertson River, where the route leads up to the base of the slopes. Southern tributaries to the Tanana, rising in the mountains, carry enormous quantities of gravel which they have deposited in huge fans in the main valley, pushing the river over to the north side. The highway, on the south side, traverses one after another of these great fans, whose even surfaces and ample road materials have made possible long straight stretches, often 20 miles or more in length.

The scientific results of the two expeditions are somewhat varied, but their general significance is greatly enlarged, we believe, from having been gathered in an active field collaboration among botanists, glacial geologists, and an anthropologist. The first of the basic objectives was a description of the natural flora and its distribution along the highway. To this end some 4100 field numbers of plants were collected, involving approximately 25,000 specimens. Accompanying descriptive matter includes an account of forest types seen along the road, most of it in mile-by-mile notes. This is correlated with similar records of the principal soil types and topographic features. More detailed studies of local distribution and soils were made in the neighborhood of base camps, with special reference to the influence of soil frost upon the development of topography and vegetation.
Particular attention was given to the interpretation of aerial photographs in those parts of the area for which they were available. The geologists set out to describe the glacial phenomena of the country along the highway, with a view to fitting them into the general pattern of Pleistocene and post-Pleistocene events, or to setting up a new pattern if this should prove necessary in the light of new material. Topographic phenomena related to soil frost were given special attention, for they loom large in this subarctic wilderness. The anthropologist found his primary interest in a search for evidence of prehistoric man—this to be related on one hand to the early history of man in America, and on the other to the present distribution and living habits of the Indian tribes of the region.

An integral part of all these scientific aims and results was a search for ways in which the vast wilderness opened by the highway can be put to use by modern Americans. Even if the road is no more than barely maintained to service the great modern airports that have been established along it, a great many people will have to live either in camps by the road or at the airports themselves. What portion of their necessary food, shelter and materials of abode can these people find in the country? And are there any native resources that can be exported profitably? In addition to beginning a general biological description, our two expeditions have looked for evidence of agricultural potentialities, and have attempted to evaluate forest resources. Notes on the latter take the form not only of descriptions of existing timber, but also of attempts to unravel the history of the present stands and to predict the course of future development. In these practical aspects, the work of our expeditions supplements that carried on at the same time by the Geological Survey of Canada in the field of mineral resources, and by the Canadian Department of Agriculture in its survey of soils. Not since the early days of pioneering and railroad building in the West has so huge a territory been made available for exploitation in so short a time. The primary ideas on what could be done in the way of biological exploitation rested then, and must rest now, on a clear understanding of the natural biological resources of the country.

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