1900

Biological Station Summer Session, 1900

University of Montana (Missoula, Mont. : 1893-1913)

Flathead Lake Biological Station

[1900]

University of Montana Biological Station

AND

SUMMER SCHOOL OF SCIENCE

SECOND ANNUAL SESSION

To be Held at Flathead Lake, August 6 to Sept. 1.

With a collecting trip among the Mission Mountains and along the lake during July.

VIEWS AT AND NEAR THE LABORATORY.

The station was planned for the purpose of extending to the people of the state interested in such work an opportunity for original and investigative work on the fauna and flora of the state, and at the same time to offer to the students and teachers of the state a chance

to collect and preserve material for their own or for class use. The object is, therefore, not to see how many people may be brought together for a month, but to do as much as possible toward working up the resources of the state. In the original plan there was considered the possibility of making a study of the fish and fish food of the lakes and rivers of the state; of making a systematic study of groups of insects, birds and plants, not only from an economical standpoint, but also from the standpoint of pure science. Obviously such a plan cannot be carried out in a year or two, but will offer work for an indefinite time, and to a large number of workers. Such a plan is in harmony with the general work of the University of the State, and will add materially to the collections of the Museums and to the opportunities and facilities for work on the part of many who cannot attend the regular sessions of the University.

The site chosen for the station is on the bank of Swan or Big Fork River, near the outlet, on land adjoining the Flathead Club grounds. It is expected to work in this locality a few seasons and then move to a new field. A piece of ground of some five acres has been leased for a number of years, and a small laboratory, 18x24, containing a small store room, a dark room, and tables for twelve students, was built on the bank of the river and close to a large spring of pure water. The ground is well adapted for camping, and board of excellent quality may be had at private families if desired. As the work progressed the wisdom of the choice of location became apparent. At this point the river offers a perfect harbor for boats. Fishing is excellent. Birds are exceedingly abundant. A few hours walk and one can reach Swan Lake, Echo Lake, Mud Lake, and in the region of Kalispell many other lakes are to be found. The Lewis and Clarke Forest Reserve extends almost to the Station, offering special inducements in some lines of work. It is but a couple of miles to Flathead River, and the region north of the Station is a rich agricultural and fruit country, whose merits are very imperfectly known. The river immediately above the station is a series of cataracts for a distance of two miles, the water a sheet of foam coming down with a roar heard day and night for miles.

The location of the station at Flathead Lake is ideal. The lake is thirty-two miles long, and at its widest part fifteen miles wide. A steamer runs from Demersville on the north to the foot of the lake

on the south three times a week. The altitude is about 4,000 feet. Flathead and Swan rivers flow into the lake from the north, the Pend O'Reille flows out of the southern arm. Numerous creeks, arms of the lake, swamps, forests and valleys are close to the station, which is on the northern shore, offering abundant opportunity for littoral, land, and aerial faunas. Flanknig it all the Mission mountains, with snowclad summits and living glaciers, the home of the goat and the sheep, extend the entire length of the lake and valley. The Mission mountains have become famous for their beautiful scenery, charming Alpine lakes, rugged and jagged peaks and beautiful falls.

Material Equipment of the Station.—The laboratory has been mentioned. It is a substantial frame structure, well suited to outdoor work. A gasoline launch has been purchased. This launch is 16 feet long, 4 feet beam, and will carry eight persons. It is an absolute necessity for work on the lake. It has canopy top and side curtains, with lockers on the sides. The launch has been named the "Missoula," in honor of the generous citizens who have given such cordial support to the enterprise. A second boat—a row boat—will carry three people, and is the best and easiest row boat on the lake.

A canvas boat will be provided for use in the mountain lakes, where it is impossible to transport a wooden boat. For taking fish there is a Fyke net with several hoops, and a 15-foot wing on either side. A plankton net, after plans of Kofoid, is used for microscopic water life. For taking insects, nets and dredges are provided. In botany everything necessary for collecting, pressing and preserving plants is provided for use. Microscopes, necessary chemicals, books, and other items for use are taken from the University laboratory for use of those in attendance at the station. For determination of altitudes there are both mercurial and aneroid barometers.

What May be Done.—The work offered this summer will be as follows: Teachers in High Schools or in Nature Study will be given every facility in collecting and preserving material for class use. A general course may be pursued in either Botany or Zoology, involving a study of the life in the immediate vicinity. A course in Entomology will be given, including instruction in collecting and preserving. A similar course will be offered in Ornithology, includ-

ing instruction in preparing skins. There will be a course in systematic Botany. To those prepared for it, a course in Geology will be offered, as the region presents exceptional opportunities in this line. In all cases the work will be largely practical and in the field.

For those who are ready to take up special work in particular lines the following fields are open: A study of the effect of environment on life; the life history of the mosquito; the fish and fish food of the lake and its tributaries; work on particular groups of insects, birds, and microscopic forms; the history of the lake; the glaciation of the region; Flathead Lake, its contour, depth, utility, etc. The region affords abundant opportunity for work with a camera, both for recreation and as an aid to scientific work. For those wishing to use a camera necessary chemicals will be provided, but students must provide their own dry plates.

A few tables will be set apart for investigators, supplied with microscopes and the usual stains and reagents. A number of microscopes will be supplied for use in the general work. Every opportunity and facility will be given students attending to make and prepare collections of specimens in any quantity, either for their own use or, if teachers, for the use of their classes.

Those Who Have Charge of the Work.—The director will have general supervision, will give instructions in collecting and preservserving material, and will conduct and outline the work in the study of the life of the lake. The director is responsible for the management of the station, and will make every effort possible to make the work profitable and pleasant.

Prin. P. M. Silloway, of the Fergus County High School, at Lewistown, willl conduct the work in general zoology and ornithology. His former connection with the Biological Station at Havana, Ill., is ample assurance that this work will be in good hands.

Prof. L. A. Youtz, of the Montana Wesleyan University at Helena, who has been working up the microscopical life of the lake, will continue that work, and will conduct the study of these lower forms. He will also conduct the work in geology.

Expense.—It is intended to make the work of the station as nearly free as possible. The expense of freight, boats, gasoline, microscopes, chemicals, glassware, etc., is no small item, and is for the most part given gratuitously. Each student in attendance will pay for material consumed and will be supplied with all needed material,

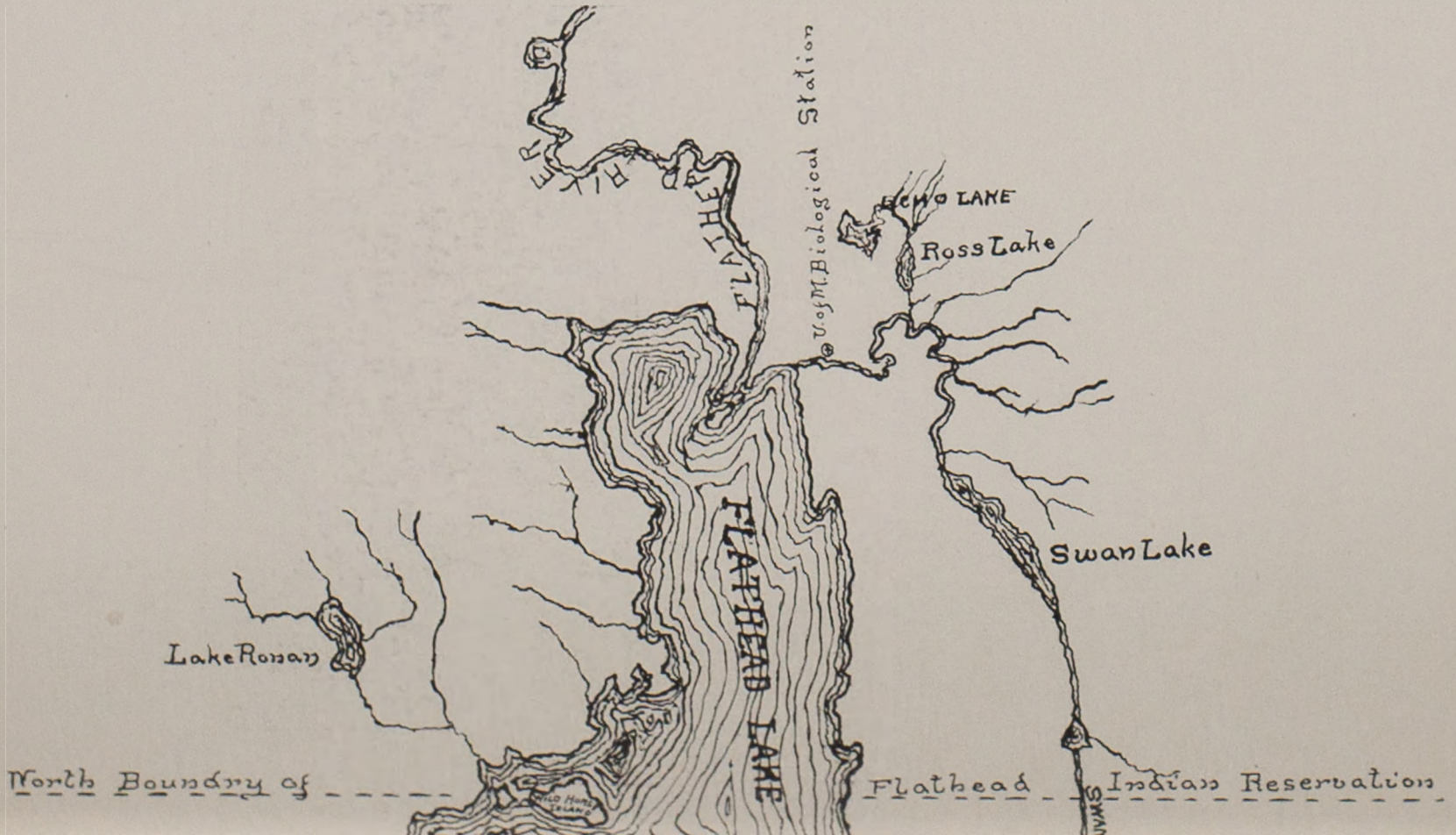
and given the use of the boats, laboratory, material, and service of the instructors without other expense. Of course each one attending will pay his or her own living expenses.

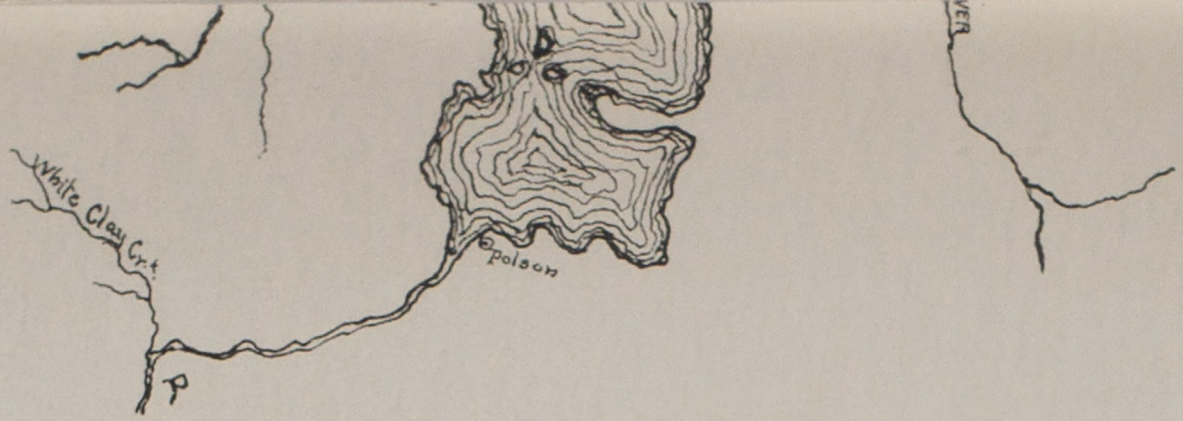
Students and others at the station may employ one of three plans for living: They may room and board at a farm house, where arrangements can be made. They may take tents, live in camp, and take meals at the farm house. Or they may tent and do their own cooking. The region affords abundance of fruit and vegetables.

A Collecting Trip in July, Before the Opening of the Station.—A trip of several weeks' duration has been planned by the director. Opportunity will be given to a limited number to join the expedition. The time will be spent among the Mission Mountains and along the lake. About a week will be spent at St. Mary's Lake; another at McDonald's Lake; the ascent of McDonald's peak, with its living glacier, will be made; a week will be spent near the foot of the lake, giving opportunity for study of the buffalo herd, the largest in America; if any time remains it will be spent along the lake banks. Those wishing to join should write the director for itinerary of the trip and expense. It is a rare chance for naturalists in the state.

MISSION MOUNTAINS—MISSION IN THE FOREGROUND.

A Study of the Fish of the State.—The State Board of Game and Fish Commissioners have authorized the Director of the Station to make a study of the fish in the various streams in the state, with a


FLATHEAD RIVER
U. of M. Biological Station
ECHO LAKE
Ross Lake
Swan Lake
FLATHEAD LAKE
Lake Ronan
North Boundary of
Flathead
Indian Reservation



MAP OF
FLATHEAD LAKE

SCALE. 6 miles = 1 inch

view to the use of this information for economical purposes. Collections have been made in the western part of the state and will be continued this summer.

Recreation.—A month of hard work will at the same time afford rest if there is opportunity for recreation. The Station officers look to the possibilities of recreation as well as work, for a combination of the two gives the best results. The lake near the station affords fine bathing, with a beautiful, sandy beach. Swan river is one of the finest trout streams in the world. The magnificent scenery will tempt any one who has a camera to take a stroll, and there is never disappointment. There are numerous row boats to be had when the station boats are in use. There is good hunting for birds and large game in season. Deer have been seen within a mile of the station in summer. A croquet ground has been made near the laboratory. The large launch, U n d i n e, may be chartered any time for a long ride and will carry 25 people.

The immediate neighborhood has an abundance of fine fruit. Bicycles may be used over any of the roads, and it is only about two hours' ride with a wheel to Kalispell.

Attendance the First Year.—Last year the printed announcements were received from the hands of the printer June 6th, and the station opened July 17th. This was a very short time in which to give notice. The delay was due to the fact that the entire fund was raised by subscription, and a start could not be made until success was assured. Nevertheless, there were nine people in attendance doing work, and the results show that much was accomplished besides the general work of the students.

Who Should Attend.—High school teachers who wish practical work in biological lines. Common school teachers who wish a fund of material for nature study. College or university professors or students who wish to pursue study in advanced lines. High School students who wish to take up elementary work in outdoor life. Any one interested in the lines of study being pursued. Those attending may employ all or part of their time. At the station those who wish an outing without the study contemplated by the above may have the privilege of camping on the grounds and the company of the party. Women are as much entitled to work as men, and will

THE STATION BOATS IN THE HARBOR.—PHOTO BY M. J. ELROD.

enjoy it as much. Some of the wives of the instructors will be present and will help to make the time pleasant for all.

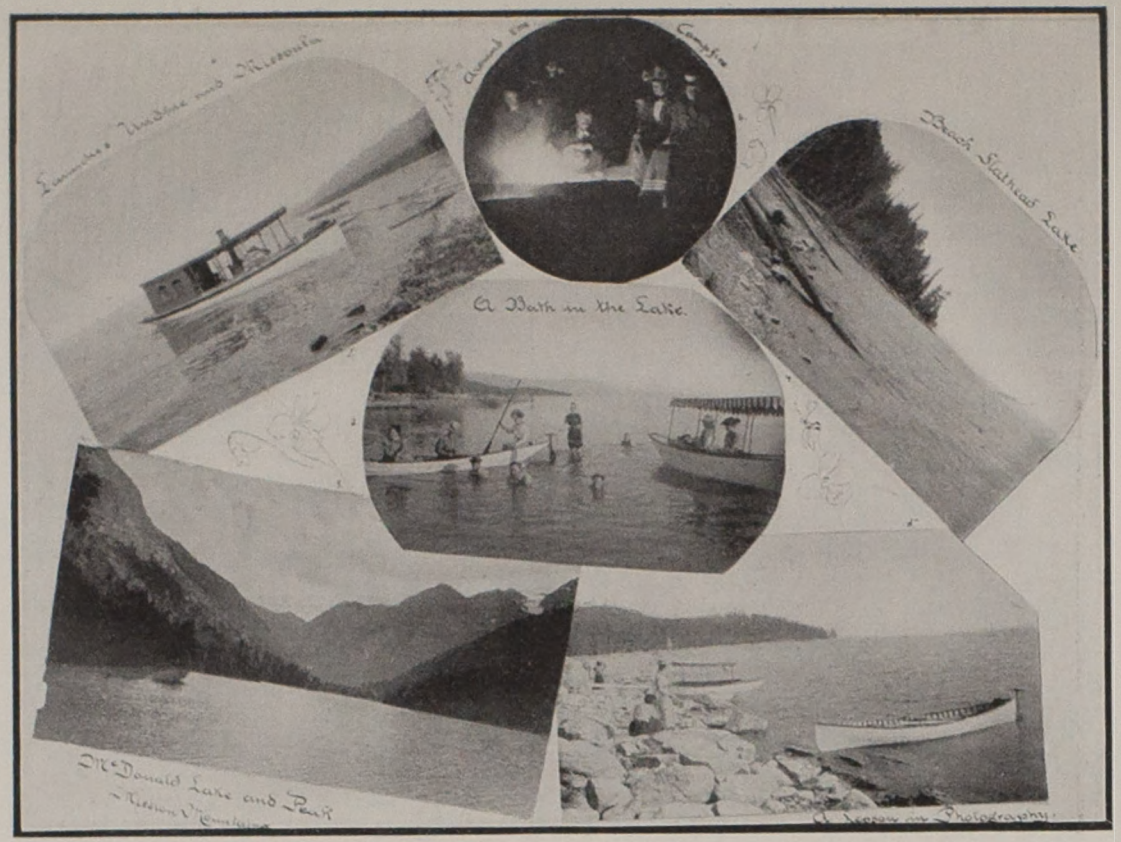
There is every reason why students in the state should give their presence and aid at the station, and take advantage of the liberality kind friends have shown. It is not essential that those attending should have taken instruction in the lines of work offered, though it will be more advantageous to the student to continue work than to begin it. The facilities of the station are offered to any one who may choose to attend, and the services of those having charge of the different lines of work are given gratuitously.

The work of the station and summer school of science is part of the University work, the station being considered as a department. Those in attendance may, if they desire, have credit on the University record for such an amount of work as may be done at the station. By working daily upon one line a great deal may be accomplished during the month, and if one should join the collecting expedition in July the amount accomplished would be doubled.

The station and school will be opened for work Monday, August 6th, and continue four weeks. If desired arrangements may be made for continuing work two weeks longer. This is certainly a good opportunity for studying, collecting and camping, combined, with very moderate expense, under the best guidance and with the best facilities the state can afford.

How to Reach the Station.—Those on the line of the Great Northern should get off at Kalispell. Demersvile is four miles from Kalispell. Take the steamer at Demersville for the station. On the Northern Pacific stop at (Ravalli) Selish, stage to Polson at the foot of the lake, steamer across the lake to the station. Those contemplating attendance should write the director early and make arrangements. The facilities of the station are limited, and those first applying will be first accommodated.

Results Accomplished the First Year.—The merits of the Station must be judged by the results obtained from the work done. The results cannot be large for the first few seasons. After collections are made they must be worked up. This must be done in the interim of other arduous duties, and must then be published before they are to be judged. Dr. J. W. Blankenship, of the College of Agriculture and Mechanic Arts, has agreed to determine the plants collected around the lake, which will afford material for a good



SCENES IN THE REGION ADJACENT TO THE STATION.

list. They are now being prepared by him. Prof. Bruce Fink, of Upper Iowa University at Fayette, Iowa, has volunteered to make a study of the lichens, and a box of some fifty or more specimens has been sent him. Prof. L. A. Youtz, of the Montana Wesleyan University at Helena, is studying the entomostraca, and most of the collections in this line have been sent him. He is now at work on them. Prof. Fred D. Smith, in connection with his work on the U. S. Hydrographic Survey, is making a study of the geological history of the lake, the hydrographic problems the lake presents, its surface, drainage, etc. The Director has in preparation a paper on the dragonflies of Montana, including material collected at the Station and at various other places in the State, and also all that is known and recorded by other collectors. He is also at work on the butterflies of the region, and has many notes on birds covering the three years he has been in the State. Others will be engaged to work on collections whenever opportunity is afforded. The preceding will show that much has already been done in actual investigative work.

It is not necessary to enlarge upon the importance of the work undertaken at the summer school and station. Work in botany, geology, entomology, and allied subjects, is not very extensive in the schools of the state. The summer school and station hopes to make such work more interesting, more valuable, and more helpful, and should command the hearty support of every high school in the state. The lake on which the station is located is the largest in the northwest, having between 200 and 300 square miles area of surface. Its depth, volume and life are practically unknown, as are also its possibilities as a fish producing lake. To discover some of these unknown things is a part of the mission of the station. The geology of the lake, its history, its former size, its present topography, offer rich fields for study. A few miles from the station are Swan Lake, Mud Lake, Echo Lake, Paradise Lake, and others, all heretofore unknown, save in location, are to be reached. There are dense forests for miles. Two miles from the station are the remains of working of beaver. Insects abound. Wild game may be studied the year round.

For any other information, or for fuller details on any part of the work or how to reach the station, address the Director,

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