1902

Biological Station Summer Session, 1902

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

Flathead Lake Biological Station

FOURTH ANNUAL SESSION
University of Montana Biological Station
FLATHEAD LAKE.

Postoffice, Bigfork, Flathead Co., Montana.

The laboratory work of the Station will open Monday, July 14, and continue five weeks, or until Saturday, Aug. 16.

For a week or ten days before the Station opens and for two or three weeks after the work closes some one of the Station staff will be at or near the Station, and will aid any who may choose to work during such time. The laboratory is at the disposal of students, if it is wanted, from June 15 to September 1st.

STAFF OF INSTRUCTORS.

Oscar J. Craig, President of the University.

Morton J. Elrod, Prof. of Biology, University of Montana, Director of the Station, General Zoology.

P. M. Silloway, Principal Fergus County High School, Ornithology, Elementary Botany.

Maurice Ricker, Principal Burlington, (Iowa), High School, Nature Study, Plankton.

Harry N. Whitford, Assistant in Botany, University of Chicago, Forest Ecology.

Mrs. Edith Ricker, Station Artist.

ORGANIZATION.

The Biological Station of the University of Montana was established in 1899, for the purpose of offering to the students of the University and to the teachers and students of the State an opportunity for study, collection, investigation and recreation during the summer. By providing the best facilities the state can afford, and making the instruction free to all, the summer work at the Station presents exceptional opportunities for study, and every encouragement is given to those attending to have both a pleasant and a profitable time. The situation of the Station on the largest fresh water lake in the Northwest makes possible a study of inland and cold water life not presented at any other locality.

LOCATION.

The field laboratory is located on the bank of Swan River at its outlet into Flathead Lake. This location affords a fine harbor for boats and a good camping site for the tents of those attending. The adjacent region contains forests, ponds, lakes, swamps, cultivated fields, mountains, rivers and ravines. It is rich in animal and vegetable life. The lake offers rare opportunities for collecting, and presents some beautiful scenery. East of the lake the Mission range comes abruptly to the water's edge. The range slopes from the Swan river on the north to the high peaks, ten thousand feet, at the southern end, and its scenery is wild, rugged and grand, truly Alpine in character, and rivaling the Alps in beauty and magnificence. West of the lake are the Cabinets. Near the Station Swan lake, Rost lake, Echo lake, and other waters, are easily accessible. Daphnia pond ,a few minutes walk from the Station, is rich in pond life, while Estey's pond, about as far again, is fully as productive.

EQUIPMENT.

The Station is in possession of three boats for use of students; a gasoline launch, Missoula; a 16-foot wood row boat, Culex; and a 14-foot canvas boat, Daphnia; the latter for use when it is necessary to transport a boat. The building is a convenient out-door laboratory, with tables for a dozen students. There is a dark room for photography. Microscopes, glassware, books, and utensils will be supplied from the University.

Botanical material, insect nets, pumping apparatus, and other collecting paraphernalia will be supplied.

Students in Ornithology must supply their own guns. Necessary ammunition will be supplied. Students in Photography will furnish their own cameras and plates. The necessary chemicals for development will be supplied. Students who live in tents will supply their own tents and bedding.

COURSE OF STUDY.

Zoology:

(a) Laboratory and field work, including dissection or microscopic study of type forms, with field work and instruction in collecting and preserving for laboratory use and permanent collections. Prof. Elrod.

(b) Field and laboratory course in entomology. Instruction in collecting, preserving and labelling insects. Dissection and study of type specimens. Prof. Elrod.

(c) A course in plankton methods. Collecting of microscopic organism, determination of quantity, examination of material. Prin. Ricker.

(d) Ornithology. A study of birds, with methods of collecting, making and preserving skins; habits and lives of birds of the rich avian region adjacent. Prin. Silloway.

Botany:

(a) Laboratory and field course; study of type forms. The course will consist of collecting trips in the field where common species of the different orders are found, classification of the more common species, study of structure, with methods of preservation, both dry and in liquid, for immediate and permanent use. Prin. Silloway.

(b) Forest Ecology: This course will consider the problems connected with forest botany. The work will be mainly in the field. Limited areas will be examined carefully to find out, if possible, the order of succession of different forests and to determine the relations of other plant societies to forest societies. More hasty surveys of larger areas will be made to verify and, if need be, to change the conclusions.

The following lectures, and possibly others, will be given in connection with the field work.

Factors controlling distribution of plants.

The tension zone between the prairie and the forests.

The genetic relations of plant societies in an alpine region: Mr. Whitford.

(c) Laboratory course, work to be arranged.

Photography:

No regular course will be given in this subject, but every aid which the station can give will be given those who wish to become proficient in this art. Students in photography must supply their own plates or films and paper. There is a dark room at the laboratory and the scenery in the vicinity gives ample scope for a series of negatives either in landscape or of scientific subjects.

Nature Study:

For those who may desire it a course of study and practical work will be outlined which will afford both a fund of information on which to draw during school work and at the same time secure a collection of material to be used in illustration. The scope of the work will include zoology, botany, geology, and physiography of the region. Prin. Ricker will direct the work.

METHODS OF INSTRUCTION.

The work will consist very largely of field collecting and observation, study of relation to environment supplemented by laboratory dissections and microscopic examination. The general courses will enable teachers to familiarize themselves with methods of field work, and give a store of information from which to draw in nature study subjects. The general courses also give opportunity to students and others to pursue lines of study with better facilities for out door work, with fresh material, than is generally to be had in regular university work. For this work students may receive credit on regular university and preparatory courses which are an equivalent.

Five days in the week will be devoted to laboratory and field work. The sixth will be given up to excursions. For the past three years it has been the custom at the Station to have campfire discussions. These have proven helpful and valuable, and will be continued.

The work of the Station is materially advanced by co-operation with the University of Chicago. Mr. H. N. Whitford will arrive at the Station about August first with a class, and will prosecute botanical study in the region. Students from the state may join his classes and receive all benefits therefrom.

CREDIT FOR WORK.

Students attending the station may have credit on the University of Montana books for such work as may be done, either as college or preparatory, whichever may be proper. Students in work of Mr. Whitford may have credit on the University of Chicago books on payment of tuition fee.

LECTURES.

During the session the lectures following will be given at the laboratory. They will be given daily, at least one each day. The list will probably be increased, and may be slightly modified. They are free to all students attending, and to any others who may choose to hear them.

Natural Counterfeits, Mimicry and Protective Resemblance, illustrated by water color drawings; The Life History of a Dragonfly, illustrated by specimens; The Life History of an Oak, illustrated by water color drawings; The Anatomy and Distribution of the Hydra, illustrated by specimens; The Entomostraca, their Numbers, Distribution and Utility; Some Animal Allies of Common Plants, stories of adaptation for cross fertilization, illustrated by water color drawings; Recognition of Birds in the Field; Types of Nests of Birds, with special reference to the region; Physiography of the Region Adjacent to the Station; Daphnia Pond, a Study of Environment; How to Study a Bird; Bird Songs and their Significance; Migration of Birds, causes, direction, distance, etc.; Natural History in the Graded Schools; Insects as Friends and as Foes, with practical illustrations; The Game Birds of Montana, recognition, number, habits, etc., Photography, Its Use in the Class Room and in Science; Factors controlling the Distribution of Plants; The Tension Zone between the Prairie and Forests; The Genetic Relations of Plant Societies in an Alpine Region.

EXCURSIONS.

The following excursions will be taken during the session of the Station work, unless the weather is unfavorable.

1. A trip to Swan Lake, through the forests, with stop over night at the lake. This is a beautiful lake in the mountains, of great interest biologically and geologically.

2. A trip to Rost Lake, at the base of the Kootenay Mountains. This is a lake almost filled up, a fine collecting field. It is in an admirable location for camps.

3. An ascent of MacDougal Peak via an Indian trail, to an altitude of 7,650 feet. This will afford opportunity for alpine collecting, and will present some of the most sublime scenery in the world.

4. A trip around Flathead Lake, making study of its banks, bays, and swamps.

These trips will be under the personal supervision of Director of the Station. Those taking the trips must bear a proportionate share of the expense necessary. Such will prove of great value and interest biologically aside from the pleasures they bring.

RECREATION.

Many will wish to combine an outing with study. Fishing near the laboratory is excellent. There are many boats besides those of the Station, and rowing may be indulged in. The field is excellent for photography. Bathing in the lake is always a treat and the beach is fine. The region has an abundance of fruit of all kinds. The hills and forests afford quiet retreats for study or for strolls. Few places have more natural attractions. At the proper season hunting is good. Deer have been seen a few rods from the laboratory. Grouse and pheasants abound in the hills. In season duck shooting is fine. Most of the country affords good wheeling for bicycles.

FEES AND EXPENSES.

There are no tuition fees. Students attending will be charged for material consumed, for breakage, for a share of the expense for excursions, and like necessary expense. Necessary books, chemicals, micro-

scopes, and glassware will be supplied free. The intention is to give the best facilities possible, so as to make it worth while for students to attend.

Good board may be had convenient to the laboratory for $5.00 per week, with room extra. It is customary for most of those attending to sleep in tents, on the Station grounds, taking meals only. For those who wish to tent and cook in regular camp style there will be every opportunity given for comfort, the region affording a bountiful food supply of everything necessary, but those attending will be expected to supply their own tents and bedding.

AFTER THE SESSION.

Mr. Whitford's students will spend two weeks at the Station, after which two weeks or more will be devoted to study of mountain flora and environment, under his guidance and direction.

The Director and some of the staff will continue investigations on Flathead Lake and Echo Lake for three or four weeks after the regular work of the Station closes, using the laboratory as headquarters.

The laboratory building and grounds may be used by those who wish to carry on investigative work at all times during the season. It makes an excellent place for headquarters. Correspondence in regard to above work is invited.

DATE OF OPENING.

The course of instruction will open Monday, July 14, and continue five weeks. It will be most satisfactory to enter at the beginning, but from the nature of the work students may enter at any time.

Applications should be made as early as possible, as the accommodations are limited, and the material taken from the University will of necessity be only enough to supply those in attendance.

A collecting trip will be taken after the Station closes. It will be possible for a very small number to accompany this expedition on payment of a share of the expense. For details see "After the Session."

HOW TO REACH THE STATION.

Students via Northern Pacific will get off at Selish. Stage triweekly runs to Flathead Lake, (35 miles), connecting with steamer Klondike, which runs across the lake. Stage fare, one way, $3.00, round trip, $5.00, trunks extra. Boat fare across the lake, one way, $3.00, round trip, $5.00. Stage leaves Selish on Mondays, Wednesdays and Fridays, connecting with the steamer, returning the same day.

Students via Great Northern will get off at Kalispell, connecting by stage with the steamer Klondike at Demersville, a short distance from Kalispell.

OPPORTUNITIES FOR INVESTIGATION.

Any one wishing to engage in investigation of biological problems pertaining to the life of the locality, before or after the regular work, will be given the freedom of the building, boats and apparatus, and will be offered every facility possible. In such cases no fees will be charged, except for special material or reagents which may be needed.

WHO HAVE ATTENDED.

During the three years the Station has been opened the attendance has been from many states other than Montana, eight states having had representatives, representing colleges, academies, private schools, high schools, principals of public schools, students of different educational institutions, teachers of graded and country schools, and people in professional and private life. As a place where maximum work may be accomplished with minimum loss of time in a new field, under competent guidance in finding material and localities, the Station will appeal to any one interested in the work it is doing.

For further information relative to courses, routes, expenses, necessary outfit, etc., address,

MORTON J. ELROD,
Missoula, Montana.

For any information concerning the University of Montana, its departments, courses of study, etc., address,

OSCAR J. CRAIG, President,
Missoula, Montana.