Journal of Geography

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/rjog20>

A Marine Biological Station on the Staits of FUCA

Conway MacMillan ^a

^a UNIVERSITY OF MINNESOTA , Minneapolis.

Published online: 12 May 2008.

To cite this article: Conway MacMillan (1902) A Marine Biological Station on the Staits of FUCA, Journal of Geography, 1:6, 262-271, DOI: [10.1080/00221340208985462](https://doi.org/10.1080/00221340208985462)

To link to this article: <http://dx.doi.org/10.1080/00221340208985462>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is

expressly forbidden. Terms & Conditions of access and use can be found at
<http://www.tandfonline.com/page/terms-and-conditions>

10,000 barrels. The Washburn C mill is next in capacity, making 9,000 barrels a day. The total output of the city is 16,000,000 barrels yearly, much greater than that of the next largest flour manufacturing centre of the world. The mills are with one exception located around the Falls of St. Anthony and are of easy access. Admission is by permit secured at the office, Guaranty Loan Building, or at the mills.

A MARINE BIOLOGICAL STATION ON THE STRAITS OF FUCA

BY CONWAY MACMILLAN, PROFESSOR OF BOTANY, UNIVERSITY OF
MINNESOTA, MINNEAPOLIS.

AMONG the excursions planned to follow the meeting of the National Educational Association in Minneapolis next July, that to the Minnesota Seaside Station on the Straits of Juan de Fuca, while especially designed for biologists, offers peculiar advantages to students of geography. Those who have crossed the Continent and have visited the Pacific slope can never forget the intellectual and æsthetic inspiration of the plains, the mountains and the sea; those whose travels have been circumscribed within the eastern United States and Canada can appreciate the broadening influence of a transcontinental journey only by experience. It was with this in view, among other considerations, that the west coast of Vancouver island was selected for a marine station in connection with the University of Minnesota. In 1901 the laboratory was opened and enjoyed a most successful season, a brief account of which is given in the *Popular Science Monthly* for January, 1902. Papers setting forth certain of the scientific results are in press in *Minnesota Botanical Studies*, *Postelsia* and elsewhere and will soon be ready for distribution.

It is the purpose of this brief article to indicate the nature, route and conditions of the excursion of 1902 from Minneapolis to Port Renfrew and the Seaside Station. The party will leave Minneapolis in special cars the evening of July 12th, making stops on the westward journey in the vicinity of Calgary and at the Great Glacier. It will proceed via Victoria to Port Renfrew and will remain a

month at the Station. It will return to Minneapolis by the first of September, making two stops, one at Sicamous and the other at Lake Louise. Members will thus be enabled to see the prairies and the mountains at their best and will have time for zoölogical and botanical collections so far as they may desire to make them. This, in addition to the month of intimate acquaintance with the sea, will in itself constitute a very fair course in ecology and will present many geographical and geological facts in such a way that they can never be forgotten.

The object of the Station on Vancouver Island is to furnish a base for morphological and physiological work upon the plants and animals of the west coast of North America. Unlike other stations in the United States and Canada, it has been established without requests for state or government assistance and without importunities addressed to the various universities, colleges and learned societies to contribute to its financial support. It represents a natural impulse and a natural group of students and investigators and has arisen in response to their needs. Its methods and life are unlike anything else in America and might be described as an attempt to return to the simplicity and single-minded enthusiasm of the first American marine station, that at Penikese. Quite unhampered by the conventionalities and constraint of urban or even suburban life, its group of students learn to become imbued with the spirit of the sea. In selecting a site for the buildings only one point was considered of paramount importance, and that was the richness and accessibility of the marine flora and fauna. Certain inconveniences of travel and difficulties of transportation and subsistence were given little weight in comparison with the presence of the many natural advantages which, taken together, make the Minnesota Seaside Station one of the best localities for marine collection on either coast of the continent. Days spent beside its tide pools, among its kelp beds, or at the table in its laboratory, and evenings of song and story around the bonfires of its "uproarious beach"—in the words of Robert Louis Stevenson—will always be marked with a white stone in the memory of those who enjoyed them in 1901.

To the readers of the JOURNAL OF GEOGRAPHY whose interest in nature study in all its forms may reasonably be assumed, but whose particular studies have been directed along geographical lines, a somewhat more detailed description of the route to the Station might prove acceptable.

Starting from Minneapolis, situated among the morainic hills of southern Minnesota, the line of the "Soo" Railway crosses the southern edge of the forest district of Minnesota. As far west as Payneville the country is mostly wooded with oak, poplar and elm, and there are numerous lakes, the train being in sight of one or more most of the time. This is the well known Lake Park region of the fishermen and hunters. It is by no means an unsettled region, but comprises some of the best farming land of central Minnesota, the

FIG. 1. SHORE OF A LAKE IN SOUTHERN MINNESOTA.

dairy industries, truck farming, and horticulture having been brought to a high degree of development. Beyond Payneville, which is ninety-two miles west of St. Paul, the trees begin to disappear and soon a rolling prairie opens up, with here and there a tree-fringed lake, notable among which is the beautiful Minnewasta at Glenwood. About forty miles farther west the bed of the extinct Lake Agassiz is entered near Elbow Lake and its lower end is crossed to Hankinson, North Dakota, two hundred and sixteen miles west of St. Paul. Through this district, the absolutely level prairie with the fields of

wheat stretching beyond the horizon, the shimmering mirages of the summer days, and the cool breezes of the evening, give one for the first time a sense of the Great Plains. From the western edge of the ancient lake the route is through a more or less open and treeless country with, however, occasional groves and gallery woods along the streams. The Cheyenne River is crossed first near Anselm, two hundred and fifty-nine miles west of St. Paul, and again near Valley City, forty miles farther to the northwest. The northwesterly course is continued, crossing the James River west of Kensall three hundred and fifty miles from the starting point and following

FIG. 2. IN THE RED RIVER VALLEY.

a straight diagonal through Carrington and Fessenden almost to Minot, four hundred and seventy-nine miles from St. Paul. This, the most important town in northwestern North Dakota, lies in the valley of the Souris River, which, rising in southwestern Assiniboia, makes a loop into North Dakota, thence into Manitoba, where it joins the Assiniboine and flows into Lake Winnipeg.

At Portal, five hundred and sixty miles from St. Paul, the Canadian boundary is crossed; at Estevan, twenty-five miles farther north is another bridge over the waters of the Souris, and the country becomes more broken through to Moose Jaw, seven hundred and

twenty-eight miles from St. Paul, and at an altitude of 1,725 feet above the level of the sea. From Moose Jaw through to Calgary, a distance of about three hundred and fifty miles, there is a steady increase in the elevation, bringing one at the last named point, 3,388 feet above the level of the sea. The high plains of western Assiniboia are in many respects of surpassing interest. There is a look of vastness about them, settlement in this region having not yet pro-

FIG. 3. FALLS OF THE BOW RIVER, CANADIAN ROCKIES.

gressed to such an extent that the traveller is everywhere confronted by the evidences of civilization. One may journey for many miles without seeing a human dwelling or any sign of life except the wild birds and beasts of the prairie. There are many alkaline lakes and the country is furrowed by innumerable trails of the buffalo. These paths, perfectly well marked as if they had been trodden but yes-

terday, run off though the canyons and over the hills, producing a somewhat depressing effect upon the lover of nature when he remembers how completely these wild cattle of the plains have been de-

FIG. 4. LAKE LOUISE AND MOUNT VICTORIA.

stroyed. Westward, especially in the vicinity of Calgary, the Mecca of so many English younger sons, there are many ranches and everywhere over the plains may be seen bunches of cattle, flocks of sheep and droves of horses.

Fifty miles before Calgary is reached, the mountains may be seen rising above the western horizon like banks of snow. The range is entered near Canmore, twelve hundred and thirty-two miles west

FIG. 5. THE GREAT GLACIER OF THE SELKIRKS.

of St. Paul, and at an elevation of 4,200 feet. The railway follows the valley of the Bow, ascending it between the Fairholme and Kananaskis ranges to the Height of Land beyond Laggan, entering British Columbia at Field, in the shadow of Mount Stephen. The

region between Banff and Field, lying at the summit of the Rockies, presents some of the finest alpine scenery in the world. The ever-changing panorama of peaks and valleys, as the train crawls over the heavy grades and around the sharp curves, brings before the eyes of the traveller all the important features of a mountainous district—the snow fields, the glaciers, the torrents, the paths of the avalanches, the dips and folds of the strata, the sculpturing of the water, ice and wind, the deposition of sediment in the valleys, the forestation of the slopes, valleys and peaks, all are most perfectly displayed. Considered merely as scenery, the Canadian Rockies and Selkirks are incomparable; as fields in which to study the forces that regulate mountain building and river action, or to familiarize oneself with many of the fundamental laws of plant distribution they are unsurpassed. Nothing could be more magnificently demonstrated than glacial action at the Great Glacier of the Selkirks, where the student can walk over the terminal and lateral moraines, stand upon the surface of the ice, or creep through the blue caverns underneath its mass. At Laggan, with the splendid cirque at the head of Lake Louise and the enormous cliffs to the right and left, there is the most perfect presentation to the intellect and appeal to the emotions that nature can make.

From the summit of the Rockies, by the Columbia River and its tributaries, the railway penetrates the Selkirks, and by the valleys of the Thompson and Fraser, comes down to Vancouver and the Sound. Vancouver, with its 26,000 inhabitants and Victoria with 21,000, are two of the most interesting and delightful cities in Canada. Both are important shipping and outfitting points for Alaska and the Orient. At Vancouver, the terminus of the Canadian Pacific Railway, there are extensive warehouses to accommodate the transcontinental and transpacific business. At Victoria are the Houses of Parliament and the British naval station of the north Pacific. Both cities are thoroughly provided with all the conveniences and refinements of life; their hotels and clubs are equal to any in Canada and their situation could scarcely be improved commercially, scenically, climatically or socially.

From Victoria to Port Renfrew, near which the Minnesota Seaside Station is situated, is a distance of some seventy miles along the west coast. The trip through the Straits of Georgia from Vancouver to Victoria and from Victoria to Port Renfrew through the Straits of Fuca, enables one to obtain a very good idea of the Sound country with its dense forests, rocky islands and snow-capped mountains.

The photographs accompanying this paper will convey the impression of the country more fully and accurately than words can do. The admirable summer climate of Assiniboia, Alberta, and especially western British Columbia, can, however, scarcely be presented in a picture, and claims a word in closing. Along the west coast of Vancouver nearly a hundred inches of rain falls during the year. This great precipitation takes place principally during the winter and early spring, yet, even in mid-summer rainy days are not unknown. The climate is much like that of southern England and is

FIG. 6. PARLIAMENT BUILDINGS AT VICTORIA, B. C., WITH OLYMPIC MOUNTAINS IN BACKGROUND, SEEN ACROSS THE STRAITS OF FUCA.

reflected in the splendid forests of the coast as well as in the charming complexions of the women of Victoria. A Californian luxuriance of flowers extends at least as far north as the Straits of Fuca.

The buildings of the Minnesota Seaside Station stand beside the sea in a cove, from which a magnificent view of the Olympic Mountains is obtained. To the right across the Straits of Fuca looms Cape Flattery, off the point of which Tatoosh light gleams steadily through the night. A walk of a few rods takes one to the lookout

west of Station cove and the cliffs upon which the surf beats in from the broad Pacific. Behind the buildings is the primeval pine, cedar and spruce of the island, many of the trees being of enormous size. In front is a diversified shore of slate, sandstone and granite, broken up into a labyrinth of pot holes, diminutive fjords, with numerous surf caverns and some sandy beach. The opportunities for the growth of a great variety of plants and animals is excellent and the shore is consequently unusually rich.

During the season of 1902 the work will be organized as follows: General direction and special work on brown algæ, Conway MacMillan, University of Minnesota; direction of zoölogical work, Raymond Osborn, Columbia University; special work on red algæ, K. Yendo Rigakushi, Imperial University of Tokyo; special work on green algæ, Josephine E. Tilden, University of Minnesota.

The members of the party desiring formal instruction will be organized in classes for daily work; those wishing to pursue independent research will be given such assistance or encouragement as they may desire. It is to be hoped that some Eastern naturalists will be able to make the journey with those from the central west who have already joined the party. If any wish to do so, they are invited to communicate with the author of this sketch.

DECISIONS OF THE U. S. BOARD ON GEOGRAPHIC NAMES, JUNE 5, 1900, TO JANUARY 8, 1902

III

Robins; point on Gunpowder neck, Harford Co., Md. (Not Robbins nor Robin.)

Robins; creek and marsh, Chincoteague bay, Worcester Co., Md. (Not Robbins, Robbin's, nor Robin.)

Note: This is a reversal of the decision Robin made in May, 1901.

Rockawalking; creek, post office and railroad station, Wicomico Co., Md. (Not Rock-a-walkin.)

Rockhall; district No. 5, Kent Co., Md. (Not Edesville.)

Rollers Ridge; township, Benton Co., Ark. (Not Roller Ridge.)