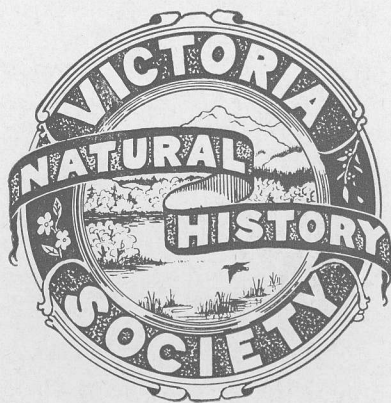


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THE VICTORIA NATURAL HISTORY SOCIETY

The January monthly meeting of the Society was held in the Provincial Library Reading Room on Tuesday 13th at eight p.m. In the absence of Dr. Carl, Mr. Colin Curtis took the chair. After the business session Mr. Philip Monckton was introduced to the meeting and for an hour entertained the members by showing a fine collection of very beautiful coloured slides which had been prepared from photos taken in the course of Mr. Monckton's survey trips in B. C. The first slides showed a surveyor at work in the snow at 8 degrees below zero at Osoyoos.

Mr. Monckton's slides were arranged to show the sequence of a journey from west to east, then north.

At Lytton there grows a bush called the Rabbit Bush which blooms yellow in September. There were photos of the Thompson River, of Botany Creek and of Ashcroft and Mile High Camp. The latter is 27 miles S.W. of Kamloops. At this spot grows Engelmann Spruce, which is plentiful in the Yukon, showing that trees of the north grow at the higher altitudes of the more southern areas.

The Alkali Lakes have a beautiful red salt-loving weed growing on their shores to a height of about six inches.

The Iron Mask is a derelict copper mine opened during the Boer War.

Bordering the South Thompson River are many beautiful larches. Woods Lake is fringed by cottonwood trees which showed very lovely in their autumn colouring on the photo shown. Vaseaux Lake is bordered by sumach bushes and in some spots by poison ivy which is a variety of sumach. Both turn a gorgeous red in the fall.

A few miles south of Quesnel is the Australian Ranch, a farm with 6-7000 acres under cultivation.

West of Prince George is a village called Vanderhoof which Mr. Monckton believes is the only town in B. C. that has no view of any mountain. The surrounding country is quite flat.

At Fort Fraser, which was founded in or about 1780, is the smallest river in the world, it joins two lakes and is $\frac{1}{2}$ mile long.

The village of Burns Lake is at the entrance to Tweedsmuir Park, a large National Park as yet hardly developed.

Photos were shown of Smithers, Hazelton, Terrace and the Queen Charlotte Is. The Totem poles in the Queen Charlottes are much taller and thinner than those usually seen. Quantities of seagrass grows in the Queen Charlottes, much of it full of slugs.

GEOLOGY GROUP MEETING

There was a large turnout on the evening of Tuesday Jan. 6th, for the first of a series of six lectures by Mr. Winkler on the history of geology. In this talk Mr. Winkler dealt with the various theories of the origin of the earth, in order as developed. He then considered the composition of the planet and its supposed structure as determined by seismological and gravimetric methods, showing that there is a very dense and rigid core, surrounded by a deep layer of batholith in which the continental masses of lighter rocks float, and are even thought to drift.

The time and place for the remainder of the series will be announced later. It is hoped to complete the series by early spring.

Colin Curtis.

FISHERIES RESEARCH IN BRITISH COLUMBIA

The fisheries of British Columbia are the Province's fourth greatest natural resource. For the year 1945 they amounted to \$44,500,000 and employed a total of almost 20,000 persons. While these are interesting and impressive statistics, they become more so when one bears in mind that they actually represent only a dividend from a perpetuating resource, one that can keep on yielding its annual return and giving employment so long as proper management regulations are maintained.

It was once the general belief that the resources of the sea were inexhaustible, that all one had to do was reap the harvest as fully as possible. There would always be more from where the last ones came. Keen exploitation on the part of our enterprising and ingenious Pacific coast fishermen soon proved this to be a fallacy and in many fisheries, halibut, salmon, herring, etc., more and more effort became necessary to make the same catches. Quite quickly, then, the industry and the Government realized that some form of regulation or management of the fisheries was necessary but in order to provide suitable regulations it was felt that there should be first a clear understanding of the fish and the fisheries with the regulation applied where most effective. Thus fisheries research, or biological research in fisheries came into its own.

The Pacific Biological Station at Departure Bay, near Nanaimo, was instituted in 1908, almost forty years ago, as the result of representations made to the Federal Government of the day to provide facilities for the study of marine biology. Many biologists in Canada at that time, - and they included some quite notable figures in University circles - felt that the stimulation of the study of marine plants and animals would not only add to our knowledge of these forms but give an outlet for research among University students, graduates, etc. Other countries were developing marine biological research to good advantage. Why should not Canada?

In 1908, therefore, a station was built at Departure Bay, in the centre of an extremely rich faunal area and in a most attractive setting. The first Director, the Reverend Mr. Taylor, was also rector of the Anglican church at nearby Wellington. He was a keen conchologist and an enterprising naturalist. His work was initially part-time only. In the summer months zoologists and botanists came from many Universities throughout Canada to interest themselves in the faunal and floral forms to be found thereabout. In 1912, Dr. C. McLean Fraser became the first permanent Director of the Station, a position he held with distinction until 1924 when he took the chair of zoology at the University of British Columbia. During this period Dr. Fraser was the only full-time scientist at the Station, joined by many others, however, each summer. Marine biology was the general field of activity with little specialization on economic problems. All studies were contributions to knowledge but not necessarily of immediate or even early application.

In 1924, Dr. W. A. Clemens, now of U. B. C., became Director and with his appointment there came a change in policy, namely, the appointment of a staff of permanent scientists to be engaged in essentially important fishery problems. The writer was one of these and was given the problem of determining the relative efficiencies of natural and artificial propagation of sockeye salmon. The usefulness of salmon hatcheries in British Columbia, that is the extent to which they were doing any good, was being seriously questioned. During subsequent years other scientists were engaged and took up the study of the herring, the pilchard, the pink salmon, the oyster, etc. The importance of oceanography in the scheme of things was recognized and studies were instituted in the strait of Georgia. Fisheries research in British Columbia thus began. Research workers from Universities still came to the Station during the summer - each being granted room and board and travelling expenses - but in many cases to work on assigned problems.

During the depression days of the 1930's, the reduced funds of the then Biological Board of Canada, now the Fisheries Research Board of Canada, made

retrenchment necessary and as a result, the Residence was closed and the summer worker scheme largely abandoned. Since then, with but a few exceptions, the work of the Station has been conducted solely by the regular staff, which while reduced during the War, has since increased and now numbers 23 scientists, 11 field technicians, 13 on the administrative staff and 9 men operating the one research and two fishing vessels presently attached to the Station.

The objective of the research work being done is to obtain the salient facts concerning our Canadian Pacific coast fish and fisheries which will reveal the present state of those fisheries and which can be used to establish practical regulations for optimum exploitation while at the same time guaranteeing an adequate continuing supply. The work involves the gathering of the facts, their organization, tabulation and analysis, a slow, somewhat tedious, quite unspectacular task, yet a very necessary one in order to lay the foundation for proper administration.

At the present time there are four main investigations in progress. One is a comprehensive survey of the Skeena river salmon, undertaken to determine whether there has been a decline in the fishery, whether it is cyclic or not and what can be done to increase production. The investigation involves studies of the spawning grounds of the river system (even those remote areas into which the field officers have to be flown), the nursery lakes, the conditions under which eggs are laid and incubate, the effects of weather and stream water levels on survival, the degree of exploitation of returning adults by the commercial fishery and the Indian fishery and so on. All factors likely to affect survival are analyzed and remedial measures considered.

A second salmon investigation concerns the pink and the chum salmon; species which frequent, for spawning purposes, most of the small coastal streams of Vancouver island and the mainland and which con-

tribute to quite important fisheries at the present time. Unfortunately the runs of these species fluctuate greatly from year to year and one objective of the investigation is to determine the factors which contribute to these fluctuations. Another phase of study is a determination of the actual percentage efficiency of natural propagation to ascertain how many fry are normally produced from a known number of eggs, what the limiting factors for survival are and how they can be controlled or remedied.

In the marine fish field an important study is currently being made of the herring fishery, essentially to determine what form of regulation or management is most effective to assure optimum utilization of the populations. Last year there was initiated on the west coast of Vancouver island a test of fishing with no restriction except an annual closing date. It was decided to ascertain whether there actually exists any practical relationship between amount of spawning and quantity of young fish produced, since previous records had shown good populations to develop from poor seedings and poor populations to be derived from large spawnings. If there is no close relationship, rigid restriction of fishing effort becomes largely unnecessary. The study involves (a) a very comprehensive analysis of year classes of herring present in each season's catches, (b) estimates of annual recruitment of early age groups, (c) examination of factors responsible for mortality of young, and (d) a detailed analysis of catch statistics.

On the east coast of Vancouver island a different management procedure is being tested, that of fixed quotas. At present a catch of 40,000 tons of herring is allowed and each year studies are made of the reaction of the herring population to this degree of exploitation or drain. Will the abundance of herring increase or decline? If so, what alterations in the quotas can be made to counterbalance the prevailing trend?

During the war there developed a valuable flat-fish fishery, the product being chiefly exported to Europe. Fishing was done chiefly by otter trawl vessels or draggers and as the number of these increased concern was felt as to the maintenance of the population of fish. A study was inaugurated, therefore, to get such facts as would be required to analyze the trends of the populations under existing fishing intensity and to learn something of the life-history of the various species of flat-fish taken by the trawls. Particular attention was to be given to the extent of capture of immature fish and the mortality suffered in bringing them aboard the trawler and then discarding them. By means of tagging the migratory habits of the species were studied and estimates of total mortality obtained.

In addition to these four major investigations work has been done on pilchards, ling cod, crabs, oysters, clams, anchovy, eulachon, albacore, etc. The success of the planting of Atlantic coast lobsters in a west coast lagoon has been followed with a view to determining how successful the importation and rearing of these valuable crustaceans might prove to be from the commercial standpoint.

As intimated earlier, much of the Station's work has been initially of the nature of "spade work", that is, getting the basic facts. Already, however, in some of the studies progress has been made to the point where the basic information can be used to practical, administrative advantage, and, in time, all of it will be utilizable. Canada can be justifiably proud of the advances made by the Fisheries Research Board of Canada. They can be very creditably compared with progress made in other countries where work of this kind has gone on for many, many years longer. As a result the successful management of her fisheries is correspondingly more assured, to the benefit of all.

R. E. Foerster
 Director
 Pacific Biological Station,
 Nanaimo, B.C.

CHRISTMAS BIRD COUNT, DEC. 26, 1947

Beacon Hill	3 Lakes	Woods & Brush	Cliffs & Sea	Gonzales Pt. Shoal B.	Blenkinsop Rd.
Buffle-head			5	16	
Canvas-back	6				
Chickadee (c-b)					4
B. Cormorant			6		
N.W. Crow					12
N.W. Flicker		3			
Purple Finch					14
A. Goldeneye			8	2	
Horn. Grebe			8	7	
Eared "				1	
West. "			1	20	
Herr. Gull				1	
Gl. Wing "	241		12	1	3
Sh. bill. "				205	31
Harlequin D.				12	
Or. Junco					26
Comm. Loon			1		
Mallard	249				4
Mead. Lark					1
H. Merganser	11				
Red-br "			6		
Old-Squaw			1	1	
N.W. Robin		32			1
Ruddy Duck					2
Gr. Scaup	4		300	447	
Surf Scoter				2	
W. Wing. "			10		
Shoveller				22	
Fox Sparrow					1
Gold. Cr. "					3
Rust. S. "		1		1	1
Gr. Wing Teal					2
Var. Thrush		2			
Or. Towhee		3			1

continued.. 3 Lakes Woods Cliffs Gonzales Blenkin-
& & Pt. & sop Rd.
Brush Sea Shoal B.

Am Widgeon	203			277	6
Eur. "	1				
Gaird. Woodpecker		2			1
Seat. Wren		2			2

The Beacon Hill count was taken by J.O. Clay and three others over a period of 3½ hours.

Gonzales Pt. and Shoal Bay count was made by John Redford and one other and over a period of 1½ hours.

Blenkinsop Rd. count was made by G.A. Hardy and one other over a period of 2 hours.

The weather was still and mild.

The total number of species was 38.

--- Bush Tits ---

Four to six bush tits were seen in Mr. Clay's garden on December 15th. This is the third record for Victoria within the past twelve months and a nest has been found near Victoria.

BIRD GROUP MEETING

On January 7th, at the home of Miss Sara Spencer, Mr. J.A. Munro spoke to nearly forty members and friends on the subject of Wild Life Conservation.

Mr. Munro's talk dealt chiefly with the Kootenay Flats and with the large sanctuaries established in the U.S.A. along the N.S. Central American flyway route used by water birds.

The Kootenay River runs through a broad lush valley, in two main channels for the last six miles. The rich alluvial silt is attracting those on the lookout for more arable land and there is a real fear that 17000 acres of the Kootenay Flats will be drained. This is a spot peculiarly suited as a sanctuary for water birds and it is one of the most beautiful areas in B.C. The water is clear and Duck Lake is flushed out by floods, so does not smell; many plants grow there including some water plants that are not recorded for any other part of B.C. By mid-September some 40,000 to 50,000 ducks may be found on the Kootenay Flats, and some Arctic Geese are there from early August.

Mr. Munro spoke with enthusiasm of the large American Sanctuaries. The Oregon State Refuge is 230 square miles and that in Sacramento is 30000 acres, part of which raises grain for the birds to feed on.

We feel a special note of thanks is due to Miss Sara Spencer for taking "time out" in her busy life to entertain so delightfully so large a group of our members.

The members of the Bird Group also feel that they would like to express to Mr. J. O. Clay their appreciation and gratitude for all the trouble he takes, so unobtrusively, to make the bird group the thriving concern it is.

JUNIOR PAGE

Interesting Bird Note

While having lunch one day at the Golf Club, I saw a man feeding kitchen scraps to the gulls. There were more than twenty swarming around, when another gull, much bigger than the others, swooped down and scared some of the gulls away. Just then the man threw a piece of ham skin, which was about a foot square, to this big gull.

The gull grabbed at it, but finding it too big to fly with, proceeded to peck at it. Often the other gulls made approaches. He stood guard over it and screamed at them and they backed away a bit again. This went on until the crows began to arrive.

One crow was much bolder than the others. It walked right up behind the gull and pulled one of its tail feathers. This made the gull quite furious. He picked up the piece of ham skin and flew a short distance away. The crow followed. Then the gull dropped the skin and began to scream. While he was screaming one of the female gulls grabbed the skin and made off with it, only to be followed by the rest of the gulls including the big one.

When I last saw them they were still fighting over the skin. What finally happened I do not know.

David Birley.

--- NOTICES ---

TUESDAY Entomology Group Meeting in Mr. Andison's
Feb.3rd: office, 545 Superior St. at 8 o'clock.

TUESDAY Monthly meeting in the Provincial Library
Feb.10th: Reading Room at 8 o'clock.
Speaker: Dr. G. C. Carl
Subject: "Nature's Submarines".

TUESDAY Geology Group meeting in Dr. Carl's
Feb.17th: Office at the Museum at 8 o'clock.
Speaker: Mr. Winkler.
(This is the second in the series being
currently given by Mr. Winkler.)

TUESDAY
March 2nd: Geology Group Meeting in Dr. Carl's office.
Speaker: Mr. Winkler.

SATURDAY The opening lecture of the annual
Feb.14th: series for school children, in the
 museum at 9:30 and 11 a.m.
Speaker: Dr. K.O. Wright (on the staff
 of the Saanich Observatory)

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