

PROVINCE OF BRITISH COLUMBIA
Department of Education

PROVINCIAL MUSEUM
of NATURAL HISTORY and ANTHROPOLOGY

Report for the Year 1946



VICTORIA, B.C. :
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Department of Education

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PRINTED BY THE GOVERNMENT OF BRITISH COLUMBIA
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1947

To His Honour C. A. BANKS,
Lieutenant-Governor of the Province of British Columbia.

MAY IT PLEASE YOUR HONOUR:

The undersigned respectfully submits herewith the Annual Report of the Provincial Museum of Natural History and Anthropology for the year 1946.

G. M. WEIR,
Minister of Education.

*Office of the Minister of Education,
Victoria, B.C.*

PROVINCIAL MUSEUM OF NATURAL HISTORY
AND ANTHROPOLOGY,

VICTORIA, B.C., April 30th, 1947.

The Honourable G. M. Weir,
Minister of Education, Victoria, B.C.

SIR,—The undersigned respectfully submits herewith a report of the activities of the Provincial Museum of Natural History and Anthropology for the calendar year 1946.

I have the honour to be,

Sir,

Your obedient servant,

G. CLIFFORD CARL,

Director.

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DEPARTMENT OF EDUCATION.

The Honourable G. M. WEIR, *Minister.*

Lieut.-Col. F. T. FAIREY, *Superintendent.*

PROVINCIAL MUSEUM OF NATURAL HISTORY AND ANTHROPOLOGY.

Staff:

G. CLIFFORD CARL, Ph.D., *Director.*

GEORGE A. HARDY, *Botanist.*

A. E. PICKFORD, *Assistant in Anthropology.*

LILLIAN C. SWEENEY, *Artist* (to September 30th).

BETTY C. NEWTON, *Artist* (from November 1st).

MARGARET CRUMMY, B.A., *Secretarial Stenographer.*

SHEILA GRICE, *Typist* (from November 25th).

H. H. PEGLER, *Attendant* (to September 30th).

ARTHUR F. COATES, *Attendant* (from September 15th).

PROVINCIAL MUSEUM OF NATURAL HISTORY
AND ANTHROPOLOGY.

OBJECTS.

(a) To secure and preserve specimens illustrating the natural history of the Province.

(b) To collect anthropological material relating to the aboriginal races of the Province.

(c) To obtain information respecting the natural sciences, relating particularly to the natural history of the Province, and to increase and diffuse knowledge regarding the same.

(Section 4, "Provincial Museum Act," R.S.B.C. 1936, c. 231.)

ADMISSION.

The Provincial Museum is open to the public, free, week-days, 9 a.m. to 5 p.m.; and on Sunday afternoons, 1 p.m. to 5 p.m.

DEPARTMENT OF EDUCATION
The Honorable G. M. Weir, Minister
Lect. Col. F. T. Farley, Inspector

PROVINCIAL MUSEUM OF NATURAL HISTORY AND ANTHROPOLOGY

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Report of the Provincial Museum

FOR THE YEAR 1946.

REPORT OF THE DIRECTOR.

The year 1946 has been a momentous one in the history of the Provincial Museum. The various events which have taken place and the activities which have been carried on during the period are set forth in the following pages.

EXHIBITION AND PREPARATION.

One of the largest undertakings in connection with display material was the rearranging of the entire Indian exhibit following the redecoration of the rooms which house the material in the basement of the Museum building. The work was accomplished under the direction of Mr. A. E. Pickford, who gives a more detailed account elsewhere in this report. The new arrangement, while not yet complete, produces a more pleasing appearance; there is less crowding in the cases and the objects are much more artistically displayed. One of the smaller rooms has been set aside for storage for excess Indian material.

Early in the year the series of scale models of the sharks of British Columbia was completed by Mrs. L. C. Sweeney, and the collection was placed on display in the fish section. The exhibit includes models of the following: basking shark, mud shark, mackerel shark, spotted cow shark, blue shark, soup-fin shark, thresher shark, cat shark, sleeper shark, and dogfish.

Living animals on exhibit continue to attract attention. Chief among these was a colony of bees contributed by Dr. J. B. Munro, Deputy Minister of Agriculture, and maintained in a demonstration hive. The rattlesnake, chipmunk, and various amphibians and fishes also receive special notice.

A display-case near the entrance-hall has featured a collection of modern native handicrafts arranged by Mr. A. E. Pickford, followed by a diagrammatic exhibit showing the recent geological history of the Victoria area prepared by Mr. Hardy.

An additional exhibition-case has been installed, in which specimens of current interest are displayed.

In the entrance-hall a show-case has been placed at the disposal of the junior members of the Victoria Natural History Society. During the year this case has displayed exhibits entitled "What is an insect," "Fungi of the Victoria area," and "Twigs and fossils," all arranged by junior members.

SPECIAL EXHIBITIONS.

The Fifth Annual Exhibition of British Columbia Indian Arts and Crafts, June 10th to 30th, formed the only special exhibition held in the Museum during the year. The display, sponsored by the British Columbia Indian Arts and Welfare Society, was opened by Mrs. Nancy Hodges, M.L.A.; Chief Percy Ross, of the Songhees Reserve, was also in attendance. The materials on view consisted of entries from several Indian schools as well as from individuals. Entries consisted of paintings, drawings, and other art-work, together with many examples of woodwork embodying Indian designs.

Among the latter were model canoes, indicating a deep interest on the part of young boys in the Indian canoe races held at the Gorge during May. Several examples of recent paintings by George Clutesi, Alberni Indian artist, were also included.

FIELD-WORK.

During the period from June 10th to August 24th the Director was on loan to the Federal Department of Fisheries for the purpose of visiting the fur-seal breeding-grounds on the Pribilof Islands, Alaska. A brief outline concerning this trip will be found elsewhere in this report.

While on the Pribilof Islands, biological specimens of special interest were collected under permits granted through the United States Fish and Wildlife Service. Materials so gathered included the skin and skeleton of a bachelor fur-seal, skulls of adult males and females, skins of common sea-birds, specimens of St. George Island lemmings and representative plants. (The latter obtained by exchange with Dr. Georges Préfontaine.)

Kodachrome "stills" and motion-pictures in colour were also obtained to show phases of the life-history of the fur-seal and some of the birds and flowers found on the islands.

On three occasions during the summer Mr. Hardy paid short visits to the area in the vicinity of Jordan Meadows, near the headwaters of the Jordan and Leech Rivers. Sufficient specimens and information were collected to indicate that further and longer study should be given to this area before it is changed radically by logging operations and other forms of exploitation.

On February 15th an overnight trip was made to Parksville to take part in an investigation concerning the death of trumpeter swans in a near-by swamp; a dead bird was obtained for its skeleton. Later in the season a visit was made to Alberni and to Horne Lake, at which place caves were examined in company with Game Warden Frank Greenfield, of Nanaimo.

Numerous other field-trips to areas in the vicinity of Victoria have been made during the year, mainly for the collection of fresh materials for display, but also to accumulate data regarding changes being forced upon local wild life by the spread of urban areas.

In July Mr. Pickford spent several days on Denman Island as a guest of Mr. H. R. Lacon, during which time he examined middens and other sites of former Indian habitations.

A short period of field-work in the Canadian Rockies was made on behalf of the Museum by the botanist while on annual leave. Valuable contacts were made and specimens were gathered for the herbarium collection.

PUBLICATIONS.

A number of papers and other articles have appeared in print during the year as contributions from the Museum. These include the following:—

BY G. CLIFFORD CARL.

"Major Allan Brooks." *Victoria Naturalist*, Vol. 2, No. 8, p. 119, 1946.

"In Memoriam—Allan Brooks." *Murrelet*, Vol. 27, No. 1, p. 14, 1946.

"From Fish to Frog." *Victoria Naturalist*, Vol. 3, No. 2, pp. 21-24, 1946.

"Life in the Museum." *The Provincial*, Vol. 1, No. 1, pp. 21, 22, 1946.

"A School of Killer Whales stranded at Estevan Point, Vancouver Island." Report of the Provincial Museum for 1945, pp. 21-26, 1946.

"Sharp-headed Finner Whale stranded at Sidney, Vancouver Island, British Columbia." *Murrelet*, Vol. 27, No. 3, pp. 47-49, 1946.

BY I. MCT. COWAN AND G. C. CARL.

"The Northern Elephant Seal (*Mirounga angustirostris*) in British Columbia Waters and Vicinity." *Canadian Field-Naturalist*, Vol. 59, No. 5, pp. 170, 171, 1 plate, 1945.

BY GEORGE A. HARDY.

"Some Spring and Summer Butterflies." *Victoria Naturalist*, Vol. 2, No. 9, pp. 142-145, 1946.

"Spring Flowers." *Victoria Naturalist*, Vol. 3, No. 1, pp. 12, 13, 1946.

"The Devil's Club." *Victoria Naturalist*, Vol. 3, No. 3, pp. 43, 44, 1946.

"The Scaly Crab." *Victoria Naturalist*, Vol. 3, No. 3, p. 44, 1946.

"The Tent-caterpillar Situation for 1947." *Victoria Naturalist*, Vol. 3, No. 6, pp. 75, 76, 1946.

"Report of the Third Annual Fungus Foray." *Victoria Naturalist*, Vol. 3, No. 6, pp. 78, 79, 1946.

"Some Mushrooms and other Fungi of British Columbia." *Provincial Museum Handbook*, No. 4, pp. 1-96, 1946.

Materials for several other publications in the Museum series have been prepared during the year. Some of these are in the hands of the printers at the time of writing; others will be published in 1947.

The continued demand for copies of Occasional Paper No. 5, "A Corner Stone of Canadian Culture," by Alice Ravenhill, has made it necessary to have a third lot reprinted. Copies of this publication have been requested from many parts of Canada and from almost all States in the Union as a result of being reviewed in various periodicals.

We wish to record here also the enthusiastic reception given to Mrs. J. Stanwell-Fletcher's book, "Driftwood Valley," which appeared during the year. The many references to this Museum and the accounts of specimens taken for our collections have resulted in many inquiries regarding animals and plants from that remote area.

The exhibits and work of the Museum was the subject of a short article by Robert S. Savery which appeared in "Island Events" of November 28th, 1946.

MOTION-PICTURES.

During the spring months several species of wild flowers were photographed on colour motion-picture film to add to those taken in previous years. These have been assembled with other material and appropriate titles to make a 400-foot film featuring our native wild flowers. Prints are being obtained for general use.

On two occasions during the year motion-pictures of whales were obtained. In time it is planned to produce a film showing phases of the structure and habits of these marine mammals.

During a visit to the Pribilof Islands in June, July, and August the Director was granted the privilege of photographing the fur-seals and other natural-history subjects found there. A 1,200 foot silent colour-film has been assembled featuring this material for Museum use, and shorter films are planned for wider distribution.

The co-operation of the British Columbia Government Photographic Branch of the Department of Trade and Industry in photographing some of this material is greatly appreciated. The loan of a camera and other accessories by the Public Relations and Education Branch of the British Columbia Forest Service was also of inestimable help in producing these films.

In December the Museum purchased an Ampro sound projector to supplement the Bell & Howell silent machine, which has given many years of efficient service.

EDUCATION.

MUSEUM LECTURES.

The programme of Saturday morning lectures offered in the spring to children of the Greater Victoria area extended over a period of seven weeks in 1946, as shown in the following table:—

Date.	Topic.	Speaker.
February 9.....	" Would you like an Indian Dinner? "	Dr. Erna Gunther, Director, Washington State Museum, Seattle, Wash.
February 16.....	" Legends of the Winter Stars ".....	Dr. Joseph A. Pearce, Director, Dominion Astrophysical Observatory, Victoria, B.C.
February 23.....	" Life on the Pribilofs ".....	Dr. Victor B. Scheffer, Biologist, Fish and Wildlife Service, U.S. Department of the Interior, University of Washington, Seattle, Wash.
March 2.....	" Earth Diggers ".....	Dr. G. Clifford Carl, Director, Provincial Museum, Victoria, B.C.
March 9.....	" River of Paper ".....	Mr. Eric Druce, Public Relations and Education Division, B.C. Forest Service, Victoria, B.C.
March 16.....	" Marvels of Flowerland ".....	Mr. George A. Hardy, Botanist, Provincial Museum, Victoria, B.C.
March 23.....	" Dinosaurs ".....	Mr. Walter S. Maguire, Biologist, New Westminster, B.C.

Total attendance, 3,300.

Thanks are again extended to the various outside speakers who aided in producing this programme, and also to Mr. R. L. Colby, of the Photographic Branch, Department of Trade and Industry, who operated the sound motion-picture projector. We wish also to extend thanks to the British Columbia Electric Railway Company, through Mr. W. C. Mainwaring, vice-president, for again granting special travelling privileges to school children attending the lectures.

OTHER LECTURES.

During the year addresses and lectures have been given by members of the Museum staff to the following organizations: Victoria Nursing Home (four shows), Cloverdale Parent-Teacher Association, Outdoors Club, Pacific Northwest Bird and Mammal Society, Monterey School, Langford Parent-Teacher Association, Victoria Rock Garden Association, Victoria Kinsmen (two addresses), Y.M.C.A. Boys' Department, Victoria Lions Club, Victoria Natural History Society (two lectures), St. Michael's School (three lectures), Victoria Hard of Hearing Club, University Women's Club, Quadra School, Quadra Parent-Teacher Association, Ornithology Group of the Victoria Natural History Society, Mount View High School Parent-Teacher Association, Round Table Club, Songhees Indian Day-school (Craigflower), Canadian Section of the Pacific Northwest Bird and Mammal Society, Victoria Gyro Club, Victoria Lions Auxiliary, Capital City Commercial Club, Colwood Community Club, Federation of Canadian Artists (Little Centre), Vancouver Natural History Society, Cowichan Fish and Game Association (Duncan), Royal Oak School, Victoria Kiwanis Club.

In addition to these, numbers of school classes have been guided through the Museum and have been given instruction by members of the staff, particularly in connection with Indian material, which is now included in the course of studies.

A series of other talks and demonstrations has been given to the junior members of the Victoria Natural History Society, who meet in the Museum on Saturday mornings.

SCHOOL MATERIALS.

In anticipation of demands being made upon the set of dioramas prepared last year for use in teaching Indian life in schools, several more copies were made by both

Mrs. Sweeney and Miss Newton, but even these extra panels were insufficient to satisfy all requests. Further copies are therefore in preparation.

As a supplement to this material a wooden model of a Coast Salish "long house" was constructed for use in local schools. It is designed to show the method of construction and the internal arrangement of living-quarters. Miniature human figures add interest and value to the exhibit as a teaching aid.

Among biological material a collection of common birds has been gathered and will be used as a teaching unit.

RESEARCH.

In connection with the preparation of teaching material to accompany dioramas featuring early British Columbia Indian life, a considerable amount of research has been done by the anthropologist in gathering authoritative material. This is being assembled in type-script form and may in time be published.

At every opportunity the botanist has been gathering specimens and information regarding the flora of the Province, which in time will be used in future publications. Materials and specimens relating to certain biological problems have also been gathered as time and opportunity have permitted.

ATTENDANCE.

The attendance at the Museum during the year 1946 is summarized as follows:—

Month.	Registered.	Estimated.
January	2,326	3,440
February	2,552	3,261
March	2,740	3,641
April	2,809	3,760
May	3,225	4,786
June	4,920	7,930
July	7,213	10,650
August	8,631	12,900
September	4,285	7,000
October	2,136	3,069
November	1,331	2,017
December	1,028	1,200
Totals	43,196	63,654

Not included in these figures are 3,300 children who attended the spring lectures, twenty-two school classes, four groups of naval officers, and eight other organized parties, making an estimated total of over 67,000.

Compared with the estimated attendance of 76,000 for 1945 (a record year), the number of visitors in 1946 was lower by 9,000, a decrease of about 12 per cent.

The attendance record for the month of July, as shown by the Visitors' Register, has been analysed by Mr. Pegler as follows:—

Residence.	Registration.	Residence.	Registration.
British Columbia	1,601	New Brunswick	3
Alberta	475	Nova Scotia	11
Saskatchewan	453	Prince Edward Island ...	5
Manitoba	246	Newfoundland	3
Ontario	218	Yukon Territory	2
Quebec	69		
		Total	3,086

Residence.	Registration.	Residence.	Registration.
Washington	1,667	Other countries	21
Oregon	499	Country not stated	5
California	1,041		
Alaska	2	Total	4,127
Other States	873		
Great Britain	19	Grand total	7,213

Compared with a similar analysis of attendance for July, 1945, the registration during this month was lower in 1946 by 629. This general decrease is no doubt partly due to the demobilization of Canadian and United States forces, formerly concentrated in this area, who used to visit the Museum in considerable numbers.

At the same time the number of visitors from the Prairie Provinces has shown a decided increase, while those from California is almost six times as great as in the former year. These figures apparently reflect the general tendency towards increased tourist travel following the lifting of restrictions.

Notwithstanding the general decrease in attendance as compared with last year, the number of visitors in August reached an all-time high for any single month.

STAFF CHANGES.

Major changes in staff occurred during the year due to superannuation; those members affected were Mrs. Lillian C. Sweeney, Mr. A. E. Pickford, Mr. H. H. Pegler, and Mr. J. Cruickshank (Department of Public Works).

Mrs. Sweeney, who joined the staff in 1935 as assistant preparator, produced many of the very fine models now on display in the Museum. Particularly outstanding are those of the fungi and those of fishes. In the preparation of the latter she was able to develop a special technique which resulted in an unusually life-like reproduction of our local species. More recently she painted a series of dioramas showing Indian life in the Province for use in schools—a type of exhibit which has been given high praise. Examples of her work will be of use for many years to come.

Mr. Pickford, who was transferred from the Forest Service to the Museum in May, 1944, to take over the anthropological work, has made a valuable contribution in the short time that he has been associated with the Museum. Most conspicuous is the new and pleasing arrangement of the Indian exhibit, which was accomplished during the past season under his direction. Of great value also is the series of type-scripts on Indian life in the Province assembled by him for use in schools as a supplement to the panels painted by Mrs. Sweeney. Less tangible, but no less important, are the many contacts made with other scholars and specialists in this field in various parts of this Province and elsewhere. Mr. Pickford's contribution in this much neglected field will long be felt.

Mr. Pegler has been associated with the Museum for six years, during which time he has been of service to innumerable visitors and school classes, acting as a guide and source of information to all interested parties. Many regular visitors, both adults and youngsters, will miss his presence.

We would like to express gratitude to these retiring staff members and to Mr. Cruickshank, of the Public Works Department, for the period of faithful and cheerful service they have given while associated with this institution.

To fill the vacancies created as above noted, we wish to welcome Mr. Arthur F. Coates, a veteran of the Italian and Normandy campaigns, and Miss Betty Newton, a local artist of promising talent. We are pleased also to have the assistance of Mr. J. McAllister, of the Public Works Department, as night janitor.

BUILDING MAINTENANCE AND STORAGE ARRANGEMENTS.

Under this heading we wish to record the redecorating of the basement display-rooms, none of which had been painted for many years. To accomplish this, the Indian materials were removed from each room in turn, providing an opportunity to store surplus and duplicate specimens and to rearrange the remainder. To render the displays more effective, the exhibition-cases were painted on the inside and extra tables and cases were acquired to prevent crowding of the specimens.

To accommodate excess material, one of the small basement rooms has been turned into a storeroom by fitting shelves into the old cases and installing locks on the doors.

Permission has also been granted to store study materials in the front portion of the basement of the building housing the Museum workshop on Superior Street.

A metal-covered storage-cabinet has been purchased to add to the series in the attic of the main building, where the bird and mammal study skins are kept.

OBITUARIES.

With regret we record the passing of Mr. Francis Kermode, the former Director of this Museum, on December 29th, 1946, at the age of 72 years.

The late Mr. Kermode became associated with the Museum in 1890, when Mr. John Fannin was in charge. On the retirement of Mr. Fannin in 1904, Mr. Kermode was made Curator, an office which he held until September, 1940, when he retired after more than fifty years' service. Under Mr. Kermode's directorship the Museum grew in both size and scope, until at the present time the natural-history collection is of great scientific value and the North-west Coast Indian collection is one of the most extensive on the continent. He was the author of several papers on various natural-history subjects published in the Annual Reports, and he took an active interest in assembling the exhibits which are now on display in Thunderbird Park. The widely known British Columbia white bear was named in his honour, and many specimens on view in the Museum carry his name as collector, so that he will be long remembered.

On January 3rd, 1946, Major Allan Brooks died at Courtenay in his seventy-seventh year. Known widely as an artist and an illustrator of birds and as an authority in wild-life matters, his death is deeply felt by all. The Museum is fortunate in having a number of study specimens prepared by him and also two bird paintings which are on display.

We wish to note also the death of Dr. C. McLean Fraser, former head of the Department of Zoology, University of British Columbia, who died on December 26th, 1946, at 74 years of age. A renowned authority on hydroids and marine biology in general, Dr. Fraser was widely known both as a scientist and as a teacher. Many workers in biological fields and in medicine were former pupils of his; they learn of his passing with regret.

REPORT OF THE BOTANIST.

Accessions for the year 1946 amounted to 613 sheets of specimens. Specimens labelled, filed, and shelved numbered 379. About 2,000 plants were mounted, the majority by Mrs. L. C. Sweeney. During the last month of the year Miss Sheila Grice helped with labelling and filing.

No field-trip of any consequence was undertaken as far as the botanical section was concerned, although no opportunity was neglected to augment the herbarium collection whenever the occasion offered, such as when renewing living material for the seasonal flower case, or during an exploratory visit to the Jordan Meadows district.

As usual the seasonal case of wild flowers has been maintained to display the salient floral features of the vicinity of Victoria.

Work on the mushroom handbook was completed during the year; the publication will be available for distribution in 1947.

Special exhibits were arranged when space and time were available. Of two such displays one shows the poison ivy and oak, comparing the two species and indicating the action of the poison, its symptom and treatment. The other illustrates diagrammatically and graphically the raised beaches of the Victoria district, which, while not featuring a botanical subject, nevertheless was prepared in the botanist's time.

In the aggregate, considerable time was expended in answering inquiries and giving attention to various school and other lectures and demonstrations.

As hithertofore Mr. J. W. Eastham, Provincial Plant Pathologist, Vancouver, has maintained his interest in the herbarium by the contribution of specimens and information concerning British Columbia plants in general.

We are grateful for the support and co-operation of the Government survey parties, whose members, listed below, have gone out of their way to make collections for the Museum: Mr. A. G. Slocomb for 12 sheets of specimens from the west coast of Vancouver Island; Mr. J. Cambrey for 18 sheets of specimens from the Fort Fraser district; Mr. G. C. Emerson for 31 sheets of specimens from the Ilgachuz Mountains, west of Williams Lake.

Other contributions, which are equally valued, are credited to the following donors: Mr. J. A. Munro for a collection of 90 specimens acquired over several years from Interior points, all of which have been identified by Mr. A. E. Porsild, of Ottawa; Mr. Lionel E. Taylor for 138 specimens from the west coast and inland points, areas not otherwise represented in the herbarium; Mr. G. A. Hardy for 150 specimens collected in the Rocky Mountains while on a holiday; Dr. G. C. Carl, 8 numbers from the Pribilof Islands, Alaska, collected by Dr. Georges Préfontaine.

A short trip to the Jordan Meadows district by the botanist yielded a collection of some 66 sheets of specimens, while many additional numbers have been obtained on short excursions made on the spur of the moment in the course of his duties.

ACKNOWLEDGMENTS.

We are greatly indebted to the specialists mentioned below, who have kindly undertaken the work of identification of difficult species: Dr. Leon Kelso, Washington, D.C.—Castilleja; Dr. Carleton R. Ball, U.S. Department of Agriculture, Washington, D.C.—Willows; Mr. J. W. Eastham, Vancouver, B.C.—Grasses and Sedges.

MISCELLANEOUS NOTES.

Plant additions to "Flora of Vancouver Island and Queen Charlotte Islands," 1921:—

Hieracium Pilosella L. Comox, V.I., August 7th, 1946. Mrs. L. A. Planta. (Introduced from Europe.)

Caltha biflora DC. Jordan Meadows, V.I., June 26th, 1946, G. A. Hardy. Alaska-Washington, previously recorded for Queen Charlotte Islands but not, so far as known, from Vancouver Island.

REPORT OF THE ENTOMOLOGIST.

Most of the work in this department was of a curatorial nature.

The usual flood of inquiries about conspicuous or obnoxious insects was received, necessitating some time spent in the identification of specimens and looking up of facts in connection therewith.

Work is under way on the insects collected in Manning Park, in view of a report for that area in the near future.

Some investigation concerning the tent-caterpillar situation was undertaken, the results of which were published in the bulletin of the Victoria Natural History Society.

REPORT OF THE ANTHROPOLOGIST.

For many years the Museum quarters in which the anthropological material is displayed have been listed for painting and calcimining. Shortage of labour and of material, due to war conditions, delayed the work, but the project was put in hand in the early part of the year. Simultaneously with the work of redecorating, the exhibits were dismantled for renovation. The reorganization of the displays necessitated the removal of much surplus material which had accumulated in the cases due to lack of storage-space elsewhere. To meet this condition moth-proof costume storage-boxes were built and an additional room set aside for storage.

These display and storage problems have been approached on modern lines, and a plan of attack advocated some time ago has now become possible. To each of the tribal divisions of the Province a definite floor display-space is assigned, on which are arranged special exhibits of a more or less temporary nature. These temporary exhibits are concentrated on a limited range of typical cultural aspects of native life, and each is planned and labelled to carry a definite educational message. Once an exhibit of this nature has been on display for a definite period, it is then removed and another equally interesting series is installed in its place. Thus those who are frequent visitors to the Museum may have the pleasure, from time to time, of seeing fresh material and of learning new things about the complex cultures of our native races.

Nor has the organization of the surplus material been neglected: the new storage-room is designed with shelving, cabinets, and drawers allotted to the various tribal divisions; in these it is planned to place the storage material in such systematized order that all of our accessions, even though they may not be immediately on display, shall be, nevertheless, readily available to those students who are engaged in serious anthropological research. This project is not yet entirely completed, having been delayed by forced retirement of the anthropologist in the last three months of the year. However, with the opening of the new season it is again in hand.

Field-work during the year was limited, due to the above-mentioned retirement and to Dr. Carl's absence during the summer months. However, an extension of the study of ancient evidences of native life on and around Denman Island became possible through the courtesy and hospitality of Mr. H. R. Lacon. The well-known Yellow Rock petroglyphs on the south end of the island are found to be extended in counterpart at many other points in the vicinity. An early earthwork at the north end of the island was examined and mapped, and a limited amount of work was done on the extensive shell-mound in the same locality. As a result of the recent earthquake, several evidences of prehistoric tide-water constructions came to light in the form of picket-points arising from the mud. These pickets are interpreted as being part of brush-work screens used as duck-spearing blinds or as maze-like spearing-grounds for fish driven into the shallow waters during the seasonal runs. Ethnobotanical observations on the island also provided interesting record material.

An interchange of courtesy and assistance was carried out between the Museum and the famous British Museum, the City Museum of Vancouver, and the Heye Foundation Museum of New York.

Lectures on the floor of the Museum were limited to one given on behalf of the British Columbia Indian Arts and Welfare Society, in which the aid of local Indian boys and girls was invoked to display a series of ceremonial costumes of the tribes of the North-west Coast. Continuation of our policy of giving personal attention to visitors both in the office and on the floor of the Museum was carried out. In this

work particular attention was given to Miss D. Geneva Lent, author, of Calgary; Miss Helmi Juvoven, artist, of Seattle; and Mr. Edward Malin, student in anthropology at the University of Colorado.

The attendance of school classes as visitors to the Museum was well maintained; some field demonstration and local lecturing was done. Schools also proved eager to take advantage of the facilities afforded by the circulating panels illustrative of native life and accompanying script.

ACCESSIONS.

During 1946 the following numbers of specimens or groups of specimens were added to the catalogued collection (figures in parentheses denote the total number on December 31st, 1946): Indian material, 161 (6,352); plants, 613 (19,729); mammals, 13 (5,227); birds, 108 (9,263); reptiles, 5 (275); amphibians, 0 (555); fish, 22 (683).

Coming directly or indirectly from individual collectors, the following anthropological items are noteworthy:—

The Frank Swannell Collection.—(Purchase.) Mr. Frank Swannell, B.C.L.S., who is well known as one of the pioneer land surveyors of the Province, has from time to time passed over to this Museum groups of specimens collected by him in the Northern Interior. A further contribution was made again from this source, comprising the following items of Dene origin: A bone bottle for trap-scent, a fine bone sap-scraper, a Hudson's Bay buffalo-knife with moosehide handle, a horn cinch-hook, a moosehide gun-coat, a pair of moccasins embroidered with dyed porcupine quill, and a Tsimshian axe-head, which latter was found at Stuart Lake. The collection also includes two fine old Lillooet baskets from Seton Lake and Pemberton Meadows.

The Captain L. A. Peck Collection.—(Gift.) Captain Peck is another contributor who, from time to time, is able to hand us valuable groups of material. In this instance his gift is of archæological interest and includes some interesting bone pieces, chiefly from the Eburne and Locarno shell-mounds.

The M. D. Jamieson Collection.—(Gift.) This collection included a great variety of miscellaneous pieces, including several Salishan arrow-heads and chisels, also a great many items of world-wide provenance which, since this museum is confined to products of British Columbia, were handed on to the excellent little museum at St. Ann's Academy supervised by Rev. Sister Mary Theodore.

The T. B. Caulkin Collection.—(Gift.) This unusual gift of eastern Eskimo material, although not in any way connected with British Columbia, was taken in and valued for the interesting comparisons it affords with the earlier bone and other archæological specimens found in the various kitchen-middens along the Pacific Coast. Horn spoons, snow-knives, blubber-hammers of musk-ox horn, a stone lamp, and some native copper implements are among the more interesting items.

In addition to the above groups, the following specimens have been added to the accession list:—

H AidAN.

By gift—

- Wooden dish, carved ends. In the Captain Peck donation.
- Spring hook for black cod. In the Frank Swannell donation.
- Black slate totem. Mrs. Charles S. Parker, Toronto.

TSIMSHIAN.

By gift—

- Ceremonial copper (rare specimen). E. Wrightmeyer, Vancouver.

KWAKIUTL.

By purchase—

Halibut-hook.

Concretion, engraved animal design. In Frank Swannell purchase.

NOOTKAN.

By gift—

Model canoe. In the M. D. Jamieson donation.

By purchase—

Table-mat—a very fine specimen of recent native workmanship woven in tribal design.

COAST SALISH.

By gift—

Stone anchor. Commander R. P. Kingscote, Victoria.

Stone mortar. Mrs. A. C. Wurtele, Victoria.

Two rugs of native weave. Mrs. F. J. Barrow, Sidney.

Two arrow-heads. Arthur Peake, Duncan.

Elkhorn wedge. H. R. Lacon.

Stone net-sinker. Harry Dick, Songhees Reserve.

Bone tool. Mrs. Davidson, Victoria.

Salmon-toasting stick and lomatium roots. A. E. Pickford, Museum staff.

Swan feathers, as used on ceremonial costumes. Dr. G. Clifford Carl, Museum staff.

Two arrow-heads. Mrs. Charles S. Parker, Toronto.

Two stone chisels. G. Hirst, Victoria.

Two stone chisels. H. Raines, Victoria.

By purchase—

Basket, coiled and imbricated.

Basket, lid twined.

Blanket, goat-wool mixture.

Basket with handles.

Two spirit boards.

Rattle, bean-shaped.

Rattle, bird-shaped.

Two baskets.

One basket and lid.

SALISHAN INTERIOR.

By purchase—

Two basketry cradles complete with urinal tubes.

DENE.

By purchase—

Model of totem-pole.

ESKIMO.

By gift—

Umiak (model), with two paddles, two oars, mast and sail.

Mrs. C. H. French, Victoria.

PLAINS INDIAN.

By purchase—

Feather head-dress.

OSTEOLOGICAL.

By gift—the following human remains from pre-historic burials:—

- Skeleton from Okanagan Centre. Mrs. G. Reeve.
- Skeleton from Vancouver Island. Mrs. W. Martin, Victoria.
- Jawbone from shell-mound at Dashwood. A. E. Pickford, Museum staff.
- Cranium from Dockyard, Esquimalt. Miss E. Prangnell, Victoria.
- Skeletal remains from Royston. Commissioner T. W. S. Parsons, Victoria.
- Jawbone from shell-mound at Deep Bay. A. E. Pickford, Museum staff.
- Skull and bones from Gordon Creek. Commissioner T. W. S. Parsons, Victoria.
- Skull from under overhanging rock at Tattersal Drive. Miss Kitchin, Victoria.

BOTANICAL ACCESSIONS.

T. H. Anstey, Agassiz, one; Mr. Day, Yukon, collection of plants from Eldorado Creek, Y.T.; C. P. Lyons, Victoria, collection of plants from Manning Park; J. M. Macalister, Macalister P.O., one; F. H. McKinnon, Victoria, one; D. Munday, North Vancouver, one; Mrs. A. E. Planta, Nanaimo, one; W. Planta, Blubber Bay, one; L. Solly, Westholme, one; Mrs. T. L. Thacker, Hope, one.

ZOOLOGICAL ACCESSIONS.

MAMMALS.

By gift—

- A Carmichael, Victoria. Three portions of whalebone.
- T. B. Caulkin, Victoria. One narwhal tusk.
- H. C. Dalziel, Okanagan Landing. One mountain-goat skull.
- D. Leavens, Cultus Lake. Three bats.
- E. C. Mayea, Duncan. One ferret.
- A. Peake, Duncan. One shrew.
- H. Raines, Victoria. One mammal skull.
- J. W. Stewart, Lower Post, B.C. One melanistic red squirrel.
- T. L. Thacker, Hope. One shrew.

By the staff 3

BIRDS.

By gift—

- L. Bullock-Webster, Victoria. Collection of birds' eggs from England, Normandy, and Iceland.
- I. Finlay, Victoria. One gull.
- D. Gray, per A. Peake, Duncan. One Virginia rail.
- F. Greenfield, Nanaimo. One whistling swan.
- C. Kinloch, Victoria. One snowy owl.
- T. McKeachie, Victoria. One fork-tailed petrel.
- A. C. Mackie, Vernon. Collection of bird-skins representing species from various districts of British Columbia.
- R. Monteith, Victoria. One European widgeon.
- J. A. Munro, Okanagan Landing. One grebe.
- Alex. Patterson, Victoria. One golden eagle.
- Peter Ross, Victoria. One bald eagle.
- L. C. Sweeney, Victoria. One duck.

By the staff 2

FISH.

By gift—

- Askey's Fish Market, Victoria, per H. H. Pegler. One rockfish.
 L. Carlson, Victoria. One pipefish.
 G. N. Cull, per Fishermen's Co-operative Federation, Victoria. One hagfish.
 W. Egeland, Sidney. One California pompano.
 R. Hopkins, per R. Monteith, Victoria. One brown trout.
 R. W. Hull, Victoria. One grunt fish.
 R. O. Merilees, Vancouver. Jaw of salmon.
 E. Pepler, Victoria. Specimen of fish-egg mass.
 C. H. Robinson, Nelson. Seven samples of minnows.
 R. Sanders, Vancouver. One pipefish.
 G. H. Smith, Victoria. Two sculpins, one greenling, one alligator fish, one kingfish.
 W. Stevens, Oliver. One sunfish.

By the staff..... 2

AMPHIBIANS AND REPTILES.

By gift—

- D. L. Benson, Pavilion. One rubber-snake.
 H. C. Dalziel, Okanagan Landing. One blue racer snake.
 R. C. W. Lett, Victoria. One garter-snake.
 David McCracken, Victoria. One living horned toad from Alberta.
 N. J. Robb, Princeton. One rubber-snake.
 D. Tylor, Victoria. Tree-toad tadpoles.
 T. Widdowson, Read Island. One alligator-lizard.

INVERTEBRATES.

By gift—

- J. C. Browne, Victoria. One white admiral caterpillar.
 Patricia Cann, Victoria. One larva of tiger-beetle.
 E. A. Cooke, Sooke. One cabbage white butterfly.
 K. Duncan, Victoria. One California tortoise-shell butterfly.
 W. Egeland, Sidney. One wood-borer.
 Mrs. G. Ellis, Victoria. Two polyphemus moths and one eyed hawk-moth.
 L. P. Emerson, Victoria. One orange-tip butterfly.
 R. Forbes, Victoria. Three long-horned beetles.
 F. Gale, Victoria. One polyphemus moth.
 P. George, per Wilson & Lenfesty Co., Victoria. One pearl from oyster.
 P. Graham, Victoria. Specimens of barnacles.
 W. Harrison, per Major Glaston, Victoria. One banded borer.
 E. G. Hart, Victoria. Collection of jellyfish.
 Mrs. C. E. Hutton, Victoria. Moths and eggs of polyphemus moth.
 R. C. W. Lett, Victoria. One caterpillar of swallow-tail butterfly.
 Mrs. J. Macdonnel, Victoria. One polyphemus moth.
 J. Macalister, Macalister P.O. One nest of mud-wasp.
 E. Moilliet, Victoria. Larva of white admiral moth.
 Mrs. J. R. Nixon, Victoria. One California oak-borer.
 G. Parker, Victoria. One tiger-moth.
 H. Sargison, Victoria. One ichneumon fly.
 E. B. Shaw, Victoria. One wasps' nest.
 F. R. Shenstone, Victoria. One sphinx-moth.

- D. Smith, Victoria. One orb-weaving spider.
 D. Tylor, Victoria. One meadow butterfly.
 E. Walters, Victoria. One California silk-moth.
 Mrs. E. Wilcox, Youbou. One wood-borer.
 Mrs. B. Woodward, Victoria. One California tortoise-shell butterfly.

PALEONTOLOGY.

By gift—

- C. E. Foster, Victoria. One concretion.
 C. Tapping, Sidney. One rock specimen.
 S. Woods, Victoria. One fossil shell.

MISCELLANEOUS.

By gift—

- W. B. Anderson, received through W. Ireland, Provincial Librarian, Victoria.
 One hundred and thirty original coloured drawings of Vancouver Island mushrooms.
 Mrs. F. J. Barrow, Sidney. Collection of 16-mm. motion-picture film of botanical and anthropological interest belonging to the late F. J. Barrow.
 Canadian Broadcasting Corporation, Vancouver, per I. Dilworth. One set of recordings of ceremony at Duncan in connection with the presentation of an Indian sweater to President Truman's representative.
 R. Nugent, Duncan. Collection of sixteen lantern-slides of whaling and fur-sealing.
 E. Scaplin, Victoria. Collection of prints and negatives of whale photographs and one 200-foot 35-mm. film of whaling industry.

THE ALASKA FUR-SEAL INDUSTRY AND CANADA'S INTEREST.

BY G. CLIFFORD CARL, PROVINCIAL MUSEUM, VICTORIA, B.C.

Since 1911, when the hunting of fur-seals on the high seas was discontinued by international agreement, the number of seals has increased from about 150,000 to approximately 3,000,000 animals. The increase has come about through the careful management of the sealing industry now carried on by the United States Government on the breeding-grounds, located on the Pribilof Islands in the Bering Sea. The Alaska fur-seal industry is an outstanding example of successful wild-life management.

Because of Canada's interest in this thriving industry, the United States Government invited the Dominion Government, through the Honourable H. Francis G. Bridges, Minister of Fisheries at Ottawa, to send representatives to the Pribilof Islands to act as observers during the sealing season of 1946. Dr. Georges Préfontaine, Director of the Institute of Biology at the University of Montreal and an executive member of the Fisheries Research Board of Canada, and the writer were asked to act as Canadian representatives, and arrangements were made for us to accompany American officials leaving Seattle for the Pribilofs on June 12th. The writer arrived back in Victoria on August 25th after a stay of seven weeks on the Islands; the remaining time was spent in travelling. The following report is based on material gathered during this time and submitted in more detail to officials of the Fisheries Research Board of Canada.

LIFE-HISTORY.

The life-history of the fur-seal while on the breeding-grounds is fairly well known, having been studied by various investigators over a number of years. For details the reader may refer to "The Fur Seals and Other Life of the Pribilof Islands, Alaska, in 1914," by Osgood, Preble, and Parker (Bulletin of the U.S. Bureau of Fisheries, Vol. 34, pp. 1-172, 1916). A brief account follows.

Bull seals ready for breeding arrive at the Pribilofs and haul out early in the season, some in April but the majority in May and early June. Here they await the arrival of the cows, the strongest individuals taking up the most favourable positions, the weaker being forced to the rear. Cows begin to arrive towards the end of May, but the greatest number appear in June and stragglers may continue to arrive throughout July; virgin cows may even arrive as late as August. Bulls reach sexual maturity in their third or fourth year but are unable to hold their ground on the rookery until their seventh year; in their prime they may attain a weight of 500 pounds or more. Cows, on the other hand, mature in their second year of life and weigh between 45 and 135 pounds. No other mammal shows such a disparity in size between male and female.

Each breeding bull takes over a number of cows to form a family group or "harem"; the size of the harem depends upon the number of cows available, the strength of the male, and other factors. Some bulls succeed in acquiring a single mate only, while others may gather eighty or more cows. An average harem consists of about thirty individuals.

A certain number of bulls of breeding age fail to acquire mates because they occupy an unfavourable position on the rookery, because they have not attained their physical prime or have passed it or because of some other reason. These are known collectively as "idle bulls" and are usually found occupying stations to the rear or to one side of the breeding animals.

The pup is born shortly after the arrival of the cow, usually within a day or two of reaching the rookery. A single pup weighing 8 to 12 pounds is born of each female; no authenticated case of twins or multiple births is known. Within a few days or

perhaps a week after delivery, the cow is served by the bull and then is allowed to leave the harem to go to sea in search of food. In her quest she may travel 50 to 100 or more miles to sea and may be absent several days to a week. Meanwhile the pup remains on the rookery and awaits the return of the female. On arrival the cow searches for her offspring and is apparently able to distinguish her own pup from all the others and will suckle only her own.

By the end of July the breeding season draws to a close, the harems break up and the bulls rest after their long strenuous fast before going to sea in search of food. The males of breeding age remain in northern waters until the next spring, when they again return to the Pribilof beaches.

In the meantime the cows and pups remain on the rookeries; the young grow rapidly and learn to swim on their own, the cow giving no instruction. By October and November, when the pup has attained a size of 25 to 40 pounds, the cows and pups leave the islands and travel southwards, some as far as Southern California. So far as is known, all the cows and most of the young return the next spring to the Pribilofs.

In addition to the breeding seals, on certain portions of the beach there are gathered non-breeding animals, mostly males in their second to sixth year. This "bachelor" population is the result of the harem system of breeding, for although about equal numbers of males and females are born each year, there is built up a large surplus of males. From this surplus stock, animals are selected for killing to provide skins for the trade. Those of the 3-year-old age class are most suitable for commercial use from the standpoint of size and numbers available, but since they are selected on a basis of size, a certain small number of 2-year-olds, 4-year-olds, and females are inadvertently taken.

DRIVING, KILLING, AND SKINNING.

Each day in the early morning during the sealing season the bachelor seals of one rookery or group of rookeries are rounded up by the native members of the sealing gang and are slowly driven to the killing-ground, usually the nearest flat area. Here small groups or "pods" are detached as required and driven over to the killing gang. These men are skilled in selecting by eye seals of the required size and in killing them with a single blow of a 6-foot hardwood club. Seals judged to be too small or too large are allowed to escape back to the beach, while the dead individuals are laid out in rows of ten, where they are measured and bled. The skin is then slit down the mid-ventral line and around flippers and nose. The carcass is then held to the ground by a man armed with a special tool which fits over the neck of the seal, and the skin is removed by a team of three natives who strip it from the body with the aid of tongs fastened to the front edge of the pelt.

The skins are spread out to cool; after counting they are loaded into a truck and removed to the village, where they are turned over to officials of the Fouke Fur Company of St. Louis, Missouri, who hold the contract for processing the skins for the United States Government.

WASHING AND BLUBBERING.

On arrival at the processing plant the skins are thrown into vats of sea-water, where they are allowed to soak for twenty-four hours to remove dirt and blood (Fig. 9). Following washing, the skins are removed to the blubbering-room, where each pelt is placed fur side down on a specially designed blubbering-board, and the fatty tissue is removed by downward thrusts of a curved two-handled knife in the hands of a skilled employee of the fur company. The workman also removes the external ears and tail, trims away the rough edges of the flipper-holes and tag ends of flesh and other parts.



Fig. 1. Breeding bull fur-seal and harem. St. Paul Island, Alaska.



Fig. 2. Fur-seal harem with bull on right and new-born pup in foreground.

(Photos by G. C. Carl.)



Fig. 3. Bull, cow, and pup fur-seal.



Fig. 4. Fur-seal pups on rookery.

(Photos by G. C. Carl.)



Fig. 5. Edward C. Johnston, manager of the Pribilof Islands, counting seals in the annual census. North rookery, St. George Island; supply vessel "Penguin" in distance.



Fig. 6. Natives (Aleuts) driving bachelor seals to killing-ground. Tolstoi rookery, St. Paul Island.

(Photos by Victor B. Scheffer.)



Fig. 7. The "stripping" operation; peeling the skin while the carcass is held to the ground by "barman." Reef killing-field, St. Paul Island.



Fig. 8. Seal skins being checked in from the killing-field by a representative of the U.S. Fish and Wildlife Service (left) and a representative of the Fouke Fur Company, of St. Louis, Missouri (right).

(Photos by Victor B. Scheffer.)



Fig. 9. Washing sealskins in sea-water.



Fig. 10. Fouke Fur Company employee removing blubber from sealskin.

(Photos by Victor B. Scheffer.)



Fig. 11. Sealskins being salted in kench for curing.



Fig. 12. The 1946 take of sealskins from St. Paul Island barrelled for shipping. Foreman Edward J. Neidel, of the Fouke Fur Company, points out one of the barrels marked as part of Canada's share.

(Photos by Victor B. Scheffer.)

At this point the skins are individually examined by an inspector, after which they are gathered up, run through a wringer, and counted into bundles of five.

CURING.

The skins are then transported by overhead trolley system to the salting-house for curing. Here they are carefully spread, one by one, in bins measuring 10 by 20 feet, twenty-four skins to a layer. About 35 pounds of coarse salt is used on each skin and about 15 in the surrounding space, giving a layer at least 1 inch thick over each skin and about 10 inches between skins. The sides of the bins are built up with planks a distance of about 5 feet so that each holds from 1,500 to 2,000 skins; the bin of skins is known as a "kench." After ten days the skins are removed and piled flat ready for barrelling.

PACKING.

At this time each skin is again examined to make sure that curing has been complete, after which it is rubbed over with boric acid and salt mixture, folded, rolled, and packed tightly in a wooden barrel. Each container holds 90, 95, or 100 skins, depending upon the size of the pelts and the skill of the packer.

DETERMINATION OF CANADA'S SHARE.

By international agreement Canada receives 20 per cent. of the number of skins taken each year. The division of the take is made in the following way: When all skins have been placed in barrels, this information is wired to Ottawa by an official of the U.S. Fish and Wildlife Service, giving the total number of skins and the number of barrels. In acknowledging receipt, the Dominion Government of Canada selects any number from 1 to 5, inclusive; this number becomes No. 1, and this and every fifth barrel after this makes up the Canadian share of the sealskins for the year. These barrels are marked with a large "Canada" by stencil (*see* Fig. 12) and are further identified by a circle of red paint. At Seattle these marked barrels are segregated for delivery to Ottawa.

It is apparent that the method of sharing the take of skins each year is eminently fair to both countries concerned. No selection of skins according to size, grade, or condition is made during the handling of the pelts on the islands. The skins can therefore be said to be "run of the kill." When packing, the numbers of barrels containing 90, 95, or 100 skins are grouped in multiples of five so that when the division is made, Canada is assured of receiving the exact number of skins due her. Moreover, no one knows which barrels are to be included in Canada's share until the selection of No. 1 barrel is made in Ottawa at the end of the season. Those officials concerned in evolving the plan by which this sharing is accomplished are to be commended in arriving at such a method which is so satisfactory to all concerned.

As an indication of the value of this industry to Canada, the latest returns for which there are figures show that the Dominion received as gross revenue for the sale of sealskins in 1944-45 the sum of \$374,743.20. From the 1946 sealing season Canada receives as her share 12,084 skins, which at an average price of \$50 per each processed skin have an estimated value of \$600,000. The net return after freight and processing costs are deducted will prove to be a considerable addition to the national economy.

ACKNOWLEDGMENT.

It is a pleasure to take advantage of this opportunity to extend thanks to the many persons who made our visit to the Pribilofs most memorable and enjoyable. We are especially grateful to the following: Mr. Edward C. Johnston, general manager of the Pribilof Islands; Mrs. Edward C. Johnston; Mr. Clarence Olson, assistant general

manager; Mrs. Clarence Olson; Mr. Dan C. Benson, agent for St. Paul Island; Mrs. Dan C. Benson; Mr. Roy Hurd, agent for St. George Island; Mr. and Mrs. John Stacey, Mr. and Mrs. John Hyer, and Father Theodosy Kulchitsky, all of St. George Island; Dr. and Mrs. Edward Wilde, Mr. and Mrs. Fred Martyn, Mr. and Mrs. Pete Benson, and Father and Mrs. Makary Baranof, all of St. Paul Island; Dr. Victor B. Scheffer, biologist in charge of research; Mr. Harry May, superintendent of operations, Fouke Fur Company; Mr. Ed. Neidel and Mr. Bob Booth, also of the Fouke Fur Company, St. Louis; Mr. and Mrs. A. Millote, of Walt Disney Studios, Hollywood; Captain Harold Knudsen and crew of the Fish and Wildlife motor-ship "Penguin." To these and other persons we are indebted for many services rendered and courtesies extended.

PARTIAL

DETERMINATION OF CANADA'S SHARE

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