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GEOGRAPHIC INTELLIGENCE REPORT

APPRAISAL OF SPECIAL-SUBJECT MAPS OF CANADA

CIA/RR-GR-28
October 1953

CENTRAL INTELLIGENCE AGENCY
OFFICE OF RESEARCH AND REPORTS

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CONFIDENTIAL

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CONFIDENTIAL

Appraisal of Special-Subject Maps of Canada

Introduction

A vast amount of basic intelligence on Canada is provided by special-subject maps. The subjects that have been mapped are many and varied, and better maps have been compiled for some subjects than for others. In the preparation of this report the special-subject maps on Canada at scales smaller than 1:500,000 that are available in Washington were reviewed, and the best from the standpoints of content and presentation of data were selected for discussion.* If greater detail is required, individual sheets of various topographic map series (not included in this report) may be consulted. Citations for all the maps selected for this study are listed in a bibliography at the end in the same order in which they are discussed in the text. Pertinent information given includes title, scale, authority, date, availability, and security classification.

The data shown on special-subject maps can be of considerable assistance in working on and analyzing problems dealing with Canada. Maps are important to a clear understanding of the location, distribution, and relationship of the resources and factors that combine to make Canada the economically important country that it is.

Until the early 1940's, special-subject maps were prepared chiefly for the area of Canada south of 75°N, omitting the arctic islands which make up northern Canada. Furthermore, until Newfoundland

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* Research completed January 1953.

and Labrador became a part of Canada in 1949, they also were seldom included. Owing to the importance of these areas, the number of special-subject maps covering them has increased in the past few years.

I. Political Maps

The international boundary and the administrative divisions into which Canada is divided are best presented on a 1951 map that shows the entire country on a single sheet. For 5 of the 10 provinces maps are also available that show the internal administrative divisions.

The boundary between the United States and Canada and the Alaska-Canada boundary, as well as the area claimed by Canada extending to the geographic North Pole, are shown on a map published in 1951, at 1:6,336,000, entitled Canada. This map, which includes the entire country on one sheet, also gives the first-order administrative units into which Canada is divided. The boundaries and names of the 10 provinces, the territories, and the 3 districts of the country are given, and their areas are emphasized by contrasting colors. The map is the first to show and name several recently discovered arctic islands. The base provides a fairly detailed drainage pattern, many place names, and the alignment of railways, the Alaska Highway, and the Mackenzie Highway.

The administrative divisions of southern Manitoba are well shown on a map entitled Map of Manitoba, Southern Portion, at the scale of 1:506,880, which gives the boundaries and names of municipalities in red and those of the local government districts in purple. The

black-and-white base indicates hydrography, place names, roads, Indian reserves, forest reserves, and townships.

Map of the Southern Part of the Province of Saskatchewan at 1:633,600 gives both the boundaries and the official numbers of the municipalities of southern Saskatchewan superimposed on a base showing place names, townships, and railroads.

On a detailed, multicolored map at 1:506,880, entitled The Southern Part of the Province of Ontario, the boundaries and names of the counties and districts of the Ontario peninsula are given. Base data include drainage, townships, two categories of railroads (steam and electric), canals, roads, provincial forest and park boundaries, and Indian reserves.

For the Province of New Brunswick, the boundaries and names of the counties are shown on a map entitled New Brunswick at 1:633,600. Also indicated are the boundaries and names of the parishes and townships that comprise the counties. The detailed base includes drainage, place names, railroads, canals, and game refuges.

The boundaries and names of the districts within Newfoundland are shown on the Ten Mile Map of Newfoundland at 1:633,600. Although published in 1941, this is one of the best single-sheet maps available for the island. The coastline and drainage are shown in detail, many place names are given, three categories of roads are differentiated, railroads are indicated, post offices are located, and towns and settlements are classified according to population.

The results of the referendum held in Newfoundland on 22 July 1948 to decide the issue of confederation with Canada are given in percentages by districts on a map entitled Newfoundland, at 1:1,350,000. The base is an outline map that contains no place names, drainage, railroads, or roads.

II. Population Maps

No one-sheet map of the distribution of population in all of Canada is available, but several maps cover southern Canada, the area of densest population concentration. Other maps provide detailed information on population distribution in northern Canada and parts of southern Canada. Most of the population maps have been compiled from 1941 census data, but those of northern Canada are based on more recent information. At present, no maps are available that have been prepared from data collected in the 1951 census.

The distribution of population in southern Canada is shown by dots on a very general map entitled Distribution of Population, Canada, 1941. Each dot represents 1,000 people. The population of the major cities is indicated by circles of proportionate sizes and is also given numerically at the bottom of the map. The percentage of the total population of Canada in each of the provinces and territories is presented in graph form.

The best coverage for population of towns in southern Canada (excluding Newfoundland) is a 15-sheet set at various scales issued by the Post Office Department. Data are from the 1941 census.

Towns are divided into six population categories, ranging from under 1,000 to over 50,000. The size of type used for the town name indicates the population category. A symbol indicates the type of post-office facilities available at each town. In addition to the population information, the map shows boundaries and names of federal constituencies and the alignment of railroads.

Population of settlements in the Northwest Territories is given numerically on a map entitled Distribution of Population, 1950 at the small scale of 1:12,000,000 (Restricted). The generalized base on which the population data are shown has also been used as a base for presenting information on health facilities of northern Canada (described later).

The distribution of the Eskimo population in northern Canada is shown on a 1951 map, Canadian Arctic: Eskimo Population, 1950 Estimate. The map, compiled from data supplied by the Department of Resources and Development, is included in An Introduction to the Geography of the Canadian Arctic, published by the Geographical Branch of the Department of Mines and Technical Surveys, Ottawa, 1951. Areas inhabited by Eskimos are indicated, and the number of Eskimos in the various areas are given numerically.

Eskimo Registration Districts of the Northwest Territories are indicated on a map entitled Northwest Territories and Yukon -- Eskimo Registration Districts, at 1:5,068,000. The district boundaries are overprinted on a detailed multicolored base published in 1939 by

the Surveys and Mapping Bureau. The base shows trading posts, post offices, Royal Canadian Mounted Police posts, meteorological reporting stations, wireless stations, seaplane anchorages, hospitals, schools, and aerodromes.

Distribution of population in the prairie provinces -- Alberta, Saskatchewan, and Manitoba -- is shown by dots on a map at 1:8,500,000 entitled Distribution of Population, Prairie Provinces, 1946. Each dot represents 100 people. Cities, towns, and villages with populations of more than 1,000 are shown by circles of proportionate sizes. On the base, provincial boundaries and a generalized drainage pattern, but no place names, are included.

The location of foreign groups in the prairie provinces and in eastern Canada is indicated on a crudely drawn and very general map with no title. The map, a photostat from A Study of Cool Continental Environments and their Effects on British and French Settlement, by Griffith Taylor, London, 1947, is catalogued in the CIA Map Library under the supplied title "Foreign Culture Groups in the Prairie Provinces." Each of the foreign culture groups is named. An inset indicates the French population in eastern Canada by shading. On the outline base, no place names or drainage are included.

The distribution of people of foreign origin in the Province of Manitoba, as well as the increase and decrease in farm population, is shown on a set of six maps with the supplied title "Distribution of Population, Manitoba, 1936." Data for the maps were supplied by

the Census Branch of the Canadian Bureau of Statistics and are plotted by municipalities.

A photostat map entitled Distribution of Population, Newfoundland, 1945 shows population by dots, each of which represents 200 people. Settlements with a population of more than 3,000 are shown by circles of proportionate sizes. Although the dots in some areas are so concentrated that it is impossible to determine the actual number of people, the map does indicate areas of population concentration.

The Ten Mile Map of Newfoundland, referred to under Political Maps, is the best map available for the population of towns and settlements in Newfoundland. The towns and settlements are classified according to five population categories, ranging from under 100 to over 1,000.

The percentage of increase and decrease in the population of Newfoundland is given by districts on Newfoundland -- Shift in Population, 1921 to 1945, at 1:1,350,000. During the period covered, all but 3 of the 24 districts showed an increase. The outline base, which includes no place names or drainage pattern, is a photostat from Newfoundland: A Study in Political Geography, a Clark University Ph.D. thesis dated 1949.

Few special-subject maps on Labrador are available. The best map for recent population data is North Atlantic Ocean, Grand Banks to Davis Strait, /Cultural Aspects of Ten Selected Villages/ (Confidential). The population figures were added to a base, H.O. Chart

5619, by the leader of a recent expedition to the area. For some villages a notation has been made as to the summer and winter population.

III. Health and Health Facility Maps

The few maps that are available showing health and health facilities in Canada are principally for the northern part of the country.

Information on health facilities in northern Canada is provided by Hospitals and Hospital Service Areas, 1950, at 1:12,000,000 (Restricted). Three types of hospitals are shown, with the number of beds per hospital. The locations of dentists, medical officers, doctors, and nursing stations are included. The following types of hospital service are also shown: hospital service area and population, company hospital center and population, and community Red Cross hospital center and population. The data are plotted in red on a black-and-white base.

For northern Canada, communities with medical and dental personnel employed by the Indian Health Service are indicated on a map at 1:12,000,000 entitled Facilities Provided by Department of National Health and Welfare -- 1950 (Restricted). Nursing stations are also located. The information is plotted on the same base as that used for Distribution of Population, 1950 (Restricted).

Manuscript data on medical facilities of Labrador have been added to H.O. Chart No. 5619 by the leader of a recent expedition to the

area. (With the additions, the map is Restricted.) The facilities shown -- hospitals and nursing stations -- are operated by the Grenfell Mission, whose headquarters are at St. Anthony's Harbor, Newfoundland.

The American Geographical Society has issued seven maps showing the distribution of disease throughout the world, which are to be included in the Atlas of Distribution of Diseases. Of the diseases mapped, only polio is found in Canada. An inset at 1:30,000,000 on the map entitled Distribution of Poliomyelitis, 1900 to 1950 shows the distribution of polio in Canada per 100,000 inhabitants.

IV. Agriculture and Land Use Maps

Map coverage of agriculture in Canada is more complete than that for most other special subjects. Several good one-sheet maps show the agricultural regions of southern Canada. For provinces and smaller areas, available coverage consists primarily of photostats of maps from articles in various periodicals and other publications.

Agricultural areas of Canada are presented in considerable detail on Canada: Types of Farming Areas, at 1:6,336,000. Areas of production of speciality crops, such as wheat, other grains, dairy products, livestock, and fruits and vegetables, are shown by colors, and lighter tones indicate areas where these are grown in combination with other crops. In addition to information on specific crops produced, types of farming are indicated according to six categories

by black overprinting. An accompanying text gives, by province, details of crops raised in small areas. Agricultural data for the Province of Newfoundland are not included on the map.

A more recent but less detailed map of the agricultural areas of Canada, including Newfoundland and Labrador, is Canada Exclusive of Northern Regions, Indicating Main Natural Resources, at 1:6,336,000. Four types of agricultural areas -- mixed farming, grain growing, grazing, and fruit and special crops -- are differentiated. Mineral resources and forest areas are also shown. The base map gives the international and provincial boundaries, a generalized drainage pattern, principal railway lines, and place names.

The general distribution of the various types of farms, crops, and livestock in Canada as of 1940 and 1941 is presented on a set of 22 maps. These maps, with the supplied title "Farming in Canada," are from Types of Farming in Canada, by S. C. Hudson, Ottawa, 1949. The agricultural data are shown by dots on a black-and-white base, which gives only the outline of southern Canada, the major lakes, and province boundaries. No place names are included.

Areas of known arable land in the Yukon, the western part of the District of Mackenzie, and northern British Columbia and Alberta are located on a map at 1:5,068,800 entitled Agriculture, published in Canada's New Northwest, North Pacific Planning Project, Ottawa, 1947. The base shows the coastline and drainage pattern in detail, and railroads and the Alaska Highway are indicated.

Land suitable for settlement and range and grazing lands in British Columbia and the Peace River country of Alberta are shown at 1:4,750,000 on British Columbia and Portions of Yukon, Alaska, Alberta, and Northwest Territories. The area covered is divided into four regions, which in turn are subdivided into zones. For these divisions, settlement acreage (economically cultivable land suitable for settlement) and grazing acreage (including range lands in sparse or scattered forests) are given in a table on the map.

Information as of 1943 on acreage and production of various agricultural crops in the prairie provinces is supplied by Wheat Yield Map and Grain Acreage and Production (no scale). Although the only information mapped is acreage yield of wheat in bushels, tables on the map provide considerable information on production, acreage, and value of wheat and other crops by province and crop district.

Sixteen agricultural areas in southern Saskatchewan are outlined on Types of Farming Areas in Saskatchewan (no scale), and the kinds of crops and livestock raised are indicated for each area.

Information on wheat yield in southern Saskatchewan is provided by two maps -- Map of Southern Saskatchewan Showing the Average Yields of Wheat per Acre by Municipalities, 1918-1935, and Map of Southern Sakatchewan Showing Average Variability of Wheat Yield per Acre by Municipalities, 1918-1935. Both are photostats of maps in Technical Bulletin 40 of the Canadian Department of Agriculture, 1942.

For southern Ontario, data on agriculture are shown on a set of seven maps at 1:2,250,000, grouped under the supplied title "Ontario Peninsula -- Agriculture and Land Use," which are photostats of maps appearing in Economic Geography, Vol. 14, No. 2, April 1938. Maps on the following subjects are included: land in farms, farmland in marsh and other wasteland, farmland that is improved, farmland in crops, farmland in improved pasture, farmland in woods, and farmland in unimproved pasture. This information is presented in percentage of total land or farmland on a base that shows the outline of the area but no drainage or place names.

Information on farming, particularly dairy farming, in southern Ontario is provided by a set of maps at 1:2,250,000 photostated from Economic Geography, Vol. 16, No. 1, January 1940. This set, catalogued under the supplied title "Ontario Peninsula -- Dairy Areas and Production," shows agricultural areas of southern Ontario, principal dairy areas, gallons of milk produced, and cows in milk or calf. Like the previous set, these maps have bases that are lacking in detail.

Additional information on land use in southern Ontario is provided by a map in Report of the Ontario Royal Commission on Forestry, 1947, entitled Proportion of Waste Land in Southern Ontario. This information is presented in percentages on an outline base showing the major lakes but only a few place names.

The most complete data available in map form on agriculture for the Province of New Brunswick are provided by a set of 10 maps at

1:3,250,000 with the supplied title "Agricultural Development in New Brunswick." The topics covered are total land in farmland, farmland in woods, improved farmland, farmland in field crops, farmland in hay, farmland in oats, farmland in potatoes, farmland in pasture, dairy cows per 100 acres of farmland, and farm population. The maps are photostats from Economic Geography, Vol. 15, No. 1, January 1939. The information is presented on an outline base that includes neither drainage nor place names.

For the Province of Nova Scotia, a set of 8 maps on 4 sheets, with the supplied title "Nova Scotia -- Agriculture and Land Use," shows at 1:2,250,000 many aspects of agriculture in the province. Like the set on New Brunswick, the maps are photostats from Economic Geography, Vol. 15, No. 1, January 1939. The base is an outline of the province with no drainage or place names shown. The topics included are: number of dairy cows, farm population, farmland that is improved, farmland in pasture, farmland in field crops, and farmland in orchards.

V. Maps of Animal Life

The best maps showing the location and distribution of wild life in Canada are one-sheet maps covering the entire country. The maps are highly generalized, however, and little information is included on the bases.

An old, crudely drawn 15-sheet set of maps at various scales, Distribution of Game and Fur Bearing Mammals, shows the distribution of 15 types of animals in Canada. For many of the animals their former range as well as their range as of 1933 is given, and for some the distribution of subspecies is also shown. The maps, which are photostats from the Proceedings of the Fifth Pacific Science Congress, 1933, Vol. 5, are generalized, and no place names are included on the bases.

Fur production in the Mackenzie District of the Northwest Territories is shown on a photostat copy of a map in The New Northwest, edited by C. A. Dawson, Toronto, 1947. The type of animal trapped is indicated by a letter symbol, the size of which indicates the number trapped per year. Because it is highly generalized, the map is of limited use.

The distribution of the principal types of fish found along the coasts and in the lakes of Canada is presented on Canada Exclusive of Northern Regions, Indicating Main Natural Resources, at 1:6,336,000. This map is also referred to in the sections on agricultural maps and vegetation maps.

VI. Mineral Resources Maps

Many good maps showing minerals and mining areas of Canada are available. Of particular significance is a one-sheet map published in 1952 that gives the locations of minerals and mining areas in the

entire country. The coal deposits and coal fields of Canada are located on both a one-sheet and a two-sheet map. Maps of mineral occurrences and deposits are available for several of the provinces, but oil and gas fields are best presented on maps of the principal producing areas.

Of the available maps on the location of mines and mining areas in Canada, the most reliable and up-to-date is a 1952 multicolored one-sheet map entitled Canada: Principal Mining Areas and Producing Mines Map 900A, at 1:7,603,200. This is one of the few special-subject maps on which data for Newfoundland and Labrador are incorporated. In addition the map includes northern Canada, which is omitted from most one-sheet maps.

Metallic and nonmetallic mineral properties are located by symbol, and each symbol is keyed by number to an "Index to Principal Productive Mines." This index is organized by provinces and lists the operating companies and the minerals produced. Names of mining camps are printed in red on the map. Additional information given includes coal properties, oilfields, gasfields, and oil pipelines.

The dollar value of Canadian mineral production by year from 1939 to 1950 is shown in graph form, as well as the value of each of 8 metallic and 10 nonmetallic minerals. The dollar value of mineral production is given by provinces and territories for metals, fuels, nonmetallic minerals, and clays and structural materials.

Seven insets covering all of Canada provide additional mineral information. On the insets, neither scales nor place names are given. The mineral data presented include (1) the location of nonferrous metal smelters and refineries; (2) gold deposits; (3) iron blast furnaces and ferroalloy plants; (4) silver, lead, and zinc deposits; (5) asbestos, salt, gypsum, fluorspar, and sodium sulphate deposits; (6) copper, nickel, and iron deposits; and (7) important potential producing areas.

More detailed and specialized data on minerals of Canada are provided by maps of the provinces and smaller areas.

The two-sheet Mineral Map of British Columbia, Map 1008A at 1:1,267,000 provides the most detailed and complete mineral coverage available for any province or territory of Canada. Occurrences of gold, other metallic minerals, and nonmetallic minerals are indicated by colored symbols and the abbreviated names of the minerals. Mining properties are located by colored symbols indicating the type of property -- gold bearing, other metallic mining, or nonmetallic mining. Production is also indicated. In an accompanying table the name of the property, classification, metal content of the ore, and the years of greatest production are listed and indexed according to the 49 quadrangles outlined on the map. The base map gives the drainage pattern in considerable detail, place names, and the physical regions of Canada.

The best mineral map available for Saskatchewan is Mineral Map of Saskatchewan, Map 896A, at the scale of 1:1,267,200. Boundaries of the eight mining districts and the location of the mine-recording

office of each district are included on the map. Metallic and nonmetallic mineral occurrences are located by colored symbols. Metallic mineral properties are keyed by number to an index compiled from information available as of July 1946, which gives the names of the mines and the minerals mined.

Mineral Map of Manitoba, Map 851A, at 1:1,267,200, printed in three colors, shows the boundaries of the two mining districts of the province and of the mining divisions into which the districts are divided. For each district, the mine-recording office is located. The nonmetallic and metallic mineral occurrences are identified, and the metallic mineral properties are indicated by symbols and by numbers that refer to an index giving the name of the property and indicating the minerals mined. The names of productive mines are underscored in the index. The map was compiled by the Canadian Geological Survey in cooperation with the Mines Branch of the Manitoba Department of Mines and Natural Resources from published and unpublished maps and reports of the two agencies.

On Map of the Province of Nova Scotia at 1:500,000, mineral deposits and commercially important rock deposits in Nova Scotia are located. Although printed in 1935, this is the most recent map available on minerals of Nova Scotia. In addition to the mineral data, the map shows roads, railroads, and county boundaries.

The best available map of mineral resources of Newfoundland is Mines and Mineral Resources of Newfoundland, in a publication of the same name, by A. K. Snelgrove dated 1938. The black-and-white map,

which is at the scale of 1:1,300,000, shows producing mines and quarries, former producing mines and quarries, deposits under development or investigation, and prospects. Adjacent to each symbol is an abbreviation for the name of the mineral.

Coal deposits in Canada are best shown on Map Showing Coal Deposits and Coal Resources of Canada at 1:12,500,000. On this map, the location and extent of the deposit, as well as the type of coal, are indicated by color, and the amount of production is shown by graduated circles representing 20,000 to 4,000,000 tons. Total production by province is also indicated.

Coal fields in western and eastern Canada are more specifically located on two photostat maps -- Coalfields of the Cordilleran Region and Coalfields of Eastern Canada -- from Geology and Economic Minerals of Canada, Economic Geology Series No. 1, published by the Geological Survey of Canada, Ottawa, 1947.

The chief coal areas (excluding lignite), iron-ore deposits, and steel centers of eastern Canada are located on Principal Coal, Iron Ore, and Iron and Steel Areas in Relation to the St. Lawrence Seaway. In addition, the map shows the principal deposits of the United States, Puerto Rico, and Venezuela. A table on the map gives for 1950 approximate shipments from iron-ore deposits, ore consumption capacities by steel areas, and consumption of coal and coke by areas in Ontario and Quebec.

The location and names of the principal iron ranges of southern Ontario and also of parts of Minnesota, Wisconsin, and Michigan have been added in ink on a photostat base, at 1:2,300,000.

Although several of the maps mentioned show the general location of the iron-ore deposit on the Quebec-Labrador boundary, the best detail on the area is provided by Central Portion of the Iron Ore Area at 1:255,000. On this map the Labrador and Quebec deposits that were drilled about 1949 are located and named, and Knob Lake airport and the roads of the area are shown.

The only available map of uranium occurrences and related data is Uranium Industry at 1:15,000,000 (Restricted), on which reported occurrences of uranium, refineries or laboratories, and areas of most active search are located. Notations on the map give the discovery date and a brief statement of the stage of development of specific uranium occurrences.

The best available maps of oil and gas developments in Canada are maps of principal oil and gas producing areas.

The most up-to-date map of the oil and gas situation in Alberta, Sakatchewan, and Manitoba is the crudely drawn Oil and Gas in Western Canada at 1:4,200,000. Oil and gas fields and pipelines are shown, including the alignment of the section of the Trans-Mountain Pipeline in Alberta and eastern British Columbia. When completed this pipeline will extend from Edmonton to Vancouver. The area of the Athabasca tar (bituminous) sands is also shown on the map.

Oil and gas fields and other related data for Alberta, the oil center of Canada, are well presented on Alberta, Showing Oil and Gas Fields and Potential Gas Areas, which was prepared to accompany a report entitled Natural Gas Reserves of the Prairie Provinces, by G. S. Hume and A. Ignatieff. The oil data are printed in green and the gas in red. The Athabasca bituminous sands are also located. The black-and-white base on which the data are printed gives the drainage pattern in detail, significant place names, and townships.

Oil Map of North America (Exclusive of the United States) is one of the three map sheets published as a supplement to the International Operations issue of World Oil, dated 15 July 1952. The sheet on North America includes maps of three oil-producing areas of Canada. Eastern Fields, at 1:1,900,000, is the most up-to-date map on which oil and gas fields of the Ontario peninsula are located. The map at 1:1,000,000 of Norman Wells, District of Mackenzie, shows the area of oilfields and refineries, as well as the location of dry holes. Although this area was a source of oil during World War II, it is not actively producing at present. Western Fields, at 1:2,000,000, is a map of the oil and gas producing region of the Province of Alberta, but it is not as detailed or as convenient to use as Alberta, Showing Oil Fields and Potential Gas Areas.

Oil pipelines, gas pipelines, and proposed gas pipelines are shown on a map of southern Canada at 1:19,000,000 entitled Pipelines of Canada. Included on the map is the Trans-Mountain Pipeline, which

is currently under construction. Oil and gas fields are also located. The base is generalized but includes more place names for the Province of Alberta than for other areas.

A photostat of a map, Edmonton-Superior Pipeline, in Developments and Prospects in Canadian Oil, by John F. Fairlie, published in 1950, indicates in a generalized way the route of the pipeline from Edmonton, Alberta, to Superior, Wisconsin. Pumping stations along the pipeline and refining centers in the area are located. The route of the pipeline is divided into three sections, for each of which the following information is given: length, diameter of pipe, initial capacity in barrels per day, and date of completion.

Refineries of Canada are located on a photostat map at 1:8,000,000 entitled Principal Refineries of Canada. The name of each refinery and of the city and province in which it is located have been typed on labels and added to the base map. A list of the operating companies and the crude-oil capacity of the refineries is included. Although the producing oil and gas fields in Canada have been located in pencil on the base, they are difficult to identify.

VII. Maps of Industries

The distribution and location of industries in Canada are shown chiefly on maps covering the southern part of the country. Compared with the number of maps available on other subjects, there are relatively few industrial maps of provinces and smaller areas.

Map Showing Pulp and Paper Industries in Canada and Newfoundland, at 1:6,350,000, is the best coverage available for the location of pulp-and-paper mills in Canada. The mills, which are concentrated primarily in eastern Canada and along the coast of British Columbia, are indicated on the map by red symbols, and the names of cities or towns in which they are located are underscored in red. In a text printed on the map the following information on pulp-and-paper mills is presented by province: name of company, location of head office, city or town in which mill is located, coordinates, and type of production. Other information given on the map includes drainage, principal railroads, and provincial boundaries.

Information on the location and production of sawmills in Canada as of 1940 is provided by two maps -- one for the eastern part of the country and one for the western part. Map Showing Saw Mills of Eastern Canada, at 1:2,300,000, is printed in two colors, whereas its counterpart, Map Showing Saw Mills of Western Canada, at 1:1,950,000, is in black and white. Both maps give the location of sawmills, classified on the basis of millions of board-feet produced per year. Production is divided into six categories, ranging from less than 1,000,000 board-feet per year to 20,000,000 board-feet and over. Sawmills not classified according to annual production are indicated by a special symbol. Among the other data included are railroads (with ownership indicated), provincial boundaries, and significant place names. For each map, a supplement is available (at the CIA Map Library) that

lists the sawmills alphabetically by province and gives production figures.

Sawmills and pulp-and-paper mills in southern Ontario are located on a photostat map from the Report of the Ontario Royal Commission issued about 1947. Sawmills are classified according to production, whereas pulp-and-paper mills are shown by symbol, with no indication of production. Although some place names are included, they are difficult to read.

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VIII. Power Maps

The general distribution of the waterpower sites for Canada as a whole is shown on a single-sheet map at large scale. For individual provinces or groups of provinces in the southern part of Canada, power-generating stations are located on six maps at smaller scales published by the Dominion Water and Power Bureau. Northwestern

Canada is covered by a map produced by the Water and Power Bureau, and Newfoundland by a map produced by the Newfoundland Department of Natural Resources.

Developed and undeveloped waterpower sites in Canada are shown on a recently published single-sheet map at 1:6,336,000 entitled Water Powers of the Dominion of Canada. The power sites, which may include more than one generating station, are indicated by circles proportionate to the horsepower capacity. The seven categories of capacity included range from 1,000 or under to over 2,000,000 hp. This is one of the few maps on which data for Newfoundland are incorporated. The base shows the principal rivers, lakes, place names, and province and district boundaries, as well as the boundaries of the five geological regions of Canada.

Six blue-and-white maps at scales ranging from 1:400,000 to 1:1,630,000, prepared by the Dominion Water and Power Bureau, provide the most complete presentation available on the location of generating stations for all of the provinces of Canada except Newfoundland. These maps show both hydroelectric and fuel generating stations, but horsepower capacity is not indicated. For each sheet a map supplement is available (at the CIA Map Library), which gives the following pertinent information on each station: name of the generating station, river on which it is located, horsepower capacity, and name of organization that owns the station. The maps also show receiving stations, substations, and electric transmission systems, with the company operating each indicated.

Developed and undeveloped waterpower sites for the area including the Yukon, the western part of the District of Mackenzie, and the northern parts of British Columbia and Alberta are located on a map entitled Water Power, at 1:5,068,800. This area is not included on power maps previously mentioned. The horsepower capacity of the sites is indicated by circles representing seven categories of capacity, ranging from less than 1,000 horsepower to over 1,000,000 horsepower. These symbols are keyed by numbers and letters to tables in Canada's New Northwest, North Pacific Planning Project, Ottawa, 1947. For developed waterpower sites, the owner, the stream, and the installed horsepower capacity are given; for undeveloped power sites, the name of the river and the estimated horsepower capacity are supplied.

The most detailed and up-to-date map presenting power information for the island of Newfoundland is the black-and-white Map of Newfoundland Showing Surveyed Water Powers at 1:960,000. Two types of power sites -- developed and available -- are shown by black circles accompanied by figures for horsepower capacity or available horsepower capacity. This map is the principal compilation source for other maps showing power sites in Newfoundland, none of which, however, is as detailed as the original. The base gives coastline and drainage pattern in detail, principal roads, and some place names.

IX. Maps of Commerce and Trade

No maps of Canada are available that show trade and commerce between the provinces or between Canada and other countries. The only subject within this field that is covered by available maps is trading posts in the Canadian North.

Trading posts of northern Canada are shown at 1:12,000,000 on Settlements and Trading Posts, 1950 (Restricted). The trading posts are located on a generalized base. Other data included on the map are Royal Canadian Mounted Police posts, meteorological reporting stations, schools, and various types of missions.

The trading posts of the Hudson's Bay Company (HBC) are located on Map of the Dominion of Canada Showing the Establishments of the Hudson's Bay Company, at 1:6,336,000. Fur trading posts, raw fur departments, posts with HBC radio telegraph, and posts with meteorological stations and HBC radio telegraph are located. This information is presented on a base that shows Canada south of 75°N and includes Newfoundland. On the base the drainage pattern is fairly detailed, place names are included, and the railroad network and provincial boundaries are shown. The names of places where Hudson's Bay Company installations are located are printed in red.

X. Transportation Maps

No good one-sheet map of Canada as a whole showing transportation routes is available. Transportation data for the entire country, however, is provided by maps of parts of Canada. Some of these maps

show roads, railroads, and air routes, whereas others include only one type of transportation.

The transportation network of southern Canada is best presented on a three-sheet map at 1:4,055,040 entitled Canada. Ownership of railroads is indicated, and route numbers are given for roads. On the base, administrative divisions, drainage, and place names are shown.

The best single-sheet map of transportation routes of northern Canada is Transportation and Communication, 1950, at 1:12,000,000 (Restricted). Summer water routes, winter tractor roads, commercial air routes, airports, and landing fields are located. For the southern part of the area, highways and railroads are also included.

Transportation information for northern British Columbia and Alberta, the Yukon Territory, and the western part of the District of Mackenzie, is given on a map at 1:5,068,000 entitled Transportation, which includes highways, winter roads, railroads, main water routes, and air routes.

A more recent map giving similar transportation data (omitting air routes) for the same area is Transportation Facilities Northwestern Canada -- 1950 at 1:3,200,000. Among the other cultural data shown are Royal Canadian Mounted Police detachments, post offices, schools, hospitals, nursing stations, and trading posts.

The Canadian National Railway and the Grand Trunk Railway System are shown on a photostat map of southern Canada from We Serve the Nation, by the Canadian National Railways, Montreal, 1950. Number of tracks is indicated, and towns along the routes are named.

The alignment of the Pacific Great Eastern Railway is presented on Route of the Pacific Great Eastern Railway (no scale). Towns are named along the route from Squamish to Quesnel, the only section that is in operation. For the sections from Squamish to Vancouver and from Quesnel to Prince George, which have not yet been constructed, the proposed alignment is generalized.

Maps of the provinces published by Imperial Oil Limited are the best road maps of Canada. The alignment, surface, and route numbers of provincial highways and secondary roads are given. The alignment and ownership of railroads are also shown, as well as airports, other landing fields, principal seaplane bases, other seaplane anchorages, and the approximate population of cities and towns. Terrain is indicated by hachures. Road maps are also published by the provincial governments, but the cartography is not as good as that of the maps prepared by Imperial Oil Limited.

A multiple map in 8 sheets, entitled Route of the Trans-Canada Highway, covers the general route of the highway for 8 of the 10 provinces. Quebec and Nova Scotia are not included. Major towns along the route are located and named on the highly generalized bases.

Air routes along with the names of the operating companies are shown on a map entitled Airline Map of Canada (no scale). Vancouver Island and the Maritime Provinces are shown on insets. The map is a photostat from the Official Airline Guide, Vol. 16, No. 10, July 1950.

XI. Terrain Maps

Four categories of terrain features of Canada, excluding Newfoundland and Labrador, are shown by color on Canada, Terrain at 1:7,000,000 -- (1) mountains, (2) minor mountains and dissected plateaus or uplands, (3) hill land, and (4) plains. Also indicated are marshes, swamps, muskegs, glaciers, passes, and coastal features such as cliffs and bluffs, sand, and mud. The base is generalized.

Another map of terrain is entitled Canada, at 1:6,750,000, prepared at the Institute of Geographical Exploration, Harvard University. Terrain is represented by pictorial symbols, and notations on the map provide supplementary information as to the character of the terrain. Place names and the most important railways are included.

The terrain of northern British Columbia and the western Yukon is shown on a map at 1:2,534,400 entitled Physiographic Subdivisions of the Canadian Cordillera North of the Fifty-fifth Parallel. Six categories of terrain are indicated by color, and mountains, plateaus, and plains are named. On an inset at 1:12,600,000 the same categories of terrain are given for the entire province of British Columbia and the Yukon Territory.

XII. Climatic Maps

Two atlases, one of North America and the other of the Northern Hemisphere, include climatic data for Canada. In addition, climatic

factors are shown on several good one-sheet maps of Canada, as well as on maps of a few of the provinces.

The Climatic Atlas of North America contains 26 black-and-white climatic maps at 1:20,000,000. The Canadian parts of these maps were prepared by A. J. Connor, of the Meteorological Service of Canada, and his staff. Maps on the following subjects are included: sea-level temperatures, actual temperature, mean annual range of temperature, mean annual maximum temperature, mean annual minimum temperature, mean annual sea-level pressures, mean annual rainfall, mean rainfall for 6 months of the year (every other month), mean annual snowfall, average relative humidity for January and July, daytime cloudiness for January and July, and mean number of days a year with thunderstorms. These data are plotted on a generalized base that shows drainage and province boundaries. No place names are included.

Three of the seven sections into which the Ice Atlas of the Northern Hemisphere is divided contain maps showing various types of ice conditions that occur in the seas surrounding Canada, as well as in the Canadian rivers. The maps in the first section, which covers the Northern Hemisphere, show 5 types of sea ice based on navigability, 3 categories of the limits of ice, and the location of icebergs and floating ice for each month of the year. Also included in this section are 5 maps that show 3 categories of the limits of ice based on data from 1898 to 1938 for each month from April to August.

The second section of the atlas contains three maps of the Northern Hemisphere that show river ice in relation to navigation. The aspects covered are the average date of closing of rivers to navigation due to ice, the average opening date of rivers for navigation, and the average annual number of days rivers are closed by ice.

The maps of the third section, which covers the Grand Banks region, show four types of ice based on navigability for each month of the year. In addition the extreme limit of ice and the average number of icebergs and growlers (small icebergs) are indicated. For selected locations in the Grand Banks region, summary tables of ice data are included. For each location the following information (if available) is supplied in tabular form: date of first appearance of ice, average date of closing and opening of navigation, date of final disappearance of ice, annual number of days closed to navigation, average annual number of days with ice, and average maximum thickness of ice.

The bases for the maps in the atlas resemble H.O. charts and are printed in black and white or black and gray, with ice information indicated by other colors.

The best map available showing the location of weather stations for Canada is Stations Reporting Synoptic Observations (no scale). Since the data on the map are as of 1947, they are not up to date. These stations, which report by wire or radio up to 4 times daily,

are located by circles plotted on a black-and-white base that shows a detailed drainage pattern and includes many place names. The stations for Newfoundland and Labrador are indicated, but not those in the extreme northern arctic islands.

The weather stations of northern Canada, many of which are operated jointly by the United States and Canada, are best shown on a map entitled Northwest Territories -- Transportation and Communications at 1:10,000,000.

Precipitation stations in Canada are located by dots on Stations Recording Precipitation, May 1947 (no scale). The base, which is the same as that used for stations reporting synoptic observations, has also been used for maps showing stations that record maximum and minimum temperatures, and stations that record wind and sunshine. Northern Canada is not included.

The mean annual temperature for Canada is given on a map at 1:13,500,000, entitled Canada Mean Annual Temperature in Degrees Fahrenheit Four Feet Above Ground, which is more recent than the map included in the Climatic Atlas of North America. Isotherms are plotted in blue on a black-and-white base that covers all of Canada. The map is reprinted from an article by John L. Jenness, "Permafrost in Canada," which was orginally published in Arctic (the journal of the Arctic Institute of North America), Vol. 2, No. 1, May 1949.

The best information in map form on permafrost in Canada is found on Permafrost in Canada, Its Distribution and Approximate Southern Limit, at 1:13,500,000. The data for the map were compiled by John L. Jenness for the article in Arctic. In addition to indicating the tentative southern limit of continuous permafrost, the map shows areas of continuous permafrost, areas where patches of permafrost have been reported, and areas where permafrost has been reported absent.

Five photostat maps from Technical Bulletin 40 and Technical Bulletin 52 published by the Canadian Department of Agriculture present climatic data for southern Saskatchewan. The maps show by isopleths the average precipitation in inches for the period April to October, the average length of the growing season in days, the average length of period in days between the last killing frost of spring and first killing frost of fall, and the mean temperature in summer (June, July, and August). Average annual precipitation is indicated by shading. The bases used for these maps have little detail and few place names.

Two photostat maps from Economic Geography, Vol. 15, No. 4, October 1939, provide climatic information on New Brunswick. The mean annual rainfall, as well as rainfall in the summer half of the year, is shown by isohyets on an outline map that contains a minimum of base data. On a similar base, July mean temperature in degrees Fahrenheit is shown by isotherms, and number of days in the frost-free period are shown by isopleths.

Temperature and rainfall data for the province of Nova Scotia are presented on two maps printed on one sheet, which were photostated from Economic Geography, Vol. 15, No. 1, January 1939. The average July temperature for Nova Scotia is shown by isotherms plotted on an outline base on which the number of days in the frost-free season is also indicated. Mean annual precipitation and rainfall during the summer half of the year are shown by isopleths on a similar base.

The most recent and best maps on the climate of Newfoundland are those included in an article entitled "The Climate of the Island of Newfoundland," by F. Kenneth Hare, published in the Geographical Bulletin, No. 2, 1952. The climatic data are superimposed on a base that includes hypsometric tints and place names. The following aspects of climate are included:

Mean air temperature, January
Mean monthly maximum temperature, January
Mean monthly minimum temperature, January
Mean air temperature, July
Date of beginning of persistent thaw
Date of beginning of persistent frost
Duration of season of persistent thaw
Mean annual precipitation (inches)
Mean annual snowfall (inches)
Start of vegetative season
Duration of vegetative season
Mean annual potential evapotranspiration (inches)
Moisture index
Moisture surplus (inches)

The frequency of fog over the marine approaches to Newfoundland for June, July, August, and September is shown on an outline map of Newfoundland and surrounding area.

XIII. Soils Maps

Complete map coverage of the soils of Canada is not available, but soils maps have been prepared for British Columbia, Alberta, and southern Saskatchewan.

On British Columbia, Tentative Soil Zone Map at 1:3,350,000, grassland, forest, alpine, and alluvial soils regions are identified. The soil zones and subzones within the first three regions are further subdivided, making a total of 15 categories of soils shown on the map. A large part of the total area of the province, especially in the north, has been left blank because the soils have not been explored.

Soil zones of Alberta, as established by the Provincial Soils Survey, are shown by colors on a Department of Lands and Mines base map, which includes drainage, the transportation network, and place names. Each of the six zones identified is discussed briefly on the basis of climate, vegetation, fertility, and land use.

Four soil zones in southern Saskatchewan are shown on Map of the Province of Saskatchewan Showing the Main Soil-Climatic Zones. This photostat map from Technical Bulletin 40 of the Canadian Department of Agriculture has only enough base data for orientation purposes.

XIV. Vegetation Maps

The distribution of forest regions is shown on two maps, both of Canada south of 75°N. One of these gives a detailed forest

classification, the other is more generalized. Maps showing vegetation are available for only a few of the provinces of Canada.

The best and most detailed map available showing the distribution of forests in Canada is Forest Classification of Canada and the Coast of Labrador, a multicolored map at 1:6,336,000. Eleven forest regions are differentiated by color, and the approximate boundary between the eastern and western divisions of the boreal forest is shown. The map was made to accompany A Forest Classification for Canada, Canada Forest Service Bulletin 89, by W. E. D. Halliday, 1937.

The distribution of forests in Canada is also shown on a more recent (1950) map entitled Canada Exclusive of Northern Regions, Indicating Main Natural Resources at 1:6,336,000. This map is not as detailed as the forest classification map. It shows only five types of forest, but data for Newfoundland are included. In addition to vegetation, mineral resources and agricultural areas are indicated.

The areal extent of seven species of trees is shown on a blue-and-white map of Canada entitled Ranges of Various Tree Species in Canada. The data, supplied by W. E. D. Halliday of the Canadian Privy Council Office, are plotted on a base at 1:6,336,000 published by the Surveys and Mapping Branch.

Five regional types of forests for the area including the Yukon, the western District of Mackenzie, northern British Columbia, and northern Alberta are shown on Forest Types, at 1:5,068,000, from Canada's New Northwest, North Pacific Planning Project, Ottawa, 1947.

The percentage of wooded land in the Ontario peninsula is mapped on Proportion of Wooded Land in Southern Ontario (no scale). This map, which is from Report of the Ontario Royal Commission on Forestry, 1947, indicates wooded land according to five categories of percentages. The outline base gives the major lakes and a few place names.

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Map of the Dominion of Canada Showing the Establishments of the Hudson's Bay Company; 1:6,336,000; Fur Trade Department, Hudson's Bay Company; 1947; graticule; Army Map Service Call No. A 1-26-1337-6,336. Unclassified.

10. Transportation Maps

Canada; 1:4,055,040; Surveys and Mapping Bureau, Canada Department of Mines and Resources; 1947; graticule; CIA Map Library Call No. 49745. Unclassified.

Transportation and Communication, 1950; [1:12,000,000]; Canada Department of National Health and Welfare; [1950]; graticule values indicated in margin; CIA Map Library Call No. 80420. Restricted.

Transportation; 1:5,068,800; Mines and Geology Branch, Canada Department of Mines and Resources; [1947]; graticule; CIA Map Library Call No. 64513. Unclassified.

Transportation Facilities Northwestern Canada -- 1950; 1:3,200,000; Surveys and Mapping Branch, Canada Department of Mines and Technical Surveys; 1950; graticule; CIA Map Library Call No. 67900. Unclassified.

Canadian National Railways, Grand Trunk Railway System, Central Vermont System; no scale; no authority; [1950]; no graticule; CIA Map Library Call No. 71515. Unclassified.

Map is a photostat from We Serve the Nation, Canadian National Railways, Montreal, 1950.

Route of the Pacific Great Eastern Railway; no scale; no authority; [1951]; no graticule; CIA Map Library Call No. 73631. Unclassified.

Alberta and British Columbia Road Map; [1:2,000,000]; Imperial Oil, Ltd.; 1949; atlas grid; CIA Map Library Call No. 67723. Unclassified.

Manitoba, Saskatchewan and Western Ontario; [1:1,800,000]; Imperial Oil, Ltd.; 1949; atlas grid; CIA Map Library Call No. 67721. Unclassified.

Ontario Road Map; [1:1,750,000 and 1:950,000]; Imperial Oil, Ltd.; 1950; atlas grid; CIA Map Library Call No. 67596. Unclassified.

Quebec Road Map; [1:900,000 and 1:1,600,000]; Imperial Oil, Ltd.; 1949; atlas grid; CIA Map Library Call No. 61702. Unclassified.

Maritime Provinces; [1:1,350,000]; Imperial Oil, Ltd.; 1952; atlas grid; CIA Map Library Call No. 81127. Unclassified.

Map of Newfoundland and Labrador; [1:1,350,000]; Imperial Oil, Ltd.; 1949; atlas grid and graticule stubs; CIA Map Library Call No. 61635. Unclassified.

Route of Trans-Canada Highway; various scales; Geographical Branch, Canada Department of Mines and Technical Surveys; [1950]; no graticule; CIA Map Library Call No. 73123. Unclassified.

Airline Map of Canada; no scale; American Aviation Publications, Inc.; [1950]; no graticule; CIA Map Library Call No. 68512. Unclassified.

Map is a photostat from Official Airline Guide, Vol. 6, No. 10, July 1950, Chicago, Ill.

11. Terrain Maps

Canada, Terrain; [1:7,000,000]; Military Intelligence Division, U. S. War Department; no date; graticule; CIA 9186-C. Unclassified.

Canada; [1:6,750,000]; Erwin Raisz, Institute of Geographical Exploration, Harvard University; 1949; graticule; CIA Map Library Call No. 80659. Unclassified.

Physiographic Subdivisions of the Canadian Cordillera North of the Fifty-fifth Parallel, Map 922A; 1:2,534,000; Mines and Geology Branch, Canada Department of Mines and Resources; 1947; graticule; CIA Map Library Call No. 38657. Unclassified.

12. Climatic Maps

Climatic Atlas of North America; Charles F. Brooks, A. J. Connor, and others; 1936; maps at 1:20,000,000; graticule; Library of Congress Call No. G1106, C8B7, 1936. Unclassified.

Ice Atlas of the Northern Hemisphere; U.S. Navy Hydrographic Office; 1946; maps at various scales; graticule; CIA Library Call No. 31 623.5 U59. Unclassified.

Stations Reporting Synoptic Observations; no scale; Meteorological Division, Canada Department of Transport; 1947; graticule; CIA Map Library Call No. 80654. Unclassified.

Northwest Territories -- Transportation and Communications; 1:10,000,000; Northern Administration and Lands Branch, Canada Department of Resources and Development; 1952; graticule stubs; CIA Map Library Call No. 81900. Unclassified.

Stations Recording Precipitation, May 1947; no scale; Meteorological Division, Canada Department of Transport; 1947; graticule; CIA Map Library Call No. 80653. Unclassified.

Stations Recording Maximum and Minimum Temperatures; no scale; Meteorological Division, Canada Department of Transport; 1947; graticule; CIA Map Library Call No. 80662. Unclassified.

Stations Recording Wind and Sunshine; no scale; Meteorological Division, Canada Department of Transport; 1947; graticule; CIA Map Library Call No. 80652. Unclassified.

Canada Mean Annual Temperature in Degrees Fahrenheit Four Feet Above Ground; 1:13,500,000; Canada Department of National Defence; 1948; graticule; CIA Map Library Call No. 70353. Unclassified.

Map is reprinted from "Permafrost in Canada," by John L. Jenness, Arctic, Journal of the Arctic Institute of North America, Vol. 2, No. 1, May 1949.

Permafrost in Canada, Its Distribution and Approximate Southern Limit; 1:13,500,000; Canada Department of National Defence; 1948; graticule; CIA Map Library Call No. 69179. Unclassified.

Map is from "Permafrost in Canada," by John L. Jenness, Arctic, Journal of the Arctic Institute of North America, Vol. 2, No. 1, May 1949.

Average Precipitation (Inches) April to October Inclusive; no scale; no authority; /1945/; no graticule; CIA Map Library Call No. 69403. Unclassified.

Map is a photostat from Technical Bulletin 52 of the Canada Department of Agriculture, June 1945.

Map of Saskatchewan Showing Average Length in Days of Growing Season; no scale; no authority; /1942/; no graticule; CIA Map Library Call No. 69408. Unclassified.

Map is a photostat from Technical Bulletin 40 of the Canada Department of Agriculture, 1942.

Average Length of Period in Days Between Last Killing Frost of Spring (29° Fahr.) and First Killing Frost of Fall; no scale; no authority; /1945/; no graticule; CIA Map Library Call No. 69406. Unclassified.

Map is a photostat from Technical Bulletin 52 of the Canada Department of Agriculture, 1945.

Mean Temperature in Summer (Fahr.) -- June, July and August; no scale; no authority; /1945/; no graticule; CIA Map Library Call No. 69405. Unclassified.

Map is a photostat from Technical Bulletin 52 of the Canada Department of Agriculture, 1945.

Map of Southern Saskatchewan Showing Crop Districts and Long-time Average Annual Precipitation; no scale; no authority; /1942/; no graticule; CIA Map Library Call No. 69407. Unclassified.

Map is a photostat from Technical Bulletin 40 of the Canada Department of Agriculture, 1942.

New Brunswick: Rain; 1:3,250,000; no authority; /1939/; no graticule; CIA Map Library Call No. 69461. Unclassified.

Map is a photostat from "Agricultural Development of New Brunswick," by D. F. Putnam, Economic Geography, Vol. 15, No. 4, October 1939. Unclassified.

New Brunswick: Temperature; 1:3,250,000; no authority; /1939/; no graticule; CIA Map Library Call No. 69461. Unclassified.

Map is a photostat from "Agricultural Development of New Brunswick," by D. F. Putnam, Economic Geography, Vol. 15, No. 4, October 1939. Unclassified.

Nova Scotia Temperature; 1:2,250,000; no authority; /1939/; no graticule; CIA Map Library Call No. 69348. Unclassified.

Map is a photostat from "Farm Distribution in Nova Scotia," by D. F. Putnam, Economic Geography, Vol. 15, No. 1, January 1939. Unclassified.

Nova Scotia Rainfall; 1:2,250,000; no authority; /1939/; no graticule, CIA Map Library Call No. 69348. Unclassified.

Map is a photostat from "Farm Distribution in Nova Scotia," by D. F. Putnam, Economic Geography, Vol. 15, No. 1, January 1939. Unclassified.

/Climatic Maps of Newfoundland/; /1:4,500,000/; Geographical Branch, Canada Department of Mines and Technical Surveys; 1951; graticule stubs; in "The Climate of the Island of Newfoundland," by F. Kenneth Hare, Geographical Bulletin, No. 2, 1952. Unclassified.

13. Soils Maps

British Columbia, Tentative Soil Zone Map; 1:3,350,000; no authority; 1949; graticule; CIA Map Library Call No. 71428. Unclassified.

Soil Zones of Alberta; no scale; Alberta Soil Surveys; 1945; no graticule; CIA Map Library Call No. 80298. Unclassified.

Map of the Province of Saskatchewan Showing the Main Soil-Climatic Zones; no scale; no authority; /1942/; no graticule; CIA Map Library Call No. 69409. Unclassified.

Map is from Technical Bulletin 40 of the Canada Department of Agriculture, March 1942.

14. Vegetation Maps

Forest Classification of Canada and the Coast of Labrador; 1:6,336,000; Lands, Parks, and Forest Branch, Canada Department of Mines and Resources; 1937; graticule; CIA Map Library Call No. 63515. Unclassified.

Map is from A Forest Classification for Canada, by W. E. D. Halliday, Canada Forest Service Bulletin 89, Ottawa, 1937.

Canada Exclusive of Northern Regions, Indicating Main Natural Resources; 1:6,336,000; Surveys and Mapping Branch, Canada Department of Mines and Technical Surveys; 1950; graticule; CIA Map Library Call No. 77179. Unclassified.

This map is also referred to under maps showing distribution of agriculture and fish.

The Ranges of Various Tree Species in Canada; 1:6,336,000; Surveys and Engineering Branch, Canada Department of Mines and Resources; 1943; graticule; Army Map Service Call No. A 1-12-1312-6,336/2. Unclassified.

Forest Types; 1:5,068,800; Mines and Geology Branch, Canada Department of Mines and Resources; 1947; graticule; CIA Map Library Call No. 64511. Unclassified.

Map is from Canada's New Northwest, North Pacific Planning Project, Ottawa, 1947.

Newfoundland, General Location of Barren Land; [1:2,300,000]; Geographical Bureau, Canada Department of Mines and Resources; 1948; graticule stubs; CIA Map Library Call No. 74776. Unclassified.

Map is a photostat from An Introduction to the Geography of Newfoundland, by B. V. Gutsell, Ottawa, 1949.

Proportion of Wooded Land in Southern Ontario; no scale; Ontario Royal Commission on Forestry; [1947]; no graticule; CIA Map Library Call No. 69270. Unclassified.

Map is a photostat from Report of the Ontario Royal Commission on Forestry, 1947.

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