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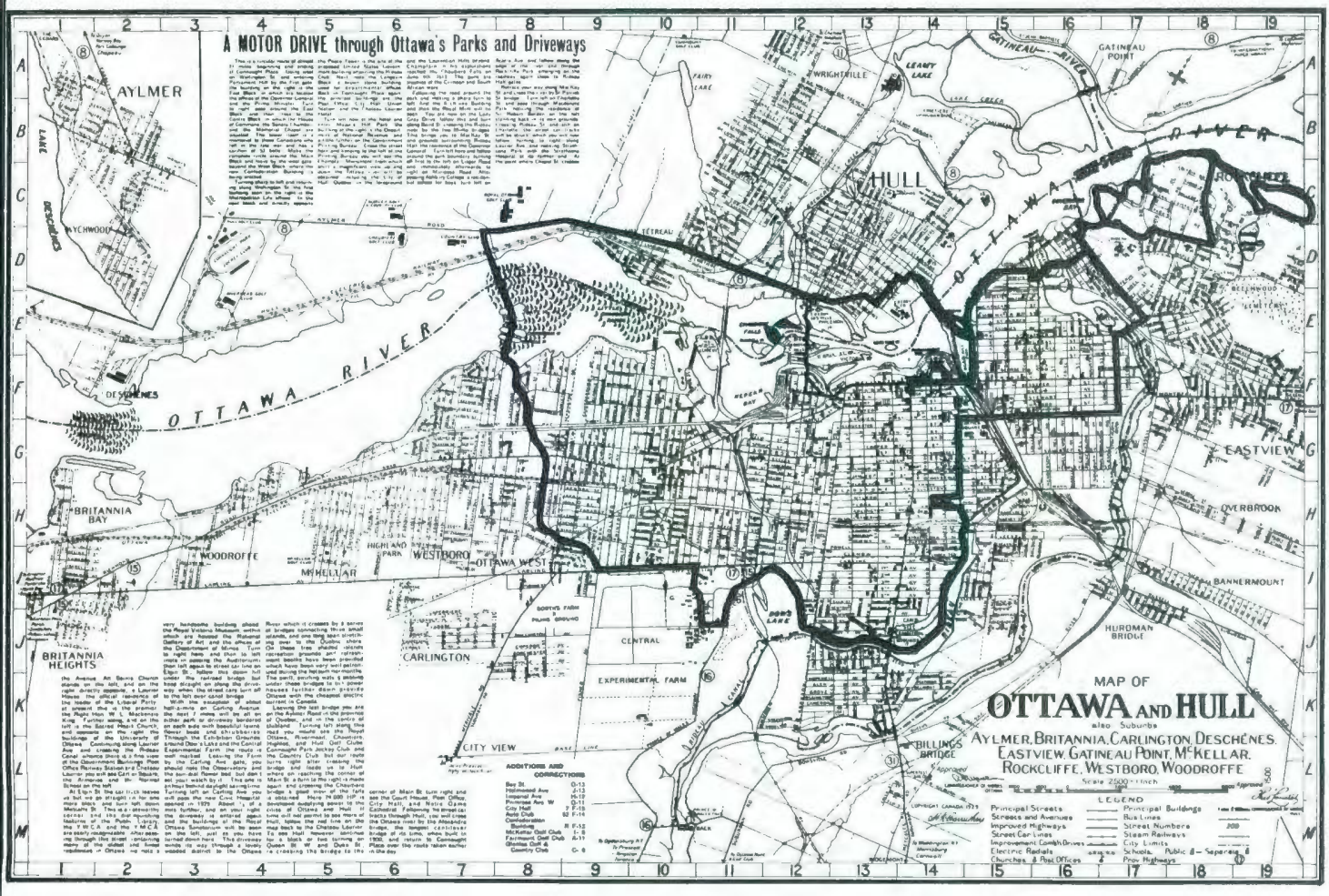
ASSOCIATION OF CANADIAN MAP LIBRARIES

BULLETIN

ASSOCIATION DES CARTOTHEQUES CANADIENNES



Urban maps are an important part of Canada's cartographic heritage. This map of Ottawa dating from 1929 provides an interesting example.

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NUMBER 52/SEPTEMBER 1984 - NUMERO 52/SEPTEMBRE 1984

ASSOCIATION OF CANADIAN MAP LIBRARIES

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ASSOCIATION DES CARTOTHEQUES CANADIENNES

Peuvent devenir MEMBRES de l'Association des cartothèques canadiennes tout individu et toute institution qui s'intéressent aux cartes ainsi qu'aux objectifs de l'Association. La cotisation annuelle est la suivante:

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Les opinions exprimées dans le Bulletin sont celles des collaborateurs et ne correspondent pas nécessairement à celles de l'Association.

A.C.M.L. OBJECTIVES

The objectives of the Association of Canadian Map Libraries are as follows:

1. To promote interest and knowledge of its members;
2. To further the professional knowledge of its members;
3. To encourage high standards in every phase of the organization, administration and development of map libraries by:
   a) providing for discussion of mutual problems and interests through meetings and/or publications;
   b) exchanging information on experiences, ideas and methods;
   c) establishing and improving standards of professional service in this field.

Editor's note: This map was placed as a courtesy to the President A.C.M.L. who insisted that there be a map of the front cover. Comments should be addressed to Elizabeth Hamilton regarding the "tradition" of maps on the cover of the Bulletin.

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REVIEWS

EDITORIAL

As interim editors of the next three issues of the *ACML Bulletin*, we are attempting to produce numbers 52 and 53 by the end of March 1985. Number 54 (March 1985) should appear in late April or early May and well in advance of the 1985 Conference. It will contain various committee reports and conference details as well as other regular features.

The Board of Directors first considered publishing numbers 52 (September 1984) and 53 (December 1984) as a combined issue, but then decided that the production of such a combined issue was not an acceptable alternative. The Board felt that the membership is entitled to four issues per annum, particularly since there certainly is more than enough material available to enable us to produce two separate issues. Hence, we expect that these next three numbers will contain approximately the same number of pages as previous issues.

To help us in the publication of these three issues, the Board has agreed to engage Dr. Edward Laine and Liisa Laine to do the word-processing and minor copy-editing. Dr. Laine has written numerous historical articles and reviews. A book which he edited, *Scandinavian-Canadian Studies*, was published last year. His experience has already proven most valuable to us.

You may notice some minor changes in the format and style of the *Bulletin*. We hope that these changes will make it a more attractive and useful publication to you. We welcome your views, criticisms and comments on the *Bulletin's* "new look" and will endeavour to forward all ideas to the new editor whenever he or she is appointed. In that regard, please note the Publications Committee's announcement in this issue which states that the position of *Bulletin* editor is vacant and invites interested members of the Association to volunteer their services in that capacity.

We would be remiss if we did not take this opportunity to express, on behalf of the Board and the members of the Association, our sincere thanks to Richard Pinnell who, so competently, produced issues 39 to 51 of the *Bulletin*.

Thomas Nagy _____ *Betty Kidd*

ACML BULLETIN EDITOR REQUIRED

THE POSITION OF ***BULLETIN*** EDITOR IS CURRENTLY VACANT, AND THE BOARD IS ANXIOUS TO FILL IT AS SOON AS POSSIBLE. EDITORIAL DUTIES WILL COMMENCE WITH THE JUNE 1985 ISSUE. WOULD MEMBERS INTERESTED IN ASSUMING THIS POSITION PLEASE CONTACT:

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MAPPING SEISMIC RISKS IN CANADA

John H. Hodgson
Ottawa, Ontario

Most Canadians would probably say: "What seismic risks?" Earthquakes in Canada can be very severe but they are infrequent, and people tend to forget about them. There have been earthquakes of magnitude 6 to 7 in the St. Lawrence Valley at intervals of about sixty years ever since the arrival of the early explorers, and earthquakes as large as magnitude 8 have occurred on the Pacific coast.

In 1953, the National Research Council was publishing a revised edition of the National Building Code and wanted to provide specifications for earthquake-resistant construction suitable for Canadian conditions. They asked the Seismological Division of the Dominion Observatory to provide a map defining zones of earthquake risk. Our contribution is shown in Figure 1. It defines zones of four degrees of possible damage, 0 to 3, ranging from "no damage" to "major damage."

The zones of major damage consisted of the St. Lawrence and Ottawa Valleys and the Pacific coast, areas in which major earthquakes were known to have occurred. Zone 0 was assigned to the Canadian Shield which was believed to be geologically stable, except that the line was drawn north of the Shield boundary in Quebec in recognition of the fact that a serious earthquake had occurred at Temiskaming in 1935. The Maritimes were placed in Zone 2 because there had been a magnitude 7.2 earthquake on the Grand Banks in 1929, and there were frequent, smaller earthquakes throughout New Brunswick and the northern New England States. The boundaries were not extended into the Arctic; except for a cluster of serious earthquakes in Baffin Bay, nothing was known about its seismicity.

This rather stylized map, with its straight lines and gently curving boundaries, was similar to the then current risk map in the United States, which had the same four zones and which agreed with the Canadian map along the international boundary. The Canadian building code applied

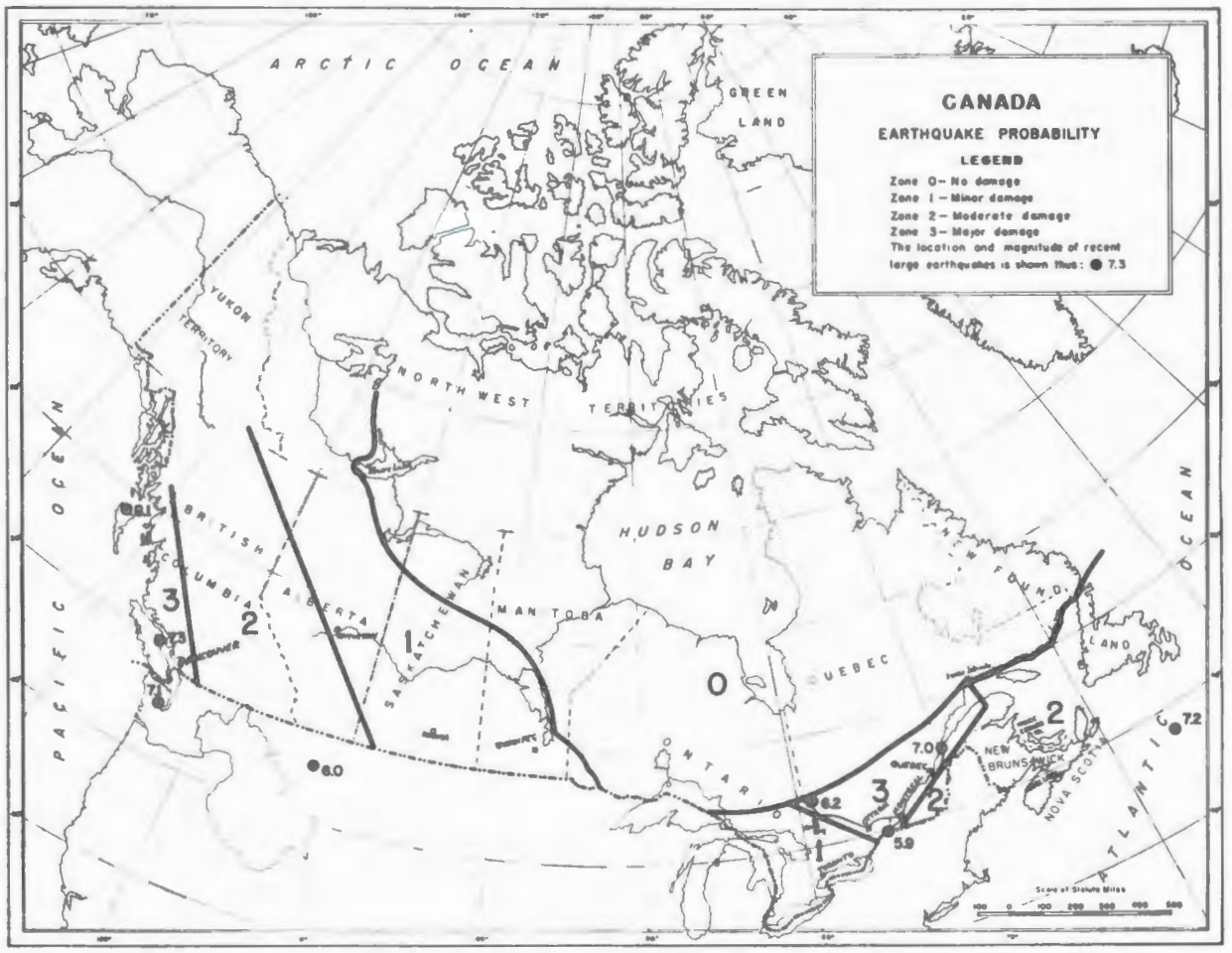

Figure 1 The 1953 Earthquake Probability Map.

the same design requirements to the zones in Canada as were applied to those in the United States.

The map was obviously a first attempt, and the fact that the divisions were drawn by straight lines and simple curves should have warned the users that they were imprecise. Nevertheless engineers and architects were unhappy about this generality. What to do at a triple point where, depending on which direction you stepped, you could be in a zone 3 or 2 or 0?

A programme for improving the map was instituted immediately. All possible sources of information were examined and earthquakes or suspected earthquakes were plotted on maps. There were two sorts of information. For most of the time since the beginning of settlement, one had to depend on accounts in newspapers, reports from military or church officers to their superiors, and private diaries. The amount of information varied from one part of the country to another. Eastern Canada had been reasonably well settled from approximately 1800, and sparsely settled in some areas since 1650. In western Canada, settlement was quite scattered before 1900. After seismograph stations were established, increasing dependence could be placed on the seismic records, all of which had to be reworked. Seismograph stations began to appear about 1900 but the early instruments were quite incapable of recording anything but the largest earthquakes. Even by the early 1950's, the number of stations with instruments sensitive to nearby earthquakes was limited, and they were confined to the settled areas of southern Canada.

The work in eastern Canada was carried out over a period of some 15 years by W. E. T. Smith, a graduate of the University of New Brunswick. He published two major papers, the first covering the largely non-instrumental period 1534-1927, (Smith, 1962), the second the period 1928-1959, which depended to a much greater extent on recorded data, (Smith, 1966). The maps of Figure 2 show the epicentres which he found. At the same time, W. G. Milne, of the Observatory's western division, was preparing equivalent catalogues for western Canada. Catalogues were also prepared for the Arctic but they, for the most part, listed only earthquakes large enough to have been recorded at distant stations.

You will notice that in Figure 2, the size of the earthquake is indicated by the size of the dots and that these dots are related to both an "intensity" and a "magnitude" scale. We must say something about these scales. The **effects** of earthquakes, on buildings, people, land forms and so on are measured on an empirical scale called an **Intensity Scale.** The intensity scale normally used is based

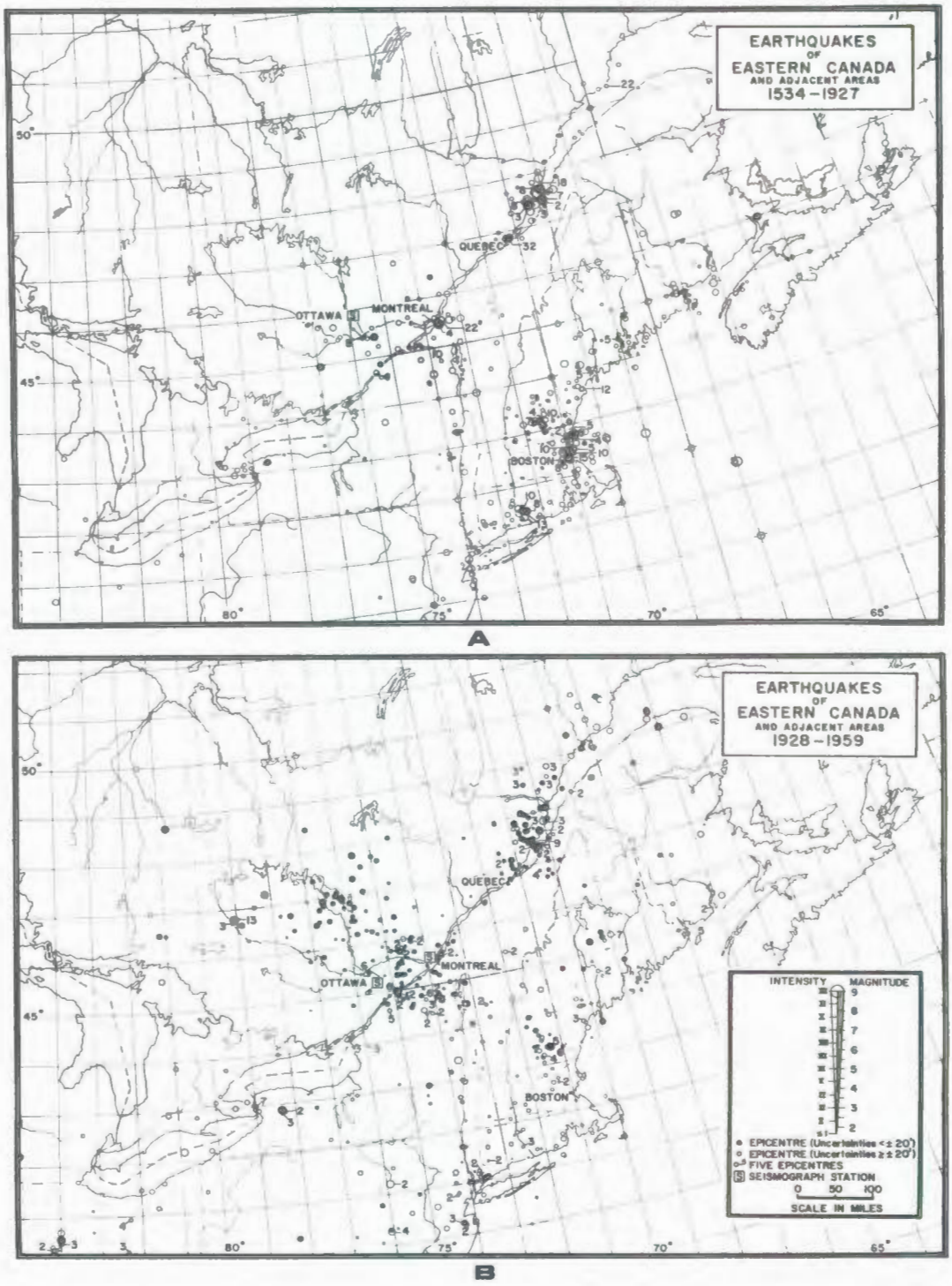

Figure 2 Earthquakes in eastern Canada, (A) from 1534-1927 and (B) from 1928-1959.

on one devised by an Italian seismologist named Mercalli, and it has twelve divisions. They range from "1 -- Not felt except by a very few under especially favourable circumstances" through "5 -- Felt by nearly everyone; many awakened; some examples of cracked plaster" and "8 -- Damage considerable in ordinary structures, with partial collapse" to "12 -- Damage Total". When seismologists study the field effects of earthquakes, they estimate the Mercalli intensity at each point they visit and plot them on a map which can then be contoured to provide an "Isoseismal Map". Figure 3, which shows an isoseismal map for the New Brunswick earthquake of January 9, 1982, is typical, the epicentre being close to the centre of the area enclosed by the isoseismals.

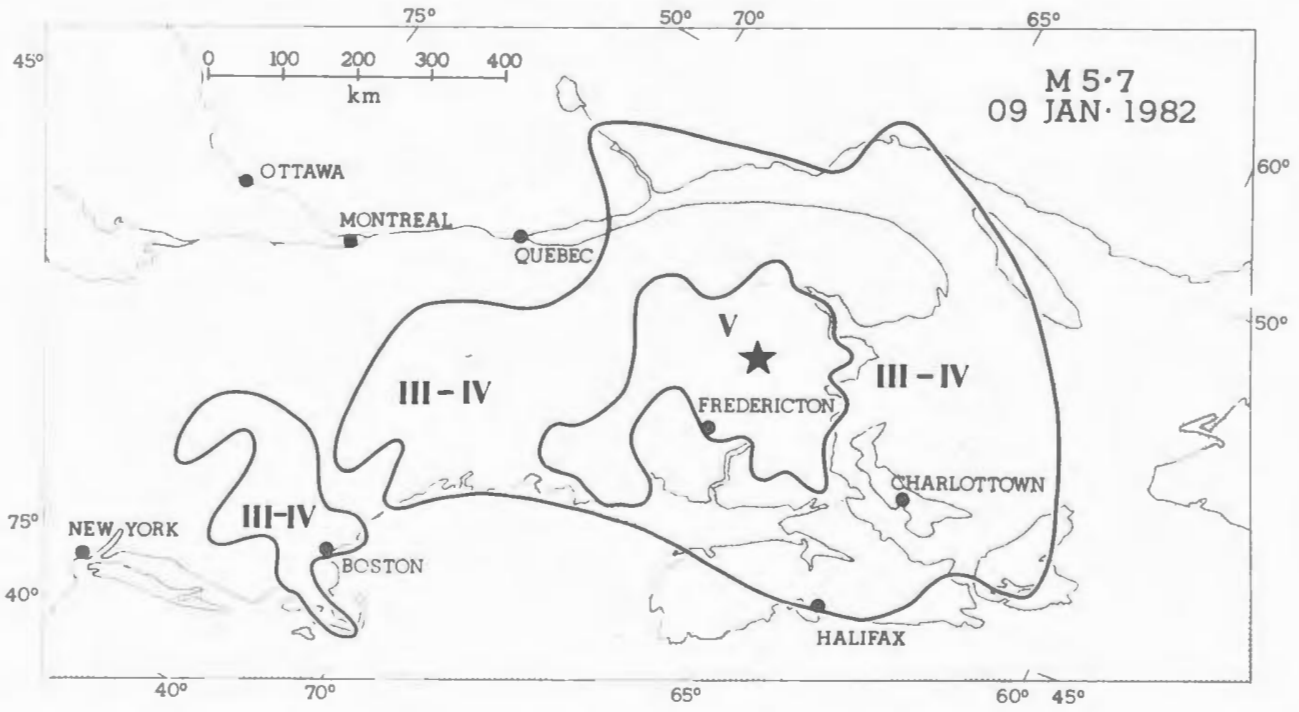

Figure 3 **Isoseismal map of the New Brunswick earthquake of 9 January 1982 (Basham and Adams, 1984).**

The intensity scale is rather crude and its application may not be the same from one country to the next. Buildings in Third World countries are not as well built as in our own and will sustain damage at lower levels of shaking. The reactions of people will depend on how accustomed they are to earthquakes. A shock that had Canadians rushing into the street might pass unnoticed in Japan. Something more precise is needed and this is provided by the seismographs which record the earthquakes. They are very carefully designed and calibrated instruments with which it is possible to measure the amplitude of the ground motion at the station. By projecting this back to the earthquake focus, one obtains a measure of the energy released by the earthquake. There are many possibilities for error in the measurement but by averaging results from many stations one obtains a good value -- this is called magnitude, or sometimes **Richter magnitude** after the man who developed the concept. The scale is a logarithmic one so that an increase of one magnitude unit indicates an earthquake ten times larger. Because the magnitude is related to the energy actually released in an earthquake, it is magnitude, not intensity, which must be used in evaluating earthquake risk.

Now, let us return to Figure 3. In evaluating the seismic history of the early years of settlement, Smith had to sort through all the reports of each earthquake and evaluate its intensity, being careful not to give too much credence to the more sensational reports. In the later period when seismograph records became available, he could determine magnitudes but, to make the whole sequence of earthquakes available for risk studies, some means had to be found to translate the intensities into magnitudes. This difficult problem was eventually solved and all his observations could be tied to the magnitude scale.

By the time all the data had been reviewed, in central and western Canada as well as in the east, the Government had begun a programme to expand the seismograph network. Stations with the most modern instruments were installed at intervals of about 500 miles throughout Canada, including the Arctic. This programme took several years to develop, and the engineers couldn't wait for an improved map. A new one was issued in 1970. This map is shown in Figure 4.

It was developed by Milne and Professor A. G. Davenport of the University of Western Ontario, (Milne and Davenport, 1969; Whitham, Milne and Smith, 1970). It was based on extreme-value statistical methods applied to the catalogues described above but limited to the years 1899 to 1963. This was done because it was necessary to have the same time period across Canada, because the western data only became adequate at that time, and because Smith's catalogue for eastern Canada became less and less reliable the more remote

the period. The map plots the horizontal accelerations as a percentage of gravity, g, that have a 1% chance of being exceeded per year; to put it in a more positive way, they have a 99% chance of **not** being exceeded in any year. While it isn't apparent from the map, they do have a 40% chance of being exceeded in 50 years.

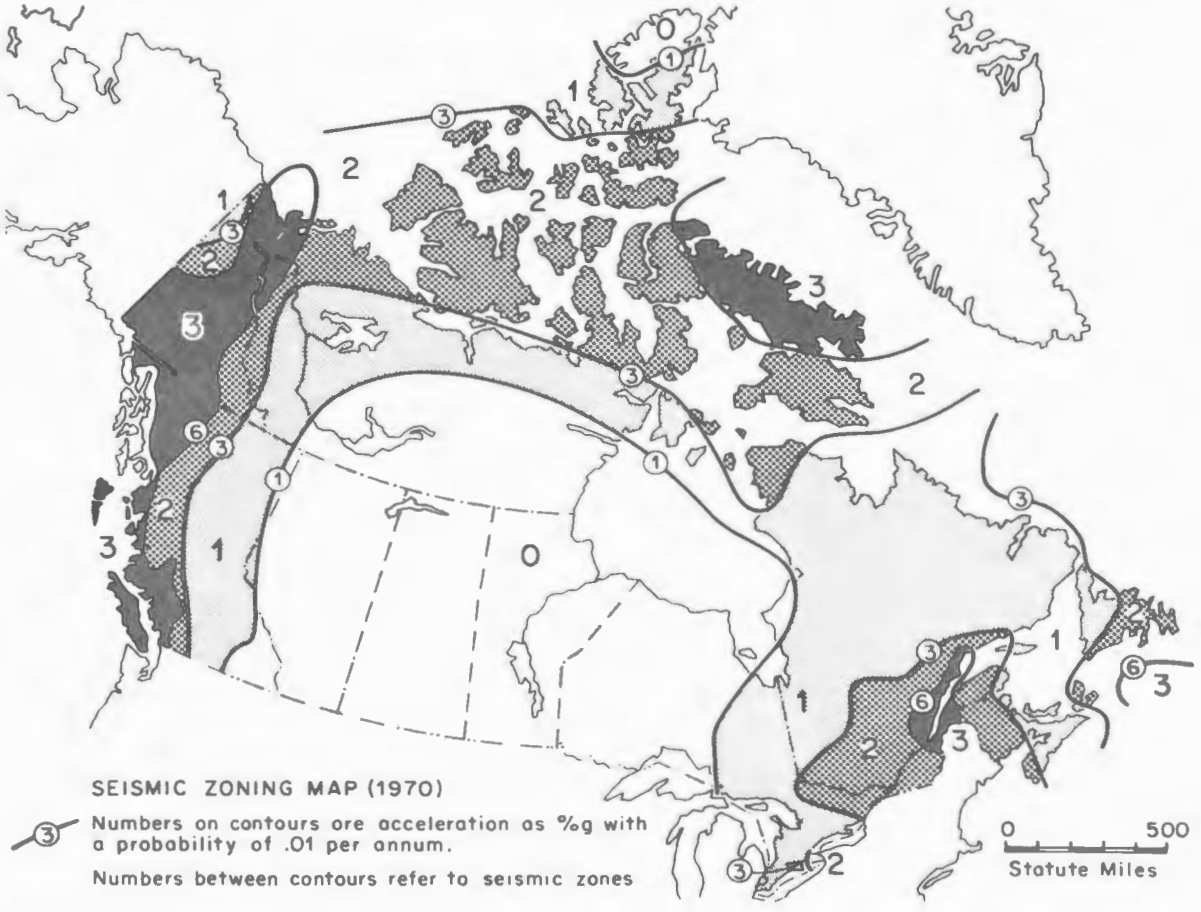

Figure 4 The 1970 Seismic Zoning Map.

The use of horizontal accelerations provides the sort of information that the engineers want, because it is horizontal forces against which they must protect their structures. As in the 1953 map, there are four zones -- 0 below 1% g, 1 between 1 and 3%, 2 between 3 and 6% and 3 above 6%. The map

is much more detailed than the earlier one but it is not drastically different. The Zone 3 in the St. Lawrence Valley has been much reduced in size, so that Ottawa and Montreal lie in Zone 2 instead of Zone 3. Most of Nova Scotia has been removed from the Zone 2 found elsewhere in the Maritimes, and the Zone 3 along the Pacific coast has been more closely defined. The zones are continued into the Arctic, but, except for the area of Baffin Bay, the contours are quite stylized.

Since 1970 the expansion of the seismograph network has been completed and the instrumentation has been still further improved. There are telemetered networks in both eastern and western Canada which bring the seismic records to a central computer in digital form for instant analysis. As a result, earthquakes in those two areas can be located down to magnitudes of less than 3, and a magnitude 3.5 shock would be detected anywhere in Canada, even in the high Arctic. The time is ripe for a new map, and this has recently been issued by the Seismological Division of the Earth Physics Branch (successor to the Observatories Branch) of the Department of Energy, Mines and Resources, (Basham, Weichert and Berry, 1979; Basham, Weichert, Anglin and Berry, 1984).

The concept of this map is completely different from the earlier ones. The 1970 map was based on known earthquakes over a 64 year period, a mere tick in the geological clock. Someone has estimated that basing an earthquake probability on such limited data is like predicting a maximum wind velocity at a station by observing winds for an 8 minute period selected at random.

The new map attempts to overcome this limitation by considering not only the numbers of earthquakes, but what is known about the tectonic processes causing them. Canada has been divided into 32 "Earthquake Source Zones", each based on the distribution of earthquakes but modified where possible by any geological or tectonic information which may be available. For each of these zones a curve is developed relating the numbers of earthquakes per annum, in each magnitude range, to magnitude. The cut-off point of each curve, that is the largest magnitude to be expected, must also be estimated. Given this information it is possible to compute the probable maximum value of horizontal velocity and horizontal acceleration to be anticipated in any given period.

The map showing acceleration at 5 cycles per second is reproduced in black and white in Figure 5. The contours are in percentage of g and represent a 10% chance that the value will be exceeded in 50 years. This contrasts with the 40% chance in 50 years provided by the 1970 map. There are now 7 zones on the map (0 to 6) and in the official version

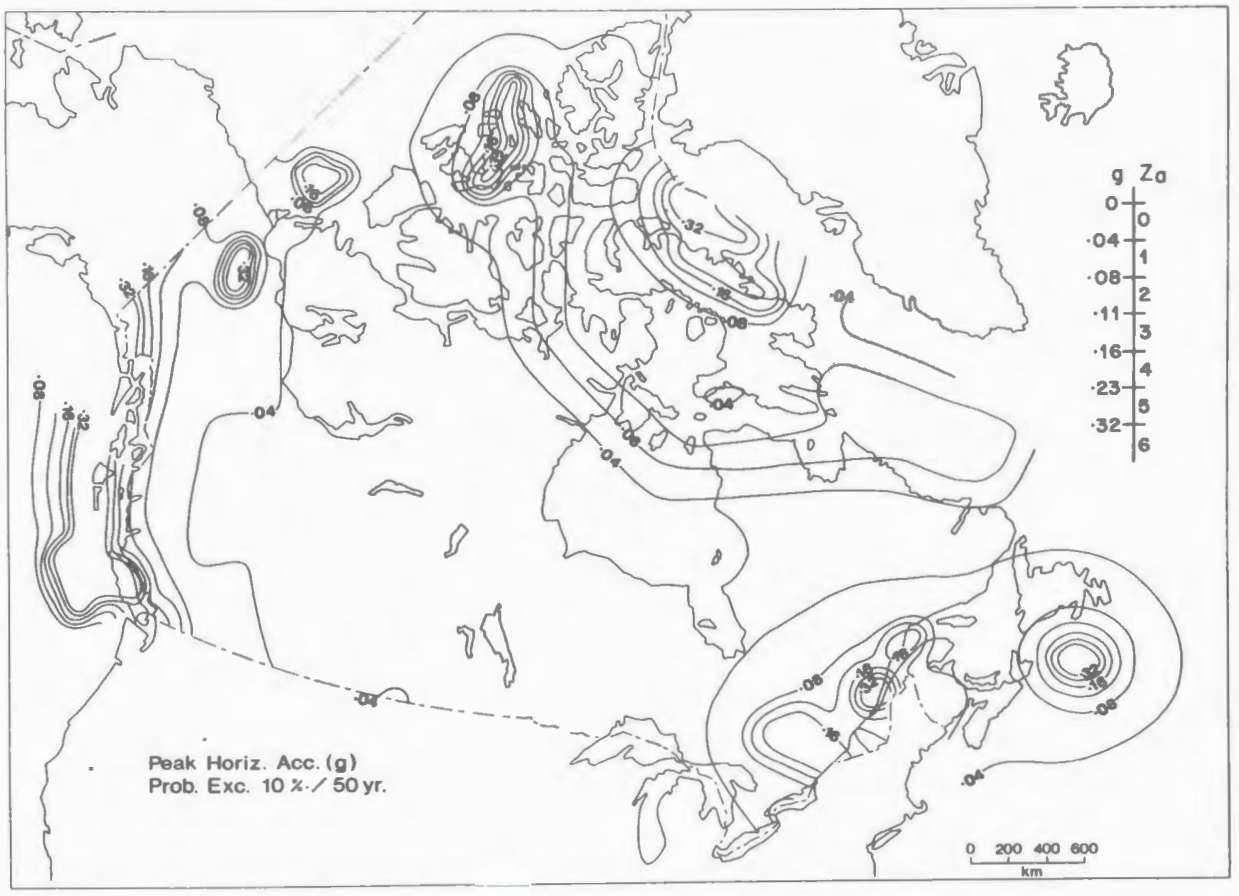

Figure 5 **The current map of probable horizontal accelerations at 5 Hertz. A second map shows probable horizontal velocities at 1 Hertz. These maps will be part of the 1985 Building Code.**

they stand out very clearly because of their different colours. The new maps show more detailed zoning in areas of moderate risk than the earlier one did, as well as having additional zones in the high risk areas. There is now much more detail in the Arctic, and new and quite serious risk zones are defined. This new knowledge derives from the seismograph stations which were installed there in the 1960's.

Acceleration at 5 Hertz (cycles per second) is chosen because this is the shaking that affects small or rigid structures. A second map of the new set plots equivalent

contours for velocity at 1 Hertz because vibrations at this frequency are the ones that are most damaging to tall, flexible structures such as highrises. These new maps will be incorporated in the 1985 building code.

Acknowledgements

I should like to express my thanks to Peter Basham, Head of the Seismicity, Seismic Hazards and Application Section in the Earth Physics Branch of the Department of Energy, Mines and Resources. He presented me with a complete set of the modern literature on the subject, was most patient in discussion, and provided the figures.

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MAPS OF DISASTERS IN TOKUGAWA JAPAN (1615-1867)

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Japan has had a turbulent natural history, with much damage and loss of life caused by earthquakes, fires, volcanic eruptions, typhoons, floods and *tsunami* ("tidal" or "sea waves"). Records of disasters go back about 1300 years, and "disaster maps marking earthquake, fire, flood or famine have a regular place in Japanese cartography" (George H. Beans, ***A List of Japanese Maps of the Tokugawa Era,*** Jenkintown, Pa.: Tall Tree Library, 1951-1963, Supplement B, p. 6). So far I have not found a map depicting famine. The most common are fires and fire maps. Fire, of course, is frequently concomitant with earthquakes and other disasters, and is often the more destructive force.

Mary Crawford Fraser, writing in ***A Diplomat's Wife in Japan***, in March 1890, says "although the fires seem to us both frequent and terrible, the Japanese say that they were still more so twenty years ago, when some part of Tokyo was in flames every night of the week" (New York and Tokyo: Weatherhill, 1982, p. 190). She attributes many of the fires to the almost universal use of flimsy glass kerosene lamps placed on high bamboo stands so slender the slightest touch would knock them over. Fires "were so much a part of life that a whole code of customs grew up round them, regulated by severe etiquette: there was only one costume in which it was proper to assist at a fire" (*ibid.*, p. 147), and every variety of fire had a different name. Fires were apparently dealt with in a calm, orderly fashion with the safety of children receiving top priority. Earthquakes, however, caused panic throughout the community. Besides fires and earthquakes, Mary Fraser, who was in Japan from 1889 to 1894, also writes of volcanic eruptions, and of typhoons with their destructive high winds and floods which came at least once a year.

Six of the world's major earthquakes up to 1970 took place in Japan. The earliest recorded, at Kamakura in 1293,

left 30,000 dead. In 1621, Edo had a major fire. This is shown on a map of Japan in a *namazu* frame that was made in 1624, entitled ***Dai Nihon Koku Jishin No Zu***. The *namazu*, literally "sheatfish", developed from the dragon which was believed by the Buddhists to be the defender that would protect the country from outside enemies. According to Buddhist tradition, a dragon lay around the land and when he moved, the earth shook. By the Edo or Tokugawa period, the dragon had become a sheatfish or large catfish with a direct connection to earthquakes, and maps with titles like "Map of the ***Namazu*** Under Earth" and "Map of the Earth-Moving ***Namazu***" appeared in books related to earthquakes and in popular almanacs. This "Earthquake Map of Japan" of 1624 is the oldest known surviving map of Japan printed on one sheet and with a clear date of publication. Japan is shown in Gyogi style. It is curious that Edo, which became the Tokugawa capital in 1603, is not shown, but Kamakura, the old centre, appears greatly exaggerated. Around the outside of the map are notes on the height of the sky, size of the land, number of temples and shrines, population, areas of rice paddies and fields, and other details. Attached to the dragon's body are twelve very large fins. These contain prognostications concerning the consequences of earthquakes in each of the twelve months of the year such as sickness would prevail and prices would rise after an earthquake in July. The only copy of this map appears to be in a private collection in Ishikawa Prefecture.

There was a disastrous fire in Edo in 1657, following which a quick survey was made by Hojō Ujinaga and Fukushima Denbē, and a map was drawn, which may be the map, ***Shinten Yedo No Dzu*** ("A Newly Edited Plan of Edo"), now in the British Library Map Library (BL 63140.[20], 1490.6 x 590.2 mm).

The second major earthquake was 28 December 1828 at Echigo with 30,000 dead. This is shown on a map from the British Library, described as "A map of the province of Shinano, showing the elevations and depressions of the surface of the ground caused by the great earthquake of 1828," published in Edo in 1847 (BL 149.e.2.[66] & [66A] in a bound volume of maps from the Von Siebold Collection).

The earliest disaster map in the Beans Collection is an untitled plan showing the parts of Edo damaged by the fire of 21 March 1829 (Beans, 1829.1, 26 x 35 cm). There is another untitled map showing fire damage in Edo, this one on 7 February 1834 (Beans, 1834.71, 60 x 41 cm). This shows much more clearly the fire-damaged areas, with one cluster widely separated from the rest. The third map, also anonymous, shows that the fire of 15 January 1846 attacked a smaller portion of the city, but destroyed most of the fringe of that area (Beans, 1846.3, 32 x 62 cm).

A map entitled *Shinano No Kuni Daijishin Kasai Suina Chihō Zenzu*, which M. Ramming associated with the earthquake of 1847 during which the Shinano area west of Tokyo was damaged by fire and flood, itself suffered a disaster when Ramming's entire collection was lost in Berlin in May 1945 (Beans, [1847.4]; M. Ramming, *Katalog der Ausstellung alter Japanischer Karten und Plaene*, Berlin : Japaninstitut, 1934, no. 167, and attached letter to Beans, 4 June 1952).

The earthquake of 2 October 1855 is not listed as one of the world's major quakes, but, cartographically, it seems to be one of the best recorded in Japan. One of the most interesting maps entitled *Jishin-No-Ben* ("Explanation of the Earthquake") is an anonymous, undated, colour-printed map of Japan in a *namazu* frame. The yellow denotes the areas damaged by the 1854 earthquake, the blue the coast inundated by the tidal wave of the same year and, red, the areas devastated by the 1855 earthquake (Beans, 1855.11, 17 x 26 cm on sheet 37 x 50 cm). Another map, *Edo Jishin Ruishō Basho*, shows places destroyed by the earthquake and fires in Edo. Although not dated, it refers to the earthquake of 2 October (Beans, 1855.12, 20 x 33 cm on sheet 31 x 42 cm). Another earthquake seems to have struck later the same month, on the 28th. *Edo Ōjishin Shukkajō Meisai Hayami Ichiran*, published in Edo by Chōgindō, is a colour-printed, bird's-eye view of Edo, showing the parts affected by the earthquake and fires of that disaster (Beans, 1855.15, 25 x 38 cm on sheet 50 x 38 cm). The same month a pamphlet, *Edo Ōjishin Matsudai Hanashi-No-Tane* ("Stories about Earthquakes of Edo"), was published which contains two small maps: Japan within a *namazu* border, with the same title as the pamphlet (Beans, 1855.17, 15 x 12 cm on sheet 12 x 19 cm); and a map of Edo showing the parts affected (Bean, 1855.18, 14 x 18 cm).

In addition to the dragon or *namazu*, there seems to have been a stone called the Kaname Stone which represented good luck. It is shown on a number of prints, and on a bird's-eye view of Edo in flames. The title of the bird's-eye view is *Yuroganu Miyo Kaname-No-Ishi Zue* ("Hail to the Kaname Stone, a Protection Against Disaster"), colour-printed on two sheets (Beans, 1855.16, 27 x 87 cm overall). Besides the earthquakes, Edo suffered two major fires that year. *Osukui Goya-Basho Zuke* shows the areas affected by the fire of 24 January, and was published by the Rescue Office. A rescue station is depicted at the bottom right as a building with a sign and a large bell on the roof (Beans, 1855.14, 33 x 42 cm). *Yakeba Hōgaku Zuke* shows the results of the fire on 1 March (Beans, 1855.13, 32 x 45 cm).

Yakeba Hōgaku Zuke is also the title of another map, in two sheets, which is of Edo after the fire of 15 November 1858. The Rescue Office may be seen just above the border of the left-hand sheet (Beans, 1858.2, 31 x 82 cm).

There is an account of the 26 November 1866 fire which left one-quarter of the foreign settlement and one-third of the Japanese town of Yokohama in ashes, in Sir Ernest Satow's ***A Diplomat in Japan*** (Rutland, Vt., and Tokyo: Charles E. Tuttle Co., 1983, pp. 161-164). Earlier in the month, on the 9th, Edo suffered yet another fire, as seen in ***Yakeba Hōgaku Basho-Zuke*** (Beans, 1866.2, 42 x 29 cm).

An earthquake on 15 January 1887 and a volcanic eruption on 15 July 1888 -- the description of which resembles that of Mount St. Helen's on 18 April 1980 -- are described by Henry Spencer Palmer in his letters to ***The Times***, reprinted in his ***Letters from the Land of the Rising Sun*** (Yokohama: Japan Mail, 1894, pp. 71-79, 87-112). The letters are dated 1 March 1887, 28 July and 12 October 1888. Fraser mentions typhoons in 1889 and 1890 and an earthquake on 28 October 1891 (Fraser, pp. 85-86, 204-210, 217, 315-317) which Palmer also describes in great detail (Palmer, pp. 279-294, 307-313, in letters dated 7 November 1891 and 2 February 1892). The major earthquake of 15 June 1896 caused *tsunami* of 93 feet, and left 22,000 dead. The waves were registered in San Francisco. However, these disasters of the '80s and '90s are well beyond the Tokugawa period, and we have no maps for them.

SPRUCE BUDWORM PROTECTION PROGRAMME MAPPING IN NEW BRUNSWICK

M. David MacFarlane

Perhaps before describing the mapping techniques used in our budworm protection programme, I should briefly describe what the budworm problem is in New Brunswick.

The eastern spruce budworm is a native of the fir spruce forest from Newfoundland to Alberta. It is not a new pest in New Brunswick. Ordinarily, the insect is at endemic levels and detectable only by the most intensive sampling. However, at periodic intervals the population increases rapidly to epidemic levels. In the past, **i.e., before the early 1950's,** these buildups typically lasted 6-10 years and the period between outbreaks ranged from 25-70 years.

This cycle of budworm epidemics occurred for perhaps thousands of years in the past. From direct and indirect evidence, there have been at least seven major outbreaks in eastern Canada in the past 200 years. The typical pattern during each of these outbreaks was that most of the fir and a significant portion of the spruce forests were killed over millions of acres only to be replaced by an even-aged forest of much the same composition. In other words, the budworm and the forest were in a perfectly normal insect-forest cycle and it was only man's desire to use the fir-spruce forests that caused the problem.

The current epidemic in New Brunswick, which began about 30 years ago, is simply a continuation of this fir-spruce forest-budworm cycle. The factor which sets this current epidemic apart from previous outbreaks is that the industry had developed a high economic dependence on the same species favoured by the budworm. The forest industry in the early 1950's was the mainstay of the provincial economy. It had formed one of the key components in the industrial base of most major urban centres and it represented the only industry in many of the smaller communities.

The forest industry employs, directly or indirectly, one in every seven persons working in the province (approximately

36,000) and represents about one-quarter of all the goods and services produced there. With such a vital part of the economy in jeopardy, the province embarked on a protection programme which has continued from 1952 to the present. The very success of the protection programme has resulted in a prolonged epidemic (with some cyclic variation) lasting for more than 30 years. The only reason that past epidemics have collapsed was the lack of food. As long as a significant portion of the fir-spruce forest is maintained, the insect will remain at epidemic levels.

I would like to describe very briefly the life cycle of the budworm perhaps to give you a better understanding of the mapping requirements in managing this insect pest. The life cycle of the insect is completed over a 12 month period. Adult moths (that do no damage) appear in late June and, in early July, lay eggs on the host trees. The female moth may travel 25 to 100 miles from its origin to lay its eggs. Small larvae emerge from the eggs in late July and August. They do not eat but simply disperse on the wind throughout the tree seeking a suitable overwinter site. In the spring the larvae emerge from the overwintering site when the weather has sufficiently warmed. By late May to early June, the larvae start feeding activity and, by late June, they are voracious eaters of new and, in some cases, old foliage. At high population levels, 100% of the new year's foliage can be eaten by the budworm and 2-3 years of heavy defoliation will kill the tree. The larva pupate in late June and the adult emerges in July to start the cycle again.

Budworm spraying has been carried out in New Brunswick every year, with one exception, since 1952. In the early years, the programme was in the one million to two million ha range while, in 1976, nearly all the province was treated (4 million ha). In the last few years the protection programme has been between 1 and 1.5 million ha.

The purpose or objective of protecting the forest against the budworm is to prevent large scale tree mortality. **It was never to eradicate or reduce the budworm levels to endemic levels.** This would be an impossible objective to achieve as long as the basic food supply remains in place. There is a great deal of confusion on this issue both within and outside the forestry industry. The statement is often made: "What good does spraying do? It has been going on for 30 some years and the budworm is still here." As was mentioned, the protection of a forest from insect attack in the context of an overall forest management strategy is simply a decision that man will manage the forest for society's benefit rather than the budworm managing the forest following the cycle described earlier; boom-bust. It is the same principle used in agriculture where protecting a crop from insect and disease pests is an accepted part of a

farmer's management regime. The protection programme has been successful as is noted in the fact that the forest industry, which was in place in 1952, has been maintained and that, since 1952, the industry has expanded by about 75%. Neither of these situations would have been possible if a protection programme had not been undertaken.

What does mapping have to do with the budworm protection programme? In the early years of the programme, the mapping aspect was at a fairly general level. As the programme developed over the years and with a much greater awareness of environmental and health concerns the mapping aspect of the programme became very important. At the present time, a system of aerial mapping, cover type mapping and computer developed maps are used in planning, implementing and monitoring the budworm protection programme. In nearly all cases, the National Topographic Series 1:50,000 and 1:25,000 base maps are used.

The mapping of budworm damage and protection plan follows a cycle as well. In early July, the total province is flown and current year budworm defoliation is mapped at a scale of 1:250,000. The mapping is carried out by flying east-west flight lines (flying 5 km apart) and trained observers simply sketch current year defoliation based on the amount of dead foliage on the trees (red from the air). Various attempts to use satellite or small scale infra-red photography have been carried out with little success.

During the months of August and early September, ground sampling is carried out throughout the province to determine egg mass numbers as a prediction of budworm infestation for the next year. This information is input directly into a geographic computer mapping system. Through a gridding procedure using average egg mass valued per grid, a map at the scale of 1:500,000 is produced by the computer mapping system showing areas of high budworm egg masses.

These two pieces of information are combined at 1:250,000 scale (topographic series) to produce a map reflecting the areas of the forest that are expected to be at gross "hazard" for the next year.

Concurrently with the development of hazard maps, maps (1:250,000 topographic series) are prepared and/or updated, outlining areas of the forest that are susceptible to budworm defoliation (i.e., primarily fir-spruce stands). At the same time, "set back" zones around inhabited areas, rivers, lakes, water supply areas, etc., are updated from previous years.

The spray programme for the ensuing year is developed by combining the hazard map with the susceptible forest map. This process identifies the forest stands requiring treatment

and is carried out using 1:250,000 topographic series map. These areas are then "blocked", i.e., to faciliate the effective use of aircraft in applying the insecticides.

Operation maps of the "blocked" area are produced at 1:50,000 topographic series. These maps are used basically by Forest Protection Limited to locate and direct aircraft spraying. On some of the smaller areas requiring treatment, photo-mosaics at 1:20,000 are used.

In the future, the Department's computer-assisted mapping system will be used more and more to produce susceptible forest maps, hazard maps and protection plans as more base information (i.e., forest stand information) is developed. The computer mapping system is very flexible in regards to scale change, change in protection criteria and in updating procedures.

Although the use of remote sensing techniques such as satellite imagery has had fairly limited use in mapping, it is expected to be used in the future with the higher resolution remote sensing devices now available. Remote sensing techniques will also be used to update our susceptible forest base for such activities as harvesting, forest fires and road construction.

Summary:

Mapping is a vital component of the budworm protection programme in New Brunswick. National Topographic Series 1:50,000 and 1:250,000 have been the primary map base used. In the future, computer developed maps will gradually replace these standard maps especially in the initial planning stages.

CARTOGRAPHIC ILLITERACY: AN EDUCATIONAL CHALLENGE

Angus C. Hamilton
Chairman
Department of Surveying Engineering
University of New Brunswick

Introduction

The disaster I am going to talk about is not due to uncontrolled forces in nature, nor even to man's territorial imperative. I am not going to talk about floods or earthquakes or even boundary disputes. What I am going to talk about is an educational and cultural disaster that is having more serious consequences for Canada than any or even all of the above-mentioned disasters. I am going to talk about cartographic illiteracy -- about the lack of ability to use maps.

I must warn you that what I have to say is personal opinion and that the executive of the ACML are not responsible for anything I may say. I hope, in fact, that many of you will disagree with me and be able to prove me wrong.

I will start by comparing the general availability of and familiarity with maps in Europe and Canada; then I will cite an example of elementary school education in maps use in West Germany and I will talk about the reason for these differences. Finally, I will raise some questions about what we should do and I will end by presenting a challenge to the Association of Canadian Map Libraries.

Comparison of availability and familiarity with maps in the U.K. and in Canada

I cannot prove that they make more use of maps in the United Kingdom than they do in Canada but there are two forms of circumstantial evidence that I find quite persuasive. The first is that Ordnance Survey sheets are on sale at virtually every newstand. From this, my argument is that if they are

on sale there must be buyers or they would not continue to be on sale; if there are buyers, there must be users -- unless there are an awful lot of collectors.

My second form of circumstantial evidence comes from experience I have had travelling or being with a group trying to discern something that can barely be seen in the distance. If someone asks: "Where can we get a topo map?", you will make money betting that that person is not Canadian or American. The British, the Germans, the Swiss, the Scandinavians and most other Europeans are cartographically literate. They can and do read maps.

Education in map use

Professor Gerhard Gloss kindly provided me with a series of assignments that were done by a nine-year old grade 3 student in Würtemberg-Baden, West Germany (copies available on request from Professor Gloss). One assignment was on symbols, one was on scaling distances, and one on drawing a profile from contours (Figure 1). From this figure, it is apparent that the first three intersections to start the profile were done to demonstrate how the profile should be drawn. Close examination will reveal that the student did not locate the 481 m spot height correctly on the profile; nevertheless, it is apparent in the plotting of the contour intersections for the main peak that the student understood the assignment.

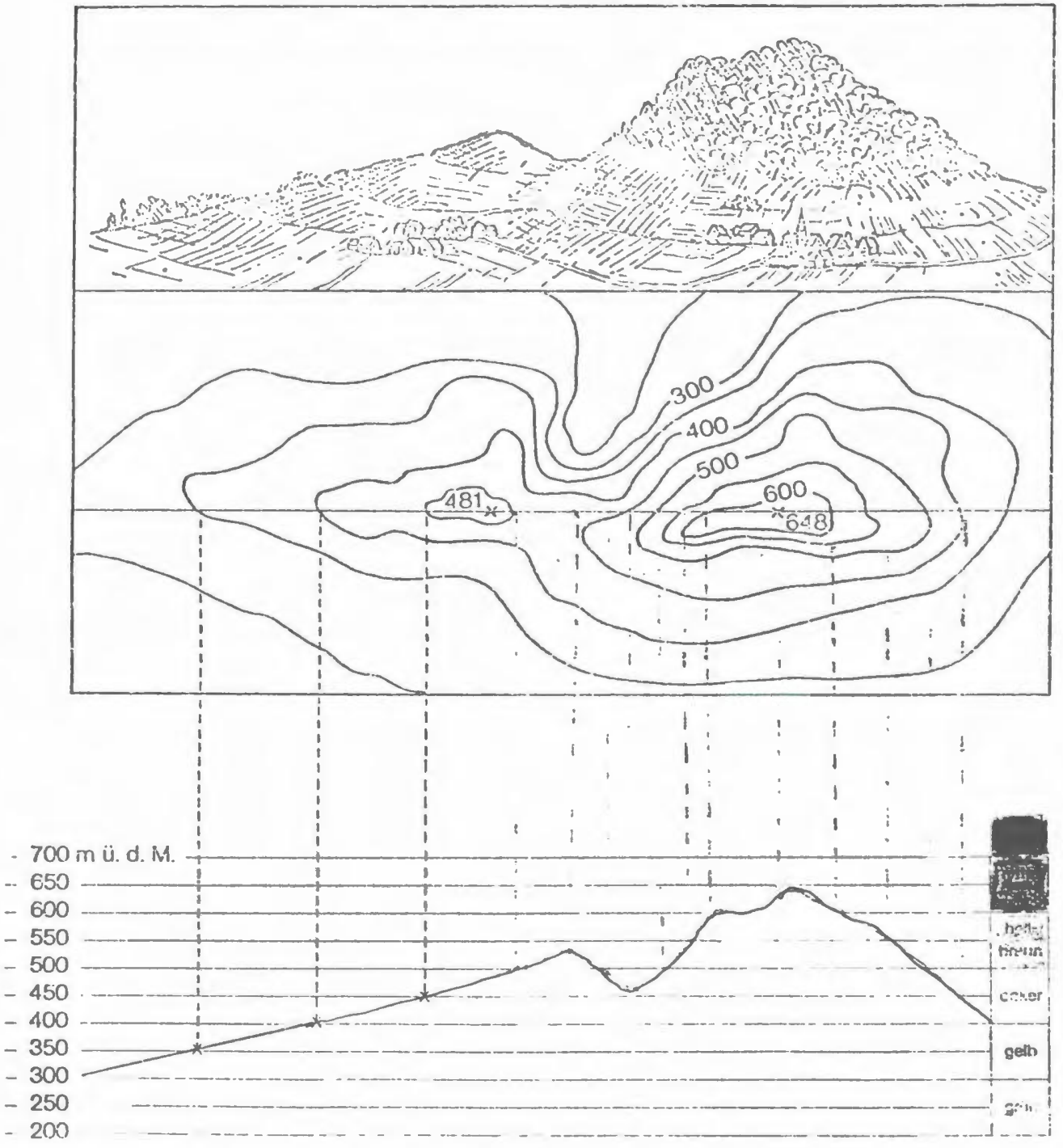
I asked Sue Nichols, (who gave a paper on the Gulf of Maine boundary question at the Fredericton conference) if she could recollect when she first was introduced to profiling from contours. She could not recall having done or seen anything comparable to this prior to first year university courses in geology.

My evidence may be skimpy, but until I get evidence to prove otherwise, I will continue to believe that, except for a few groups of specialists, such as soldiers, geologists, foresters, civil engineers, and related disciplines, our population is cartographically illiterate.

There is a valid reason

So far, I have sounded like a grumpy old curmudgeon -- and there are those who will say "What else is new?" but there is a reason for this state of affairs. It is only within my lifetime that 1:50,000 or even one mile to the inch maps become available and it is only in the past fifteen years that larger scales -- 1:10,000 or 1:20,000 -- began to become available: obviously it would have been an exercise

Figure 1 **An example of an exercise completed by a nine-year old Grade 3 student in Württenberg-Baden, West Germany.**



Versuche, den auf der Karte eingezeichneten Schnitt durch den Berg in die Höhendarstellung zu übertragen.
Verbinde dabei die Höhenlinien der Karte mit den entsprechenden Höhenangaben. Wenn du die so erhaltenen Schnittpunkte miteinander verbindest, erhältst du ein Profil. Du kannst dir dann die Erhebungen besser vorstellen.
Vergleiche sie mit dem Bild oben.

in futility to teach school children how to use maps when they would not be able to get maps of their own community.

I can think of no groups that have or should have more of a vested interest in cartographic literacy than the Association of Canadian Map Libraries. Every association needs a cause -- an outlet for missionary zeal -- and I suggest the goal for the ACML should be to address the problem of cartographic illiteracy in Canada. How serious is it? What impact has it had? What impact could be expected if it were corrected? How could it be corrected? How should it be corrected? What about the new technology -- the digital maps, the data bases, the remote sensing imagery? How is their arrival going to change educational requirements?

What a fertile field for social science research; for research on the impact of map literacy on the wise use of land; for research on the best way to bring about cartographic literacy in our time.

We even need a new word. We have "literate", meaning someone who can think and communicate effectively in words: we frequently hear "numerate" applied to someone who can think and communicate effectively using numbers and numerical concepts. What about "graphate"? Wouldn't you all like to be known as being literate, numerate and graphate -- i.e., wouldn't we all like to be tops in all three forms of communication? So much for playing with words. What is the bottom line in all this? Franklin Cardy gave me a relevant quote. It is from the Vice President, Volkswagen Canada: "If the country I come from (Estonia) had one tenth of the resources of a small Canadian province like New Brunswick, it would be the richest country in Europe."

It would be naive to presume that overcoming cartographic illiteracy by itself would work an economic miracle from the better use of our land; nevertheless it will be impossible to bring about any economic miracles from the use of our land until we, as a society, fully understand the land. It is impossible to fully understand the land without information and without the expertise to comprehend and use information about land. Here, I am not talking about the experts -- we have those -- I am talking about the "man in the street", the man who makes little decisions -- decisions as modest as whether or not to plant a garden, the man who sits on committees, the man who has a little bit of money to invest, the man who gets elected to City Council, the man who gets elected to the Legislature. I am talking about all the men and women, powerful and not so powerful who make a few big decisions and countless small decisions about our land resource. LRIS has gone a long way towards collecting the basic information. The Department of Surveying Engineering,

University of New Brunswick is doing research on the technology for LRIS and MRMS to use. However, none of us are in a position to mount the kind of crash outreach program needed to make this generation cartographically literate and we are even farther from being able to do anything about improving the educational opportunities for the upcoming generation. If you can prove that I am wrong, I will be delighted. However, if I am not wrong, I suggest that your Association should address this problem, define it clearly and impress its urgency on your colleagues in geography departments and in education faculties. Canadian map librarians, you have an exciting challenge. I wish you every success.

REPORT OF ENVIRONMENT CANADA

Joseph H. Arbour
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Thank you for the invitation to participate in the 1984 Annual Conference of the Association of Canadian Map Libraries. It is always a very worthwhile experience to meet and interact with a group that has so much experience in dealing with maps.

I have looked at the contributions that the Lands Directorate has made to this conference over the past three years. All were excellent papers. However I thought I would change the theme somewhat this year from the past. The Lands Directorate continues to produce very effective maps on many aspects of land use and the ecological characteristics of land. The Directorate also produces a large number of maps that cannot be seen directly. This is because they are produced digitally. It is this rather different theme that I would like to follow: the problems encountered in establishing digital map collections.

Lands Directorate Maps and Publications

Before embarking on the main theme of my presentation, I would like to review quickly the type of mapping activity that the Lands Directorate has been involved in over the past year. In the Atlantic Region four interesting map projects were completed:

1. ***A Sensitivity Classification for the Landscape of Nova Scotia to Acidic Precipitation.*** A colour map produced at a scale of 1:633,360, with accompanying report.

2. ***The Northeast Coast of Newfoundland, An Ecological Land Classification.*** A map depicting the bio-physical characteristics of a two-kilometre strip along the coast of Newfoundland, with accompanying report.

3. "Land Use Change in the Annapolis Valley." Manuscript mapping was completed for three time periods for the Annapolis Valley area and is presently undergoing input to the Canada Land Data System (CLDS).

4. "Land Use Change around Fredericton and Moncton." Manuscript maps of land use change. Presently in the process of being entered to CLDS.

The Atlantic Region office also produced a number of reports on land use in the Atlantic Region during the past year. These are:

1. "Land Use in the Atlantic Region: Agriculture";
2. "Land Use in the Atlantic Region: Recreation and Tourism";
3. "The Abandonment of Farmland in Nova Scotia";
4. "The Ecological Land Survey: A Practical Case in East Central Labrador";
5. "An Evaluation of Salt Marshes in Atlantic Canada";
6. "The Atlantic Region of Canada: An Ecological Perspective";
7. "Total Land Use Change in Urban Centered Regions: St. John's 1966-1977."

In addition to the regional endeavours which I have described, the Lands Directorate has produced a number of interesting products through its headquarters office dealing with National Studies. These fall under the following headings:

1. Canada Land Inventory: The Canada Land Inventory has resulted in the mapping of Land Use and Capability for much of settled Canada. During the past year the main focus of this program has been the completion of the "Forest Capability Maps for British Columbia." These are some of the last maps that need to be prepared in order to complete the series.

2. Northern Land Use Information Series: This series of maps is the only comprehensive coverage of land use activities in the north. During the past year about twenty-five map sheets have been completed for Southampton Island. All of the mainland of Northern Canada has now been completed. Future work will now progress to Baffin Island and the High Arctic.

3. Map Folio Series: The report ***Stress on Land*** was produced under this series during the past year. The report covers a wide range of land use activities and the associated stress that those activities place on the land resource. Examples include the effects of sanitary landfills, the impacts due to oil spills along coastal areas and the effects of intensive agriculture on land.

4. Land Use in Canada Series: The report ***Land Use and the Environment: A Review of Mine Reclamation Activities in Canada*** was published. This is a major work compiling statistics on reclamation works in the mining sector for all of Canada.

5. Working Paper Series: Several reports have been prepared under the working paper series. These are: ***Land Planning Framework of Canada, An Overview, An Overview of Crown Land Management in Canada*** and ***Marginal Land Utilization and Potential, Kent County, New Brunswick.***

Digital Map Collections

Let us first deal with the concept of a digital map. If we adopt the definition of a map as a representation of the earth's surface on a planar or spherical surface, then a series of electro-magnetic impulses on a magnetic storage medium cannot be called a map. Now the simplistic approach here would be to say that, since it is not a map, your problem is solved -- you don't handle it! However, if you are willing to complicate your life somewhat (it'll happen anyway), then a new definition of a map is required, one that includes any data records which can be used to generate a plot which would meet the traditional definition of a map. Now things get complicated.

These digital maps (any digital records which can be used to generate a map on a plotting or graphics device) present a whole new dimension of storage and handling problems (or opportunities). There are many questions which must be answered by a library that is planning to develop such a collection. I would like to cover a few of the major ones, those based upon the experiences that we have had in the Lands Directorate where a large digital map collection is maintained.

<u>Important Aspects of a Digital Map Library</u>

1. Content
2. Storage Medium
3. Access
4. Support Equipment
5. Personnel
6. Updating

Content

Map libraries traditionally hold collections with many thousands of maps covering an extremely varied number of topics. This is going to apply also to a digital map

collection. At the present time there are few types of maps that are actually available in digital form. Examples are the National Topographic Series Maps (although few are yet digitized) and the Canada Land Inventory (the only cross-Canada coverage). Thus the choice of coverage is fairly limited. Many organizations are just now beginning to develop digital map inventories. One such example is the Land Registration and Information Service (LRIS) here in the Atlantic Region. They have just acquired a digital mapping system for the production of topographic maps in the Maritimes. This will make available a large number of digital map files that will be of interest to a wide range of users. The library that is contemplating the creation of a digital map collection will have to consider the range and type of maps to be kept in the collection. This will be difficult until some patterns in user preferences can be determined.

Storage Medium

Although there are few options at present for the storage of digital maps, it may become more of a question in the future. For now, the digital map will be stored on some sort of magnetic medium, either magnetic tape or magnetic disk. Tape provides the most cost-effective storage medium whereas disk is the most efficient for the retrieval of data. As with any installation, disk storage is usually reserved for high-demand items -- ones that are dealt with almost on a daily basis. The storage of data brings with it all of the considerations that are necessary to the maintenance of a tape-storage facility. Such facilities require environmental controls, tape-cleaning facilities and proper storage devices for the tapes. As an example of the magnitude of the tape storage problem, consider that the CLDS data base of approximately 10,000 map sheets requires 30,000 tapes to store it.

Access

To what extent will access be provided to these collections? This question must be interwoven with the question of cost recovery. The maintenance of such a system will involve considerable expenditure. Will it be considered as a free service or will costs be recovered for the provision of a digital map. If cost recovery is to be considered, then the library must develop all the cost-accounting procedures, the billing procedures and the necessary collection procedures. This can be a time-consuming task. In addition, the aspect of cost recovery may raise some difficulties with private companies that market digital maps.

Support Equipment

The decisions made on content, storage medium and access will help define the needs for specialized hardware. If, for example, tape storage is chosen as the only storage medium, at least two tape drives will be required, one to handle the original and one to handle the tape being copied to. Of course some sort of small computer will be required to control these devices. It is quite possible that some means of previewing the map before copying will be necessary. A graphics terminal or plotter will then become an essential part of the set-up.

Personnel

As with any new endeavour, new skills are involved. If the library already has EDP-trained staff, then some additional training is all that is required. If not, then new staff may be required which adds to the overhead costs.

Updating

Digital files tend to be highly changeable items. This applies as well to digital maps in that they are easy to update in digital form. Subsequently the question has to be raised, which version of a map is to be chosen? Often times the map may change on a monthly, if not at least a yearly basis. Keeping the most current version of a map in the files could be an expensive proposition.

Suggestions

Should a library consider the initiation of a digital map library, then here are some suggestions for it to consider:

1. Start with one series or type;
2. Choose a map series that has a very broad appeal, for example, the census maps from Statistics Canada;
3. Offer a basic service, such as the provision of a simple digital file on magnetic tape on a loan basis.

REPORT OF CANADA MAP OFFICE, DEPARTMENT OF ENERGY, MINES AND RESOURCES

John A. McArthur
Director, Reproduction and Distribution
Surveys and Mapping Branch
Energy, Mines and Resources Canada
Ottawa, Ontario

1983/84 Statistics

During the year ending March 31, 1984, Surveys and Mapping Branch published the following:

792 new or revised topographical maps;
264 aeronautical charts;
81 geographical and electoral maps.

In addition, 1,462 restock items were printed along with 465 other maps and charts for other EMR Branches (primarily Geological Survey of Canada), and other government departments (notably the Canadian Hydrographic Service, Environment Canada, and Agriculture Canada). In all, 3,064 titles were printed as compared to 3,419 in 1982/83, with the average press run being 2,158 copies and the average number of inks being 4.5. Formats were as large as 1118 mm x 1651 mm (44 x 65") and 1200 mm x 1600 mm (47 1/4 x 63").

During the year, the Canada Map Office distributed more than 2.5 million maps and charts, and more than 714,000 air information publications. The inventory of the Canada Map Office grew slightly from 15,334 titles to 15,482 titles. This does not represent the actual growth in coverage, as many of the old half-sheets are being combined into full sheets as they are revised.

It was announced recently that the 1:500,000 NTS series will no longer be maintained, along with the 1:25,000 and 1:125,000 series as stated previously. The 1:500,000 series has become redundant as the major use was as a base for the Canadian Pilotage Charts which are being replaced by Visual Navigation Charts. All of these maps will continue to be available until present stocks are exhausted.

More than 67,000 map items were supplied to depositories, slightly less than in 1982/83.

Total Inventory	Scale	Titles
National Topographic Series	1:25 000	687
National Topographic Series	1:50 000	10,104
National Topographic Series	1:125 000	128
National Topographic Series	1:250 000	966
International Map of the World	1:1 000 000	74
Aeronautical Charts and Bases	Various	768
National Atlas V	Various	56
Other SMB Geographical	Various	729
Canada Land Inventory	1:250 000	671
Northern Land Use Information	1:250 000	278
Other (Electorals, Military City Maps, etc.)	Various	75
Miscellaneous Publications	N/A	208
	TOTAL	15,482

Highlights of 1983/84

1. Delivery of a wide-body, four-colour offset printing press took place on January 30, 1984. The press, a Miehle-Roland machine manufactured in West Germany, has been installed and will start printing in late June. Approval in principle has been given for the purchase of a second new press, a 40" six-colour machine in 1985/86. This will permit us to print full-colour topographical maps in one pass with perfect sheet-to-sheet colour control.

2. An announcement was made on January 30, 1984 that 400 Surveys and Mapping jobs would be transferred to Sherbrooke, Québec, over the period 1984-1992. A parcel of land, adjacent to the University of Sherbrooke, for the construction of the "Sherbrooke Cartographic Institute" has been purchased, and an information office and training facility was opened on June 8, 1984 in rented accommodation. It is expected that about 100 of the present Ottawa staff will be transferred to Sherbrooke, with remaining 300 to be recruited (300 being the expected attrition between 1984 and 1992 amongst present staff).

3. A contract was awarded for the supply of the long-awaited, integrated order entry/inventory control/accounting, etc., system. The minicomputer (HP-300 Model 42 with ten VDT terminals) has been delivered, and the application software is about 75% complete. The entire system will be on-line in September.

At previous ACML meetings, it was stated that an overhaul of the depository system would be carried out when this system was in place. This will involve the identification of areas of interest for each collection, and the negotiation of agreements which define the responsibilities of both parties including the automatic supply of new and revised items to each collection in accordance with the particular area of interest. This overhaul is expected to commence in the fall of 1984. It must again be stressed that it is not intended that the depository programme be reduced as we believe that depositories are a vital element in ensuring the effectiveness of the national programmes, but rather to eliminate waste and provide for some desirable extension of depository privileges to educational institutions not now being served.

4. The delivery of the raster scanner and associated computers to Topographical Survey as part of CARDAPS (Cartographic Data Processing System) will enable us to meet the objective of having a digital topographic data base covering Canada within five years. Drainage and contours from the 1:250,000 NTS series are presently being raster-scanned. This data is converted to vector format and the various elements are then interactively labelled. The result is a position file, equivalent to those produced by photogrammetric digitizing, which can be used to produce digital elevation models or cartographic files.

5. In May 1984, a cartographic marketing symposium was held at Queen's University to discuss the several aspects of the delivery of cartographic products to users (Researching the Market, Developing the Market, Distributing the Products, Pricing the Products, and the Changing Market). There was representation from both the public and private sectors in Canada, the United States, United Kingdom, Australia, Sweden and New Zealand, with twenty-one people from government, twenty-one from the private sector, and fifteen academics including some ACML members.

The papers published for the symposium are available from Queen's University at a cost of $25.00 per set. It is understood that an article is planned for publication in the ***ACML Bulletin*** by Kathryn Harding. *(Ed. note: see* ***ACML Bulletin*** *51, June 1984.)*

Future

1. In Topographical Survey, the emphasis over the next few years will be on the establishment and maintenance of a National Digital Topographic Data Base from which revised 1:50,000 maps can be produced. As some provinces are engaged

in large-scale mapping programmes (such as the 1:20,000 programmes in Alberta and Ontario, and the 1:10,000 LRIS programme), it should be feasible to obtain digital data from the provinces for the NDTDB which is scale-free, and use it to produce maps at both the federal (1:50,000) and provincial (1:10,000 and 1:20,000) scales. This is an automated process to convert the position file to the appropriate cartographic file which in turn, drives a plotter to produce the colour-separated negatives.

Preliminary cost figures indicate that this cooperative procedure will be 30 to 40% less costly than if the federal and provincial governments went their separate ways.

2. It is expected that there will be extensive use of satellite imagery for change detection at least, and probably for map revision at the 1:50,000 scale. This, of course, will be made possible by the better resolution provided by LANDSAT 4 and its Thematic Mapper, and the even better SPOT satellite to be launched by France in 1985. In addition, there is likely to be more photographic imagery available from metric cameras carried on the Space Shuttles.

3. The Surveys and Mapping Branch Development Group under Dr. George Zarzycki is investigating the use of optical disk technology as an alternative means of delivery for cartographic data. It is expected that there will be a demonstration of this technique at the FIG meeting in Edmonton in October 1984.

It is not unlikely that optical disk, or video (digital) disk, technology could revolutionize map libraries in the future. Once the master disk is made, copies are quite inexpensive, and the cost of the necessary viewing equipment (about $3300 per station at present) will come down.

NATIONAL MAP COLLECTION
1983/84 ANNUAL REPORT
TO THE ASSOCIATION OF CANADIAN MAP LIBRARIES
FREDERICTON, JUNE 1984

Betty Kidd
Public Archives of Canada
Ottawa, Ontario

At the 1983 ACML conference in Vancouver, the annual report of the National Map Collection ended with the statement: "I hope that in Fredericton next year, I can report significant progress having been made in many on-going programs and special projects." Now that the year has passed, it can be reported that in some activities, significant progress has been made; in others, there have been numerous frustrations with unexpected delays and problems. In other words, it has been a very normal year.

The months since the 1983 conference have witnessed continuing activity in acquisition, custody, public service and outreach. In this report, such activities can only be highlighted.

Acquisition

In 1983/84, more than 70,000 items were acquired, the breakdown by section being as follows: Government Cartographical and Architectural Records, 79.5% (67% government; 12.5% private); Modern Cartography, 20%; and Early Canadian Cartography, 0.5%.

In the government sector, the major acquisitions include the records of the Geological Survey of Canada, those of Eldor Resources, and records from Public Works and the National Capital Commission. A collection of maps related to the Canadian army in Italy during the Second World War was also acquired. In the past year, some excellent nineteenth-century British Admiralty charts were purchased, as was the Durnford collection of more than 200 items relating to the

careers of members of the Durnford family, prominent as Royal Engineers. Other items of note included Sebastian Munster's ***Cosmographia*** of 1628 and a ca. 1726 state of H. Moll's "Beaver Map", the earliest state of this map now held by the Collection. Late in the year, additional fire-insurance plans were acquired from the British company, Chas. E. Goad Ltd., which has published a two-volume catalogue of available material.

The National Map Collection has commenced a pilot project on the identification and scheduling of cartographic records in government departments. A telephone survey of government departments has already taken place, the objective being to identify, in a general way, cartographic records. Pilot applications will be undertaken in three selected departments -- namely Fisheries and Oceans (Canadian Hydrographic Service); National Defence; and probably Energy, Mines and Resources (Surveys and Mapping Branch). In these selected departments, the pilot will consist of the following steps: first, a survey of existing cartographic records; second, the preparation of a pilot plan for the scheduling of a representative portion of existing cartographic records in the department; and last, the preparation of schedules and identification of archival records for representative cartographic collections within the department. Rationalized schedules will provide both a service to the departments, which will be able to control and dispose of their cartographic records in a consistent and orderly way, and a service to the Public Archives which will be able to identify records of historical interest and plan its long range archival requirements. Although the pilot has been planned for cartographic records, and we hope to carry a similar pilot for architectural-engineering records at a later date, a mini-pilot for the latter will in effect occur in 1984-85, since there is a commitment to establish archival criteria for an extensive collection of engineering drawings in the Directorate of Documentation and Drawings Services of National Defence.

Late this summer, the National Map Collection hopes to resume the joint Machine Readable Archives-NMC project which started last year to investigate the implications of acquiring computerized cartographic data. Lack of resources and language training of the MRA representative have delayed the project.

Custody

The two New Employment Expansion and Development (N.E.E.D.) projects, mentioned in last year's report, have been very successful. Ten persons were hired in the two projects which allowed the processing of a major government

accession, the Geological Survey of Canada records, and which increased microfilm activity some 300% from the previous year.

During the year, progress was made in the NMC Collection Management System, the documentation system for which UTLAS is being used. A coding manual and other required manuals were compiled, one cataloguer position was filled, records were coded and input into the system, and product specification was completed. The pilot must be evaluated in the next months. Two positions remain to be filled in the Documentation Section.

As part of the Archives Branch study to determine a general design for a computer-based information system, a system requirements study for the National Map Collection was undertaken by a consultant firm. The recommendations of this study include a recommendation that the division proceed with the implementation and evaluation of the Automated Document Control System project to determine the suitability of UTLAS to meet divisional control requirements; another that the division initiate activities to meet the system requirements for improved physical control over the collection; and a third that the division explore opportunities for the application of automation to support other operations. Further steps in the feasibility studies for the various divisions of the Archives Branch and Branch itself are continuing in 1984-85.

At the end of December 1983, the three-year contract with Cartographic Research Services terminated. Provisional first-level entries now exist for ninety-five federal and forty-seven provincial series. Verification will be completed as the records are processed for entry into UTLAS.

For the summer of 1984, five university students are working in the Collection under the C.O.S.E.P. program. Four of the five were also employed during the summer of 1983, which has enabled projects started last summer -- for example, cataloguing of current atlases -- to be continued.

In recent months, the Collection has moved the majority of its holdings from two suburban warehouses to a building across the street from the main building. The move has allowed some rationalization of the arrangement of holdings, but unfortunately has not provided any expansion space for the future.

In April 1984, the Collection placed a large order for new cabinets, including new custom-built units to store the thousands of rolled maps in its government holdings. For the first time in many years, the Collection has been allocated financial resources for capital expenditures.

At the present time, a conservation survey is underway in the Collection. A scientific sample will be analyzed, so that the overall requirements for conservation by conservators can be identified.

More than 30,000 maps and plans were microfilmed in the last fiscal year, in large part due to the additional staff allotted to the program through the N.E.E.D. project. In the last year, both permanent camera operators have left the department. A decision was made to contract out the microfilming work. The three-year contract is scheduled to commence in the autumn of 1984.

Public Service and Outreach

The National Map Collection continues to respond to a wide variety of inquiries, including land use, land claims (native and other), architectural, genealogical and toponymic. In the last year, as preparations were made to celebrate the 450th anniversary of Jacques Cartier's first voyage in 1534, there has been a tremendous interest in maps of that era. The reader-printer copies, introduced a year ago, have proved very popular with the Collection's research clientele.

The National Map Collection continued to loan original maps and plans to other institutions for exhibition purposes. In the past year, these institutions included the Royal Ontario Museum, the Newfoundland Museum, the Canadian War Museum, the Marine Museum of Kingston, and the Marsil Museum in St. Lambert, Quebec. In addition, the loan of coloured transparencies for publication purposes increased.

Following the success of the 1982, 1983 and 1984 ***Antique Map Calendars***, the National Map Collection has again prepared a calendar for 1985. Printed in May 1985, the calendar will be on sale within a short time. The division's information brochure was up-dated and published in the last year. Publications in preparation during 1983-84 included the divisional guide, the exhibition catalogue for ***Treasures of the National Map Collection***, and the union list of foreign series. For the latter, the provisional copy was distributed to the twenty-six participating map collections in April. These three publications are scheduled for publication in the coming months.

The National Map Collection was not involved in any major exhibitions in the last year. Small exhibits, however, included a selection from the 1982-83 ***Treasures*** exhibition for the Society for the History of Discoveries conference, ***Dust Jackets and Early Maps***, and a selection from ***Arctic Images: The Dawn of Arctic Cartography***. Work commenced on

the exhibition for International Archives Day in October 1984 and an exhibition featuring the Floyd Collection of landscape architecture for summer 1984.

The National Map Collection hosted a successful annual meeting of the Society for the History of Discoveries, September 29-October 1, 1983. This was the first time the conference was held in Canada, and more than 70 persons, many from the United States, attended. The local organizing committee consisted of Nadia Kazymyra-Dzioba and Betty Kidd, both members of the Society's council. The Collection also hosted the meetings of two federal-provincial boards in October 1983: the Canadian Permanent Committee on Geographical Names and the Canadian Council on Surveying and Mapping.

The National Map Collection was actively involved in the Auto-Carto Six symposium held in October 1983 in Hull, Quebec. Louis Cardinal represented the Collection on the organizing committee, the Collection had a small display booth at the conference, and Louis Cardinal and Betty Kidd presented a paper entitled "The archiving of computer cartography."

Staff members continued their active involvement in a variety of association and journals. Several publications of note include ***Les instruments de recherche pour les archives*** by Louis Cardinal (as part of a five-person work group) and three biographies of surveyors in Volume 6 of the ***Dictionary of Canadian Biography*** by Gilles Langelier.

Administration

In 1983-84, the Collection has witnessed more staff changes than in any recent year. Staff who have left the division are Vivien Cartmell, Documentation Section; Ken Cox, office manager for 16 years; Rick Danis and Colette Poirier, microfilm camera operators; and Francine Huppé, receptionist-typist. One staff member was hired -- Donna Porter, cataloguer. With seven vacancies currently, management of the division will be very involved in the next months with staffing. As of February 1, 1984, some minor organizational changes were introduced in the Collection to allocate more resources to the government sector and to centralize certain services.

In January 1984, divisional management reviewed the progress made in the Collection during 1983-84, and which are in response to direction from the departmental senior management committee. These goals include the pilot project for scheduling government records, the production of a selection standards document, the development of a

conservation policy, ensuring the best possible use of available space for holdings and for staff, the preparation of a divisional procedural manual, and the incorporation of divisional files into the departmental system. The work associated with these goals is in addition to the regular on-going activities of the Collection.

In late summer 1984, a follow-up audit will take place in the National Map Collection; the original audit occurred in 1982.

In summary, 1984-85 will be a very busy year in the National Map Collection.

RAPPORT ANNUEL DE LA COLLECTION NATIONALE DE CARTES ET PLANS PRÉSENTÉ À L'ASSOCIATION DES CARTOTHÈQUES CANADIENNES FREDERICTON, JUIN 1984

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L'an dernier à Vancouver, la Collection nationale de cartes et plans terminait son rapport annuel en espérant que de grands progrès marqueraient ses programmes permanents et ses projets spéciaux pendant les douze mois à venir. L'année maintenant écoulée, on peut affirmer que si certaines activités ont énormément progressé d'autres ont entraîné leur part de frustrations, de retards et de problèmes imprévus. Bref, ce fut une année tout à fait normale.

La Collection a été très active dans les domaines de l'acquisition, de la conservation, des services au public et des relations publiques. Le présent rapport doit néanmoins se limiter aux points saillants.

Acquisition

Cette année, la Collection s'est enrichie de plus de 70 000 documents dont 79,5% (67% secteur public; 12,5% secteur privé) ont été versés à la Section des documents cartographiques et architecturaux du gouvernement, 20% à celle de la cartographie moderne et 0,5% à celle de la cartographie canadienne ancienne.

Parmi les principales acquisitions provenant du secteur public, mentionnons les documents de la Commission géologique du Canada, d'Eldor Resources, de Travaux publics Canada et de la Commission de la capitale nationale. Une série de cartes concernant les troupes de l'Armée canadienne cantonnées en Italie durant la Deuxième Guerre mondiale est aussi venue enrichir le fonds. De plus, la Division s'est porté acquéreur de quelques excellentes cartes de la marine

britannique datant du XIXe siècle et de la collection Durnford comprenant plus de 200 documents sur les membres de cette famille qui se sont illustrés dans le corps royal du génie. Il convient aussi de mentionner **Cosmographia** de Sebastien Munster (1628) et "Carte au castor" de H. Moll publiée vers 1726 qui est maintenant la plus ancienne édition de cette carte conservée aux Archives. Plus tard durant l'année, d'autres plans d'assurance-incendie ont été achetés à la société britannique Chas. E. Goad Ltd., éditeur d'un catalogue en deux volumes des documents disponibles.

La Collection nationale de cartes et plans a lancé un projet-pilote pour repérer les documents cartographiques du gouvernement fédéral et fixer les calendriers de conservation appropriés. Elle a déjà effectué un sondage téléphonique auprès des ministères fédéraux afin d'avoir une idée générale de leurs documents. Elle entreprendra des projets dans les trois ministères suivants: Pêches et Océans (Service hydrographique du Canada), Défense nationale et probablement Énergie, Mines et Ressources (Direction des levés et de la cartographie). Il s'agira en premier lieu d'inventorier les documents cartographiques existants, puis d'établir un plan-pilote de conservation et d'élimination pour un échantillon de documents cartographiques des ministères participants et enfin de repérer les documents d'archives susceptibles de former des collections cartographiques typiques et d'élaborer des plans de conservation et d'élimination. Cette rationalisation profitera aux ministères, qui pourront ainsi contrôler et éliminer leurs documents cartographiques de façon méthodique ainsi qu'aux Archives publiques, qui repéreront les documents d'archives et planifieront leurs exigences à long terme. Bien que le projet-pilote ait été conçu pour les documents cartographiques, la Division espère mettre en place un projet semblable pour les documents de génie architectural. De fait, la Collection nationale lancera un mini-projet en 1984-1985 car elle s'est engagée à établir des critères d'archivistique pour une importante collection de dessins techniques conservée aux Services de documentation et de dessin de la Défense nationale. Vers la fin de l'été, la Collection nationale compte poursuivre le projet entrepris l'an dernier de concert avec les Archives ordinolingues. Elle avait dû retarder cette étude sur l'acquisition de données cartographiques informatisées en raison d'un manque de ressources et du départ en formation linguistique du représentant des Archives ordinolingues.

Conservation

Les deux projets liés au Programme de relance de l'aide à l'emploi (RELAIS) que mentionnait le rapport de l'année dernière ont connu beaucoup de succès. Les dix personnes employées ont pu traiter l'importante collection de la

Commission géologique du Canada acquise par les Archives publiques et tripler les activités de microfilmage par rapport à 1982-1983.

La conception du Système de gestion des collections relié à l'UTLAS s'est poursuivie cette année. On a rédigé un manuel de codage et d'autres guides, employé un catalographe,codifié les documents puis introduit les données dans le système et établi des spécifications pour les produits. Le projet sera évalué au cours des prochains mois. Il reste encore deux postes à combler au sein de la Section du contrôle de la documentation.

L'analyse des besoins de la Collection nationale de cartes et plans réalisée cette année par une firme d'experts-conseils s'inscrivait dans le cadre d'une étude de la Direction des archives sur la conception d'un système documentaire informatisé. Les spécialistes ont recommandé entre autres que la Division mette en place le système de contrôle automatisé des documents et détermine dans quelle mesure l'UTLAS répond à ses besoins. Ils ont également proposé qu'elle améliore le contrôle physique du fonds et qu'elle envisage diverses applications informatiques dans d'autres secteurs. L'an prochain les études de faisabilité se poursuivront au sein des divisions et de la Direction des archives.

Le contrat de trois ans passé avec Cartographic Research Services s'est terminé à la fin de décembre 1983. Il existe maintenant des notices provisoires de premier niveau pour 95 séries fédérales et 47 séries provinciales. On terminera les vérifications lorsque les documents seront traités en vue d'être répertoriés dans l'UTLAS.

Durant l'été 1984, cinq étudiants d'université travailleront à la collection dans le cadre du programme PEEAC. Quatre d'entre eux avaient déjà poursuivi certains projets l'été dernier, par exemple le catalogage des atlas courants.

Ces derniers mois, la Collection a transféré les documents conservés dans deux entrepôts de banlieue à l'immeuble situé en face du 395, rue Wellington. Elle a pu ainsi réorganiser son fonds, ce qui malheureusement n'a pas libéré d'espace pour d'autres documents.

En avril 1984, la Collection a commandé de nombreux classeurs, y compris des meubles faits spécialement pour ranger des milliers de cartes en rouleaux faisant partie de son fonds gouvernemental. Pour la première fois depuis longtemps, elle a pu affecter des ressources financières à des immobilisations.

La Collection effectue actuellement un sondage sur les activités de conservation. Un échantillon des données recueillies sera analysé pour déterminer les principaux besoins des conservateurs.

Durant la dernière année financière, plus de 30 000 cartes et plans ont été microfilmés surtout grâce aux personnes supplémentaires employées dans le cadre d'un projet RELAIS. Comme les deux préposés au microfilmage ont quitté le Département cette année, il a été décidé de passer un contrat pour faire faire le travail. Le contrat de trois ans entrera en vigueur à l'automne 1984.

Services au public et relations publiques

La Collection nationale de cartes et plans a répondu encore cette année à des demandes très variées, y compris des questions sur l'utilisation du sol, les revendications territoriales (autochtones et autres), l'architecture, la généalogie et la toponymie. Les préparatifs en vue du 450e anniversaire de l'arrivée de Jacques Cartier au Canada allant bon train, les cartes de son époque ont été très demandées en 1983-1984, et les copies faites l'an dernier à l'aide d'un lecteur-reproducteur ont été populaires auprès des chercheurs.

Comme par les années passées, la Division a prêté des originaux à d'autres établissements pour diverses expositions. Parmi les plus récentes, signalons celles qui ont eu lieu au Musée royal de l'Ontario, au Newfoundland Museum, au Musée canadien de la guerre, au Marine Museum de Kingston et au Musée Marsil de Saint-Lambert (Québec). En outre, le nombre de transparents en couleurs prêtés en vue de leur parution dans une publication a augmenté en 1983-1984.

Compte tenu du succès remporté par les trois dernières éditions du ***Calendrier de cartes anciennes***, la Collection nationale publiera un nouveau calendrier en 1985. Imprimé en mai 1984, le calendrier sera en vente sous peu. La brochure de la Division a été mise à jour et publiée l'année dernière. Parmi les documents rédigés en 1983-1984 il y a lieu de mentionner le manuel de la Division, le catalogue de l'exposition ***Les trésors de la Collection nationale de cartes et plans*** et un catalogue collectif du fonds de documents étrangers. Une édition provisoire de ce catalogue collectif a été distribuée en avril aux vingt-six collections de cartes participantes. Les trois publications devraient paraître dans les prochains mois.

La Collection nationale n'a participé à aucune grande exposition cette année. Par contre elle a présenté à l'occasion des réunions de la Society for the History of

Discoveries quelques documents extraits de l'exposition ***Les trésors*** montée en 1982-1983, ainsi que ***Jaquettes de livres et cartes anciennes*** et quelques documents de l'exposition ***Images de l'Arctique: Debuts de la cartographie de l'Arctique.*** Les employés ont entrepris de monter un exposition pour la Journée internationale des archives en octobre prochain et une exposition sur les dessins d'aménagements paysagers de la collection Floyd qui sera présentée cet été.

La Collection nationale a organisé la réunion annuelle de la Society for the History of Discoveries tenue du 29 septembre au 1er octobre derniers. Cette conférence, qui avait lieu pour la première fois au Canada, a attiré plus de 70 participants dont bon nombre d'Américains. Nadia Kazymyra-Dzioba et Betty Kidd, toutes deux membres de la Society, se sont chargées de l'organisation à l'échelle locale. En octobre 1983, la Collection a également organisé les réunions du Comité permanent canadien des noms géographiques et du Conseil canadien des sciences géodésiques, deux conseils fédéraux-provinciaux.

Les employés ont participé activement au symposium Auto-Carto Six tenu en octobre dernier à Hull (Québec). Louis Cardinal représentait la Division au sein du comité organisateur, et la collection avait monté un petit stand pour l'occasion. Louis Cardinal et Betty Kidd ont présenté un exposé sur l'archivage des documents cartographiques informatisés.

Les employés sont demeurés actifs au sein de nombreuses associations et ont collaboré à diverses publications. Mentionnons ***Les Instruments de recherche pour les archives*** rédigé par Louis Cardinal (membre d'un groupe de travail de cinq personnes) et trois biographies d'arpenteurs-géomètres rédigées par Gilles Langelier pour le volume 6 du ***Dictionnaire biographique du Canada.***

Administration

Il y a eu en 1983-1984 un plus grand roulement du personnel au sein de la Collection. Vivien Cartmell, Section de la documentation, Ken Cox, administrateur pendant 16 ans, Rick Danis et Colette Poirier, préposés au microfilmage, et Francine Huppé, réceptionniste-dactylographe, ont tous quitté la Division. Une catalographe, Donna Porter, a été embauchée par la Collection nationale. Au cours des prochains mois, les cadres de la division devront consacrer beaucoup de temps à la dotation des sept postes vacants. Quelques changements mineurs ont été apportés à l'organisation le 1er février dernier, en vue d'affecter plus de ressources aux documents du secteur gouvernemental et de centraliser certains services.

En janvier dernier, la direction de la Division a évalué les progrès réalisés en 1983-1984 et fixé dix-neuf objectifs pour l'année suivante dont douze doivent donner suite aux recommandations du Comité de la haute direction du Département. Comptent parmi ces objectifs le projet-pilote sur l'établissement de plans de conservation et d'élimination des documents gouvernementaux, la rédaction d'un document sur les normes de sélection, l'élaboration d'une politique de conservation, l'utilisation optimale de l'espace réservé aux collections et aux employés, la préparation d'un guide de procédures et l'introduction des dossiers de la Division dans le système du Département. Ce travail viendra s'ajouter aux activités quotidiennes du personnel.

Une vérification complémentaire sera effectuée à la Collection nationale de cartes et plans à la fin de l'été. La vérification originale date de 1982.

En un mot, l'année s'annonce des plus productives pour la Collection nationale de cartes et plans.

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GEODESY FOR MAP LIBRARIANS

L. M. Sebert
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Part V:

The Earth, the Geoid and Ellipsoids

When they are calculating geodetic problems, or when they are projecting the curved surface of the earth down on flat paper, mathematicians must have a smooth mathematical surface with which to work. As the earth is almost a perfect sphere, the mathematics of the sphere can be used for small-scale maps. The earth is, however, flattened at the poles and has gentle humps and hollows all over its surface which must be taken into account in precise geodesy.

The vertical datum for most topographic maps is mean sea level. The level of the sea at a given point can be ascertained by installing a tide gauge and recording the water level through all changes of tide and all conditions of wind over a long period. (This period must be at least nineteen years because this is the cycle in the relative motions of the earth, moon, and sun.) It must be remembered that the mean level of the water in any location is affected by the constant and unvarying pull of the earth's gravity which, as we saw in Part IV of this series, is not always toward the centre of the earth. The sideways pull of the gravitational force has the effect of piling up the water of the oceans in certain localities and creating hollows in others.. The heights and depths of these water undulations are not great, never more than about 80 metres from the average elevation, but they are measurable and must be taken into account.

If the waters of the oceans could be allowed to flow into sea-level channels cut through all the continents, and if the gravitational effects of the sun and the moon could be

removed, and if the effect of the wind could be cancelled, the calm surface that the water would settle into, affected only by the earth's gravity and rotation, is called the geoid. The geoid is not a surface that can be easily described geometrically, but it is approximately an ellipsoid. So, over the years geodesists have computed ellipsoids of a size and shape that closely fit the geoid in the country or continent where they are working.

An ellipsoid is the shape formed by rotating an ellipse about its minor axis. Therefore, with an ellipsoid parallels of latitude are perfect circles while meridians are ellipses.

In fitting an ellipsoid to the geoid, the mathematician traditionally worked with the results of measurements made over the surface of the earth together with astronomic observations for latitude and longitude taken at a large number of survey stations. The mathematician could vary (slightly) the lengths of the major and minor axes to get a good fit. This in some cases caused the polar axis of the ellipsoid to miss the polar axis of the geoid by as much as 100 metres but this was of no concern in the area where the geoid-ellipsoid fitting was made.

Over the years various ellipsoids have been fitted to various parts of the earth as shown in Table 1. When these fittings were made there was no pressing need for the best fit of an ellipsoid to the whole geoid. By fitting an ellipsoid to a relatively small portion of the geoid a very good fit could be obtained. This happy state of affairs began to get less happy when the use of a given ellipsoid was extended far away from the region where it was originally fitted. This occurred in Arctic Canada where the Clarke 1866 ellipsoid is used even though it was designed for the continental United States. The advent of satellite geodesy has now forced the adoption of an ellipsoid that gives a good fit to the whole geoid. In 1972 the WGS 72 ellipsoid (World Geodetic System, 1972) was adopted. The information about the size and shape of the geoid from satellite observations has allowed the computation of an even better ellipsoid, the GRS 80 (Geodetic Reference System, 1980).

At present, most Canadian mapping is still based on the Clarke 1866 Ellipsoid but the use of satellites in geodesy will cause the adoption of a new ellipsoid in the near future. Position fixing by satellite observation has become so accurate (i.e., to about 1/10 metre on the reference ellipsoid relative to another survey station in a 100 km radius) that the separation between geoid and ellipsoid is causing major computational difficulties. Another reason for adopting a better fitting ellipsoid is that the information obtained from satellites gives an elevation as well as a position to the survey station, but this elevation is above

the ellipsoid and not above the geoid or the real earth. As such it cannot be used unless the separation between geoid and ellipsoid is known. Such information is not available for much of the Canadian Arctic at the present time.

PART VI

Map Projections

Finally, we must face the fundamental question: How much should map librarians know about map projections? To a great extent the answer depends on the clientele of the library. For most librarians, the general, and rather casual, requests for projection information have to do with the obvious properties of projections, such as which preserve shape and which preserve area. But for cataloguing purposes a map librarian should be able to make an educated guess at the type of projection that has been used in a small-scale map. This sort of information is available in simple form in many texts, such as ***The Classification and Cataloging of Maps and Atlases*** by Boggs and Lewis, pages 81 to 90.

There will be occasions, however, when a researcher will want more technical information on projections than that given in map classification manuals. Most map libraries have a collection of reference books, gazetteers and texts on cartography, and among these should be two or three modern texts on projections.

In working with projections the most common calculation is the transformation from geographical coordinates (latitudes and longitudes) into rectangular coordinates (X and Y coordinates based on given reference lines such as a central meridian and a given parallel of latitude or the equator). In Part III of this series, we worked out the coordinates required to produce the graticule for a Mercator chart. The same calculations can be done for other projections if the proper texts are available. The two texts that I would recommend to fill this need are:

> ***Sphere, Spheroid and Projections for Surveyors***, by J.E. Jackson, John Wiley and Sons, 1980. 138 pp. £20,00 (about $35.00 Canadian).
>
> ***Map Projections Used by the Geological Survey***, by John P. Snyder, US Geological Survey Bulletin 1532, 1982, United States Government Printing Office, Washington, D.C., U.S.A. 20402 $8.50 US.

Jackson's text starts with the elements of spherical trigonometry and continues in easy stages through ellipse and

spheroid geometry to map projections. All the more common map projections are covered, and for the more complicated of these, where calculus is needed for the development of formulae, the heavier mathematics can be skipped over if one's calculus is rusty.

Snyder's text is more like a cook-book with the various projection formulae laid out in handy recipes ready for use with a pocket calculator or ready to be programmed into a computer. Snyder explains the projections but he presumes some familiarity ith the basic concepts such as that provided by Jackson. Unfortunately there are differences in the mathematical notation in the two books, but the formulae are similar in form and a student should have little trouble going from one to the other.

The Reference Interview

Let us consider one of the most complicated projections, the Transverse Mercator, and see how it could be explained during a reference interview. A researcher comes into your map library, approaches your desk and asks if you know anything about map projections. You first tell him that of course you know about projections, then ask him if he has a problem. He says that he would like to write a program for converting geographical map references into Universal Transverse Mercator grid references. He explains that if someone would show him how to do the conversion on a pocket calculator he would have no trouble with the programming. You invite him to pull up a chair, and you reach for your copy of Snyder.

UTM Geographic to Grid Conversion

The first step is to remind the researcher of the basic facts of the UTM. The whole world is divided into sixty 6-degree longitudinal zones and the grid reference axes are the central meridians of each zone and the equator. Like the standard Mercator projection, the Transverse Mercator is a conformal projection which means that at any given point the scale of the map is the same in all directions. This conformality is obtained in the standard Mercator by adjusting the distance of points northward (or southward) from the equator. In the Transverse Mercator the adjustment for conformality is done eastward or westward from the central meridian. You also mention that all Transverse Mercator projections use the same formulae, and only differ by the size of the central scale factor. This is the multiplier that in effect reduces the diameter of the cylinder on which the map is projected so that it cuts the ellipsoid rather than just touching it. With the UTM, the

factor is 0.9996; with the 3-degree Transverse Mercator used by some provinces, it is 0.9999.

With these opening remarks out of the way, we can take a sample point (ϕ, λ) and work through the conversion. For example:

ϕ = 45° 53' 38.386" or in decimals of a degree 45.893996222°
= 77° 55' 03.847" or in decimals of a degree 77.917735361°

We note that the point is in UTM Zone 18 which has a central meridian of 75°. So the point is 2.917735361° west of the CM.

Constants for the Clarke 1866 Ellipsoid

Before doing any UTM calculations one must have at hand certain fundamental constants. These are the following:

a (the equatorial radius) = 6,378,206.4 metres
b (the polar radius) = 6,356,583.8 metres

There are three useful expressions of the flattening, which are:

$e = (1 - b/a^2)^{1/2} = .0822718542$
$e^2 = 0.006768658$
$e'^2 = e^2/1 - e^2 = 0.0068147849$

Constant UTM Central Meridian Scale Factor

To reduce the maximum scale error between distances measured on the ground between two points and the same distance calculated by plane trigonometry using the UTM grid coordinates of the two points, all X and Y Transverse Mercator values are multiplied by .9996 = (K_o). This has the effect of shrinking the tangent cylinder to a secant cylinder cutting the spheroid along two lines.

The X Coordinate

With the above constants in mind, we can start the conversion by calculating certain values relating to our point (ϕ, λ) which will be used repeatedly in the conversion formulae. These are:

N = (the radius of curvature of the spheroid at right angles to the meridian at the point in question.) N is equal to $a/(1 - e^2 \mathrm{Sin}^2 \phi)^{1/2}$
$C = e'^2 \mathrm{Cos}^2 \phi$

A = (the cosine of the latitude times the angular distance of the point from the central meridian, in radians.)
A = Cos ϕ ($\lambda_o - \lambda$)π/180
(Note: Multiplying by π/180 changes degrees to radians.)
T = Tan^2 ϕ

For our point (ϕ, λ):

N = 6,389,365,349 metres
C = 0.0033010847
A = -.0354425568 radians
Note: A has a minus sign because the point is west of the central meridian. The CM in the UTM system is given an easting value of 500,000 m. So, when the X coordinate is calculated, it will be subtracted from 500,000 to get the easting value. If it had been to the east of the CM, it would have been added to 500,000 m.)
T = 1.064412328

With the above values available, all that remains is to plug them into the formula for the X coordinate, which is:

$$X = K_oN[A + (1 - T + C)A^3/6 + (5 - 18T + T^2 + 72C - 58e'^2)A^5/120]$$

The researcher will want this equation spread out in programmable form. So working from the rear forward we can compute the formula in the following steps:

(5 - 18T + T^2 + 72C - 58e'^{2})	= -13.1840286	(1)
[(1) x A^5]/120	= +.000,000,006,1	(2)
A^3/6	= -.000,007,420,3	(3)
(1 - T + C)	= -.061,111,243,3	(4)
(3) x (4)	= +.000,000,453,4	(5)
A	= -.035,442,556,8	(6)
(6) + (5) + (2)	= -.035,442,097,3	(7)
K_oN (K_o = .9996)	= 6,386,809.603	(8)
(7) x (8) = the X coordinate	= -226,361.927	

To get the UTM X coordinate, -226,361,927 is subtracted from 500,000 giving an easting of 273,638.073.

The Y Coordinate

The Y coordinate is the distance on the ellipsoid from the equator to our point (ϕ, λ), again reduced by the central meridian scale factor of .9996. This value is worked out in three steps: first the distance on the central meridian of the zone from the equator to a point with the same latitude as our point is calculated; then the additional distance northward caused by the curving northward of the parallels of

latitude (when projected) is computed, and finally these two values are added and the sum is multiplied by .9996.

The letter M is given to the true distance along the central meridian from the equator to any latitude ϕ. For the Clarke 1866 ellipsoid, the formula for M is:

$$M = 111{,}132.089\,\phi^\circ - 16{,}216.94 \sin 2\phi + 17.21 \sin 4\phi - 0.02 \sin 6\phi$$

For our point, at ϕ 45.893,996,222, M = 5,084,085.575.

With this value, and the others used in obtaining the X coordinate, the Y coordinate presents no difficulty. The formula is:

$$Y = K_o(M - N \tan \phi\,[A^2/2 + (5 - T + 9C + 4C^2)A^4/24])$$

Again we spread out the computation for the researcher working from the centre of the nest of brackets, as follows:

$(5 - T + 9C + 4C^2)$	= 3.965,340,172	(1)
$A^4/24$	= .000,000,065,7	(2)
(1) x (2)	= .000,000,260,7	(3)
$A^2/2$	= .000,628,087,4	(4)
(3) + (4)	= .000,628,348,1	(5)
N Tan ϕ	= 6,591,931.264	(6)
(6) x (5)	= 4,142.0275	(7)
(7) + M	= 5,088,227.602	(8)
(8)X .9996	= 5,086,192.311	
	which is the Y coordinate.	

Therefore the point ϕ 45.893996222 and 77.917735361 has UTM coordinates E273,638.073m and N5,086,192.311m. In his text, Snyder (p. 68) gives an A^6 term in the Y coordinate formula, but as this changes the value of Y by at most several millimetres, it can be ignored in all but the most exacting of geodetic computations.

After this demonstration, the researcher claims that he now understands the formulae for converting geographicals to UTM coordinates. You assure him that if he gets his own copy of Snyder, he will find easily understood formulae for computing the inverse of the problem just worked (i.e. starting with UTM coordinates of a point, computing the geographic coordinates) and for doing the same with other commonly used projections.

The researcher then leaves the map library muttering to himself happy little Fortran and APL phrases.

Appendix

Figures 1 and 2 illustrate graphically the numerical values computed in the above worked example.

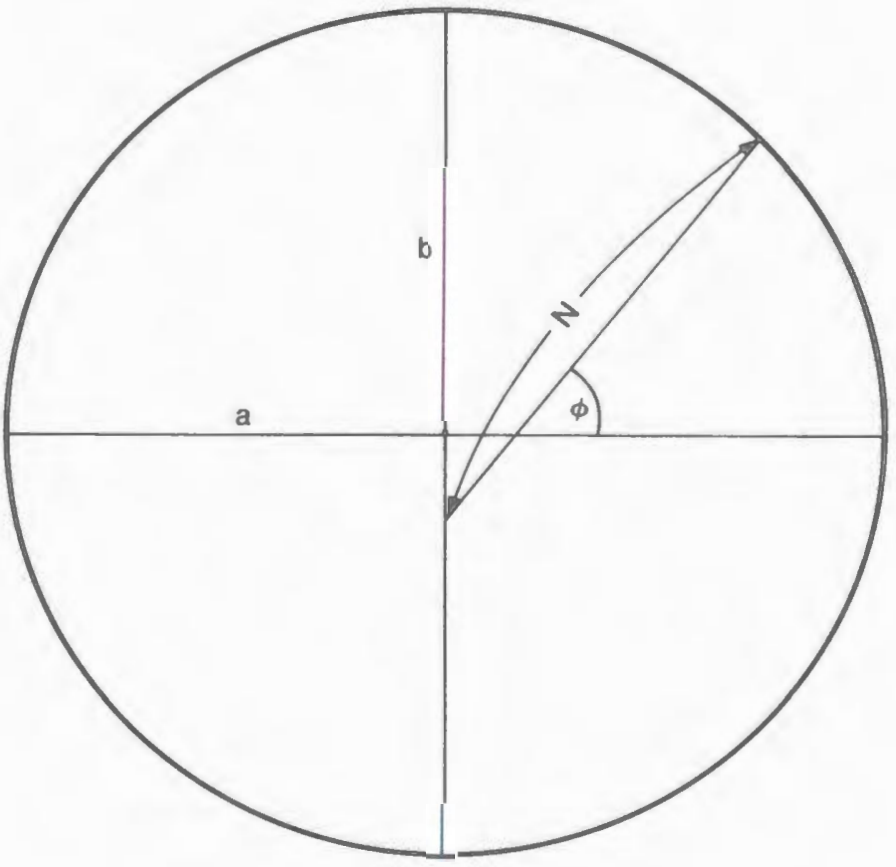

Figure 1

a = equatorial radius

b = polar radius

N = radius of curvature of the surface of the ellipsoid perpendicular to the meridian

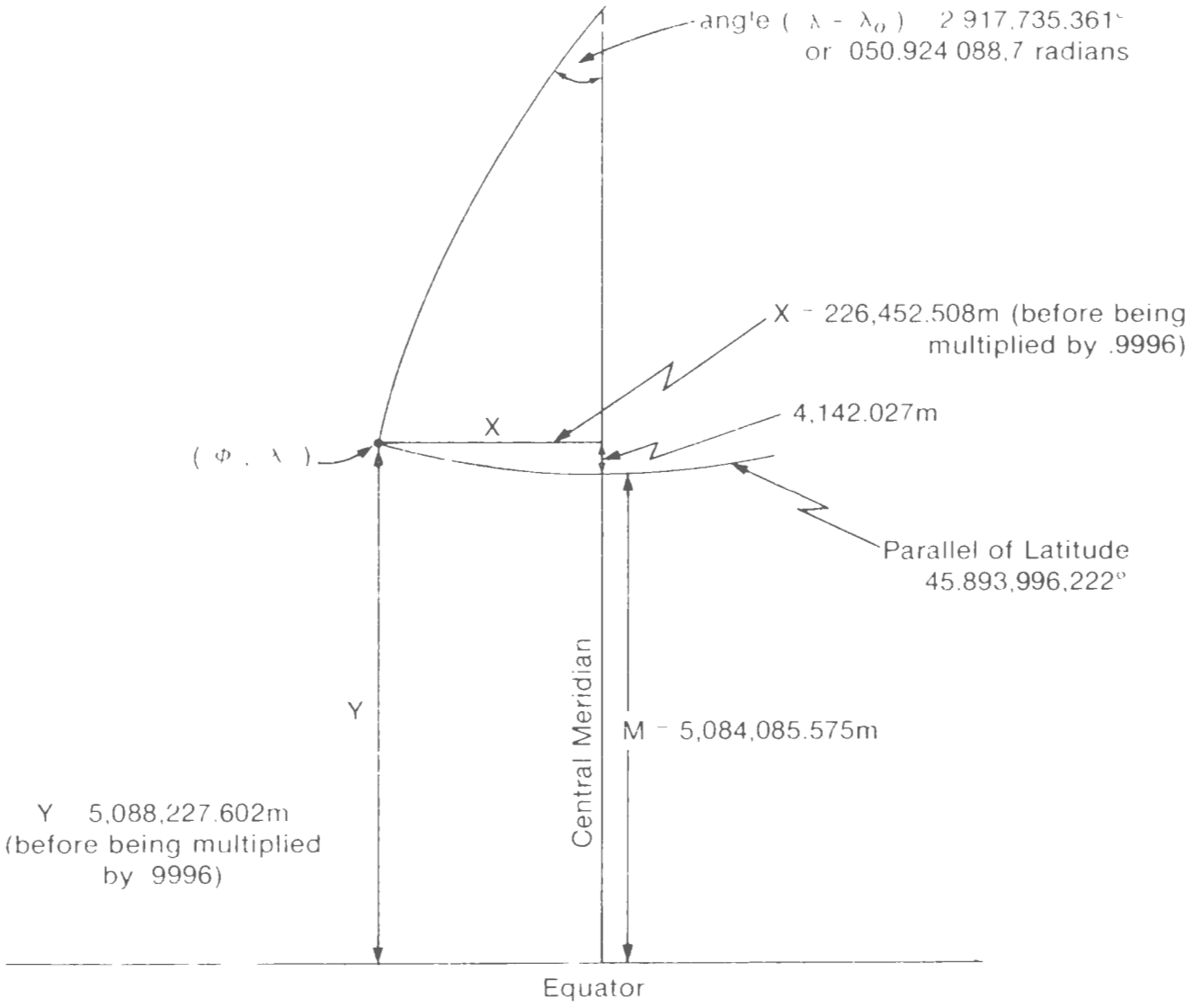

Figure 2

Postscript

In suggesting texts for the mathematical study of map projections, as was done in Part VI, it was presumed that most map libraries have an elementary (i.e. non-mathematical) text on the subject. One of the best of these is ***An Introduction to the Study of Map Projections***, by J.A. Steers, University of London Press, 1942. Unfortunately it is out of print but copies occasionally appear in used book stores.

Ed. note: This has been the last in this series of articles on geodesy for map librarians by L. M. Sebert.

REVIEWS

Ehrenberg, Ralph E. ***Archives and Manuscripts: Maps and Architectural Drawings***. Chicago: The Society of American Archivists, 1982. 64 p. (SAA Basic Manual Series) $7.00 (ISBN 0-931828-50-3; LC 82-80609).

This manual is a conscientious attempt to provide well-researched insight and advice on all aspects of archival handling of maps and architectural drawings. Since there are no fully accepted standards for many aspects of this work, practical illustrations and guidelines such as those provided here are of great assistance.

The manual is organized into six sections, accession and appraisal, arrangement, description, conservation, storage, and reference and access. In the first, Mr. Ehrenberg discusses the various types of graphic products resulting from cartographic and architectural activities and provides guidelines for choosing those which should be selected for an archives. In the section on arrangement, he recommends adherence to provenance and the retention of the original order where possible, but where original order cannot be recreated, arrangement by geographic area with further subdivision by subject and date.

Twenty pages are devoted to description, and numerous illustrations of good practices are provided. Mr. Ehrenberg's catholicity is remarkable as he provides examples of good archival practices in a large number of American institutions along with Canadian, British, Australian and Danish ones. Examples of description at the series level include both narrative and combinations of narrative and checklist using preprinted cards. He regards the latter as particularly useful for describing series of architectural drawings. For item description, he gives examples of both brief and comprehensive description, noting that the latter should be used selectively in an archives for maps and drawings that possess significant research or intrinsic value.

The information on author/authority is helpful, as he identifies the five possible steps in the creation of a map or drawing -- briefly, surveying, drafting, printing, publication and vending, and gives the Latin abbreviations used for these functions. Having done the arithmetic required to convert bar scales to representative fractions, I was particularly appreciative of the table he included which removes most of the need for doing so. It could be easily supplemented, gradually removing the need for this type of calculation. *(Ed. note: If one has a Map Scale Indicator, it is possible to do simple, non-arithmetic calculations of representative fraction scales from bar scales.)*

In the section on conservation he gives a sound fund of general information and makes all the necessary warnings for those without specialized information. He also cites a resourceful and safe practice for persons in that position. Used by Ian Cook of the National Library in Canberra, it consists of interleaving highly acidic, filed maps or drawings with alkaline-buffered paper. After about a year fresh buffered leaves are used to replace those that have become acidic. Mr. Cook claims a pH rise from about 3.5 to 5.5.

Besides the other two sections mentioned earlier, the manual also provides a glossary for architecture and cartography, a list of names and addresses of conservation and storage supply and equipment dealers in the United States and Canada which indicates their specialties, and a selected bibliography. This manual is an outstanding contribution from the point of view of the person in a small institution, or the archivist without specialized training but requiring some knowledge of maps and architectural drawings. It should help, in the author's words, "to encourage archivists and archival institutions that have not previously acquired maps and architectural drawings to consider initiating appropriate accession programs in order to contribute to the preservation of our cartographic and architectural heritage."

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Stibbe, Hugo L.P., general ed.; Cartmell, Vivien and, Parker, Velma, eds. ***Cartographic Materials: A Manual of Interpretation For AACR2.*** Ottawa: Canadian Library Association; Chicago: American Library Association; London:

Library Association, 1982. x, 258p., ill., maps. $60.00 (0 8389-0363-0[ALA]; 0-88802-169-0[CLA]; 0-85365-855-2[LA]; LC 82-11519).

Bibliographic control of maps has traditionally been accomplished through a variety of informal, in-house methods. With the publication of ISBD(CM) and AACR2 an attempt was made to equalize the standards of cataloguing for cartographic and monographic materials. ***Cartographic Materials*** was compiled to further this ideal by expanding, clarifying and interpreting AACR2 rules for cartographic materials.

The manual is a synthesis of all AACR2 rules of description pertaining to cartographic materials. Hence, while the publication is basically an expansion of Chapter 3, it also includes parts of Chapters 1, 2, 4, 8, 10, 11, 12 and 13 which have relevance to maps. Rules for all but Chapter 13 have been collocated, in a logical sequence, under the sections of Chapter 1 to which they relate. Chapter 13 (Analysis) is treated separately. Rules are numbered using section numbers of Chapter 1. AACR2 rule numbers are given in parentheses following each rule. A concordance links AACR2 rules to those of the manual. Part 2 of AACR2 has been omitted except for the rule governing choice of main entry, which is briefly treated in Appendix A. Early cartographic materials have been largely excluded, except for those rules for early monographs which also relate to early maps.

The stated objective of this manual is "to facilitate the achievement of uniformity of description and entry and also to ensure maximum compatibility of bibliographic description between cartographic and other material." Many aspects of this manual bear out this objective. Significant improvement over AACR2 has been achieved in the following areas of description:

* Title area

Excellent guidance on formulation and transcription of titles has increased the possibility of uniformity in the recording of titles, especially since map titles must often be supplied.

* Mathematical data and physical description areas

Extremely well illustrated, detailed guidance on recording of coordinates and physical details.

* Analysis

Manual relates Chapter 13 to cartographic materials, providing examples and applications not touched in AACR 2.

Other noteworthy features which facilitate interpretation of rules include:

* List of policies of national libraries on application of options. This is very useful as a basis for decision-making.

* Comprehensive list of examples in Appendix G illustrates practical application of rules. A concordance links rule numbers to examples.

In addition, appendices on determination of scale, identification and treatment of map series, geographical atlases, and a glossary of terms, all provide a wealth of useful information outside of cataloguing applications.

The worth of the manual, however invaluable in the area of description, diminishes considerably in the area of access points. There are no examples illustrating choice of main entry either in the text or in the list of examples, and cataloguers are left to resolve their own confusion over the application of uniform titles (Ch. 25) to cartographic materials.

Despite this shortcoming, however, the manual remains an indispensable tool for map cataloguers. With the current rapid development in the automation of catalogues for map collections, map record sharing is becoming more prevalent, underlining the importance of uniformity of description for record interchange. The publication of ***Cartographic Materials***, in this context, is timely indeed.

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Fisher, Howard. ***Mapping Information: The Graphic Display of Quantitative Information.*** Cambridge, MA: Abt Books, 1982. viii, 384 p. $27.00. (ISBN 0-89011-571-0; LC 82-6858).

I enjoyed this book and feel it will make a useful contribution to almost any library and will be a must for every map library.

Mapping Information is the result of work carried out by Howard Fisher, who was the founder of the Harvard University Laboratory for Computer Graphics and Spatial Analysis. Fisher was also the creator of SYMAP, a computer mapping program now widely used, and he apparently was something of a radical in the cartographic field. Unfortunately, he passed away in 1979 prior to the completion of this work. Jacqueline Cohen, a technical editor, was enlisted to complete the compilation of the book and has done a very impressive job. Simple language and orderly development make this an enjoyable as well as an informative read. Users are encouraged throughout the text to skim through the work several times to pick up the essence of the work and then come back for a more lengthy, in-depth study. Anyone with even the most rudimentary understanding of maps and diagrams should have no difficulty in comprehending the author's ideas.

The information revolution we are going through necessitates the ability to synthesize and portray data. Fisher, so well aware of this requirement, has approached the problem like the architect he was and his utilitarian methods are clear with no doubt left that the map must speak to an audience with clarity while being economical. Great emphasis is placed on the roles of the ultimate user and the map designers. For example, the second chapter is a discussion between a "sponsor" -- the information source -- and a "designer" -- the cartographer. The sponsor wants a map to portray the birds of South America; the result of the three pages of dialogue is a decision by both designer and sponsor for a simple set of non-colour, presence or absence maps for each of a number of species of birds. The designer's role is to help the sponsor deliver his information clearly and economically. Communication is the key, not design jargon.

The book is divided into fourteen chapters grouped under four main divisions: Introduction, the Given Information, Creating the Display, and Practical Aesthetics. Eight appendices follow in which technical considerations are discussed on subjects such as "Using Reciprocal Curve Classing" (Appendix 1), "Hand Contouring by Linear Interpolation" (Appendix 5), and "Traditional Dot Mapping by Hand" (Appendix 8), thereby leaving the text relatively uncluttered by digression to technical considerations.

Theory and discussion on types of symbols and their representation of relative value through class are included in the "Creating the Display" section of this book and is followed by numerous examples of their varying uses in single subject mapping using the outline of France as its study space. In using this standard base the author illustrates how the symbolism can be modified to answer specific questions or illustrate a specific idea.

On the whole this book is very useful in furthering consideration of symbology although it does seem to be a bit sketchy on multiple subject mapping. It is highly recommended.

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Cortazzi, Hugh. ***Isles of Gold: Antique Maps of Japan***. New York, Tokyo: Weatherhill, 1983, xvii, 177 p., 92 plates, many in col., bibliography, index. $75.00 (ISBN 0-8348-0184-1; LC 83-3525)

Hugh Cortazzi, British Ambassador to Japan, conveys the pleasures of map collecting and summarizes the development of antique maps of Japan, of European and Japanese origin, interrelating the two traditions. The great virtue of the book is that this information is available in English.

The text traces the development of Japanese maps from the 8th century A.D. to the middle of the nineteenth century. Japanese cartography is related to western cartography in the medieval period, after which maps of European explorers are described. Japanese and European mapping during the closure of Japan is dealt with in two chapters, after which the mapping of the northern islands is considered.

The text is closely linked to the plates and brief commentaries, arranged in separate sections. It's a simple matter to refer back and forth between the two sections. Should the reader wish, he can quickly leaf through the plates to form an impression of the development of maps of Japan. Unfortunately the colouring of the plates leaves something to be desired. Compared to the coloured plates in Baynton -- Williams' ***Investing in Maps*** or those in Tony Campbell's ***Early Maps***, these are rather grey. Otherwise the book is an attractive one in terms of type, design and size -- not too big!

The index is adequate, including proper names, geographic names and subjects. A welcome feature is the annotated bibliography arranged by works in English, Japanese and other European languages. Many classics are listed, such

as Boxer's histories of Japan, Bean's catalogues of Japanese maps and Mody's opus on Nagasaki prints. Unaccountably missing are Nanba's ***Old Maps in Japan***, 1973, containing concise sections on media, map conventions and history of Japanese maps and Oda's ***Nippon Kochizu Taisei = The World in Japanese Maps: Until the Mid- 19th Century***, 1975, a handsome and scholarly work. Admittedly other of their books are mentioned. Curiously missing from the institutions which the author consulted is the University of British Columbia's Rare Book Room, where the Beans Collection now resides; surely one of the greatest repositories of Japanese maps of the Tokugawa period.

Isles of Gold, while not comprehensive, is a good read, encouraging further exploration of the subject. Considering the large number of illustrations, the price is right. Recommended for public and university libraries and collections of antique maps.

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McGill University Libraries
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Post, Joyce A., and Post, Jeremiah B. ***Travel in the United States: A Guide to Information Sources***. Detroit: Gale Research Co., 1981. xxii, 578 p., indices. (Geography and Travel Information Guide Series, vol. 3.) $44.00 (ISBN 0-8103-1423-1; LC 81-4375)

Travel in the United States: A Guide to Information Sources is a one volume work by a map librarian and professional indexer whose expertise provides invaluable sources of travel information that would assist every person planning to travel throughout the United States of America. Not only are sources of information pertaining to the travel industry and tourism presented, but sources are also given to assist those involved in outdoor recreation activities such as camping, boating, fishing, canoeing, hunting, walking, winter activities, etc. There is also information on all varieties of parks, and for particular kinds of travellers including the single traveller, the family, the aged, and the handicapped.

Material included in the guide consists of books, journals, magazines, maps, atlases, and unique non-book sources. A few of these sources are organizations that promote travel, major tourism organizations, regional tourism associations, information centers and information phones, campground directories, hotel and motel organizations issuing directories, and guidebook publishers.

The material is arranged to facilitate quick reference service. Consequently the description of items is detailed and includes name, address, phone number, season openings, admission charges, points of interest, and evaluative annotations where necessary.

There is a comprehensive introduction at the beginning of the guide followed by a general section on travel source materials. The opening chapters are a section on the United States as a whole, and four sections on the Northeast, South, Central, and West. Then there is a section for each individual state, arranged alphabetically by state. Finally, there is a section on the travel industry in the United States. Each section of the book is coded, and each item in the section is numbered, thus making it extremely easy to identify every listed item.

To complement the text there are five indexes; i.e., a title index, subject index, organization index, publisher index, and more importantly a geographic index that brings together under one geographic area items identified by their code number. This method of indexing eliminates the necessity to have cross references throughout the text and at the same time it makes the user aware of related material on a specific geographic area.

The authors did a very thorough job of bringing together available literature that would assist the public, be it traveller, vacationer, or other category of user, from the planning stage to the actual trip.

From the map librarian's point of view, ***Travel in the United States***, by bringing together numerous sources of information on the United States and more specifically individual states, can be used for contacting publishers and available map sources, tourist organizations and associations, for bibliographic checking, and for collection building. It will be an invaluable source of ready reference for the map librarian and will also be very useful to the geographer, camper,tourism and travel industry personnel, the sports enthusiast, the vacationer, and many more people.

The book literally includes all available sources of information that can be utilized in planning a trip to a specific city, state, or region of the United States. Its

one drawback is currentness, as the cut-off date is 1978. The map librarian, however, can utilize the sources identified in the guide to acquire more current information. ***Travel in the United States: A Guide to Information Sources*** is one of the books in the Geography and Travel Information Guide Series from the Gale Information Guide Library. The authors did a very thorough job of bringing together travel information sources. It is well organized, very attractively bound, and deserved the ALA/RASD's recognition as one of the best reference sources for 1982.

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Map Collection
The Library
University of Guelph
Guelph, Ontario

Corley, Nora Teresa. ***Travel in Canada: A Guide to Information Sources***. Detroit: Gale Research, 1983. 294 p., appendix, indices. (Geography and Travel Information Guide Series vol. 4) U.S. $48.00 (ISBN 0-8103-1493-2; LC 83-11541)

Travel in Canada: A Guide to Information Sources is divided into three parts. Part I covers Canada as a whole, Part II the country by regions (Atlantic, Eastern, the Prairies, Western and the North), and Part III,which is by far the largest, is arranged by province. There is an appendix of "periodicals of interest to travelers in Canada...." Finally there are the indexes, five in all, that provide access by author, English title, French title, subject and geographical area, and by map area. Nora Corley is a geographer, librarian and indexer and in this guide her background and training are evident.

As the subtitle states this is a guide to sources of information. It of course covers the expected, such as guide books and road maps, but there is much, much more. There are addresses of travel organizations and government offices in North America and overseas, lists of parks and accommodations, guides to restaurants, and guides for hikers and the handicapped. Even ferry schedules are included.

As Corley acknowledges in her introduction no guide is complete and she "... makes no claim to being the definitive

list of information sources on travel in Canada." For my own province of British Columbia there are three guides I would like to have seen included: Burich and Scoten's ***Town & Country Bed & Breakfast in B.C.***, Elliot Cristall's ***Vancouver Gastronomic*** and Kennedy and Simpson's ***Guide to the Neighbourhood Pubs of Greater Vancouver, the Fraser Valley and the Sunshine Coast.***

Any division by region and province is bound to give the compiler problems with those books which overlap the prescribed boundaries and so arbitrary decisions must be made. I wonder why for example the section "guides for the handicapped by Province" is in Part I, "Canada" rather than Part III under the individual provinces? Why too is ***Dining Out in Ottawa-Hull*** in the "Canada" section while ***Ottawa-Hull Gastronomic*** is in the regional part under "Eastern Canada" and ***Map of Canada's Capital. Full Street Guide of Ottawa-Hull and Surroundings*** is found in the "Ontario" section? These of course are trivial criticisms of an outstanding guide. In any event the user consulting the "Subject and Geographical index" under restaurants or under Ottawa and Hull would easily locate these entries.

Volume 3 in this Gale series was ***Travel in the United States: A Guide to Information Sources*** by Joyce A. Post and Jeremiah B. Post, and a comparison is inevitable. They are so similar in both coverage and arrangement that one is tempted to think that the compilers exchanged manuscripts or were looking over each others shoulders. With far more sources available the Posts have necessarily been more selective than Corley. In their book New York has 21 p., Florida 13 p. and Hawaii 9 p. Only California with 40 p. comes close to the extensive coverage given by Corley where Ontario has 30 p., British Columbia and Quebec have 26 p. each. Even the Yukon and Prince Edward Island with 6 p. fare better than Delaware, Iowa and Oklahoma with 3 p. each. The Posts have a section on "the United States travel industry" and an index of organizations and one of publishers. In ***Travel in the United States***, books, atlases and maps are together under one heading whereas Corley lists guidebooks separately and has a heading "Atlases and maps." This together with her separate index of maps is a definite plus for map librarians. The Posts use a regional or state code in numbering entries such as: NE-4, Wa-2 Fl-3 etc., making the subject index automatically a geographic index also. In Corley the entries are numbered consecutively from 1 to 804 (and I will forever wonder what the three were that say "deleted.") Her "Subject and Geographical index" accomplishes the same end as the Posts.

The Posts' book was ALA/RASD's selection as one of the outstanding reference books of 1982. ***Travel in Canada: A Guide to Information Sources*** deserves the same recognition

for 1983. It should be in all Canadian universities and most public libraries as well as any good travel office that has clients travelling in Canada.

Brian Phillips
Head, Social Sciences Division
Simon Fraser University Library
Burnaby, B.C.

Edgar, Neal L., and Ma, Wendy Yu. ***Travel in Asia: A Guide to Information Sources***. Detroit: Gale Research Co., 1983. xviii, 413 p. (Geography and Travel Information Guide Series, vol. 6) U.S. $48.00 (ISBN-0-8103-1470-3; LC 82-24271).

Published for the first time in 1983, ***Travel in Asia: A Guide to Information Sources***, in comparison with the well-known Waldo's ***Travel Guide to the Orient and the Pacific*** and other popular travel reference tools in the English language, is to date the most comprehensive as far as Asia is concerned. It is a guide to guide-books and other print and non-print materials which provide current information (i.e. 1970 and after) for the traveller to that part of the world.

The book is divided into twelve chapters. The first includes general publications (185 items). The eleven chapters that follow contain over a thousand entries covering twenty-four countries and areas as identified by many Asia experts whom the editors took pains to consult. Thus, geographically, this guide has a much wider coverage than Waldo's. The volume of materials on each country varies, depending on the availability of published information: China has the most coverage with 205 items while Sikkim has only four.

In each chapter, wherever feasible, the publications are classified by their format: travel guides and accounts, maps and atlases, periodicals, audio-visual materials, etc. Each entry contains a full bibliographic citation and a concise, descriptive, and often evaluative annotation.

In addition to the twelve chapters, an addendum contains a list of items of major importance and/or outstanding quality entered after work on the main text was completed.

The author, title, and subject indexes are fairly detailed and good.

As for lay-out (format), the book is well presented and well bound. Different letter-settings for headings, large indentations, and ample space between citations give readers greater ease of use.

Given the current state of tourist trade in Asia, of which many parts were still forbidden lands to most western travellers until recently, and in view of the underdeveloped Asian tourist information publishing, this guide represents an important bibliographic effort, a valuable contribution to the field. It contains almost all major sources for every type of handy data a traveller would need to know, from health to business, from geography to social customs, etc. Furthermore, it includes personal accounts of those who have visited the region and also many books which provide fairly in-depth knowledge on the history, culture, or politics of many countries. On Vietnam, for example, out of twenty-seven items, this guide contains fourteen books on the recent history of Vietnam, particularly related to the Vietnam war. This selection by the editors perhaps reflects consciously or unconsciously the curiosity, the strong interest of the American public, and American travellers particularly, in a country in which the lost war to them is still a fresh mystery.

In brief, the book contains not only handy information for a passing-by traveller, but also some scholarly materials for those visitors who want to study seriously the culture, history and politics of the Asian countries of their interest. Since the materials are classified by format in many chapters, as mentioned above, the map and atlas sections in those chapters can also serve as an useful selection guide to basic maps for map librarians. To sum up, this is a strongly recommended addition for academic and public libraries. As for tourists, since the price is rather high, a paperback edition would certainly be more welcome.

Loan Le
Scarborough College
Library
Scarborough, Ontario

Maritime Resource Management Service. ***St. John's: North America's Oldest City***! [Street Map] Amherst, N.S.: The

Service, 1983. Scale 1:16,000. 68 x 99 cm. (Includes on verso small maps of Corner Brook, Stephenville, Happy Valley/Goose Bay, Gander, Labrador City, Wabush, Windsor, Grand Falls, Mount Pearl, and Wedgewood Park.) $2.95. (Maritime Resource Management Service, 16 Station Street, Amherst, Nova Scotia B4H 3Z5)

Whether or not St. John's is indeed the oldest city in North America, its unstructured street pattern clearly reflects its early settlement. The subsequent complexity of the downtown street system, plus the recent rapid growth in the suburban areas make a good map an essential tool for visitors, newcomers and local tradespeople alike. Maritime Resource Management Service are to be commended on the production of an updated and long overdue city map which should meet the requirements of all users.

The overall size of the map is 68 x 99 cm (c. 27 x 39") and folds to a pocket-size format 23.3 x 12 cm (c. 9 1/4 x 4 3/4) using what might be best described as an "offset accordion fold." Users are thus allowed easy access to different sections without requiring that the map be opened in its entirety and then re-folded once the relevant area of interest has been found. This is one of several excellent design features that show a marked improvement over this map's predecessor.

The subordinate side of the map provides a range of mapped information showing Newfoundland in the context of Atlantic Canada, and St. John's in the context of the Avalon Peninsula. There is also a set of seven individual street plans of other cities in the province, together with accompanying street indexes for St. John's and the other cities illustrated, plus a community index for the Avalon Peninsula. Other information provided includes a brief description of transportation links to and with the province; distance and demographic information; and emergency contact numbers.

The primary side of the map shows the City of St. John's and extends westwards to include the adjacent communities of Mount Pearl and Paradise. The map maintains the spatial contiguity of the region, another improvement over the previous city map which had used an inset to show Mount Pearl. Perhaps the most striking improvement, however, is in the overall style of the map. Printed in five colours, with type styles bold enough to be easy to read and yet not obtrusive, the map is visually pleasing and full of information. For the visitor there is information relating to tourism and transportation; for the newcomer, schools, post offices, shopping centres and recreation facilities are among the features shown. Most of the information shown is

current; for example, new suburban streets are shown which will be a benefit in particular to delivery people. One exception, however, appears to be the section showing Memorial University campus, which while showing the location of the new Queen Elizabeth II Library still retains the configuration of buildings that were removed to make way for it. Other criticisms may also be made of some of the categories used; areas designated as densely built have not in some cases yet reached this stage and categories such as "dense built up areas" and "industrial and civic land" are not mutually exclusive. Also several routes that in fact act as major throughways in the city should be identified as such in a future edition.

On the whole, however, this is an excellent map and it is to be hoped that users will respond to the publishers' request to notify them of errors or omissions and that an even better edition will result in the not too distant future.

Dr. Keith Storey
Department of
Geography
Memorial University
St. John's,
Newfoundland

NEW PUBLICATIONS

ARCHIVAL CITATIONS PUBLISHED, 1983

The Public Archives of Canada has published ***Archival Citations: Suggestions for the Citation of Documents at the Public Archives of Canada.*** The section on "Cartographic and Architectural Records" prepared by Edward Dahl and Hugo Stibbe provides suggestions for both detailed and abbreviated entries. ***Archival Citations*** is available free, upon request, from the Public Archives of Canada, 395 Wellington Street, Ottawa, Ontario K1A 0N3.

* * *

NEW EDITIONS FROM THE WORLD OF INFORMATION

The 1984 editions of the World of Information books are available now from World Almanac Publications. These four paperbacks -- ***Africa Guide*** (8th edition), ***Middle East Review*** (10th edition), ***Asia & Pacific*** (5th edition), and ***Latin America & Caribbean*** (5th edition) provide up-to-date information on these vital areas of the world. Each volume is $24.95; taken together the four books comprise a portrait of these least known and increasingly more important countries of the globe.

Designed specifically for those in international business or government, students and scholars, travellers, and readers interested in details behind today's headlines, the World of Information books are useful tools in homes, offices, and libraries.

These books are available from World Almanac Publications, 200 Park Avenue, New York, New York 10166.

* * *

CANADIAN DISTRIBUTOR OF INTERNATIONAL DIRECTORY

In **ACML** Bulletin 49 (December 1983), the ***International Directory of Current Research in the History of Cartography and in Carto-bibliography, No. 4 (1983)*** was described and a British source noted. The Canadian distributor is: Ed Dahl, 473 Lisgar Street, Ottawa, Ontario K1R 5H2. The purchase price is $7.00 Canadian.

* * *

DIRECTORY OF MAP CATALOGERS IN THE UNITED STATES, 1983

The Geography and Map Division of the Special Libraries Association announces publication of the ***Directory of Map Catalogers in the United States, 1983***. Compiled by William E. Mencely (Georgia State University) and Dorothy McGarry (University of California at Los Angeles) as a project of the Division's Cataloging Committee, the **Directory** contains information gathered in mid-1983 for over 160 catalogers from 36 states, the District of Columbia, and Guam. The purpose of the **Directory** is to identify map catalogers in the United States and to facilitate communication by providing outline information about them and their systems. Each entry gives the cataloger's name, address, phone number, indication of bibliographic utility and holding symbol, classification system, cataloging rules applied, subject analysis used, time spent cataloging, and experience in cataloging other materials. Special notes augment some entries. The **Directory** includes introductory statistical analysis of the entries, and indexes by holding symbol and by state.

The **Directory** sells for $5.00 and is available from Mary Galneder, SLA G&M Division, Publications Advisory Committee, Arthur H. Robinson Map Library, 310 Science Hall, University of Wisconsin, 550 North Park Street, Madison, Wisconsin 53706. Payment to the Special Libraries Association, Geography and Map Division, must accompany each order.

* * *

NEW MAPS OF NEWFOUNDLAND

1) ***A Visitor's Guide to Travel in ... Labrador***. Research and compilation by Clifford H. Wood, Sharon Porter, David MacNeil. Cartographic design and production by Clifford H. Wood, Gary E. MacManus, and Charles M. Conway: Memorial University of Newfoundland Cartographic Laboratory. St. John's: Newfoundland Department of Development, 1984. col. map on sheet 102 x 71 cm, folded to 23 x 14 cm. Scale 1:1,343,000. ISBN 0-88901-120-6.

Available for $1.00 (postage costs) from ***Then Days Magazine***, P.O. Box 939, Station B, Happy Valley, Goose Bay, Nfld. A0P 1E0.

2) ***Shipwrecks of St. John's Harbour & Approaches***. Research, design and layout by David N. Barron. St. John's: Shipwrecks of Newfoundland, 1984. Map, 92 x 57 cm. Scale ca. 1:37,000. $6.50. Available from David N. Barron, Shipwrecks of Newfoundland, P.O. Box 8216, St. John's, Nfld. A1B 3N4 and being sold to raise money for the Newsletter of the Newfoundland and Labrador Underwater Federation, the officially recognized, non-profit, all-volunteer organization of scuba divers in the Province.

Alberta Auringer Wood
Memorial University

* * *

RING IN THE NEW -- WITH A BIT OF THE OLD!!!

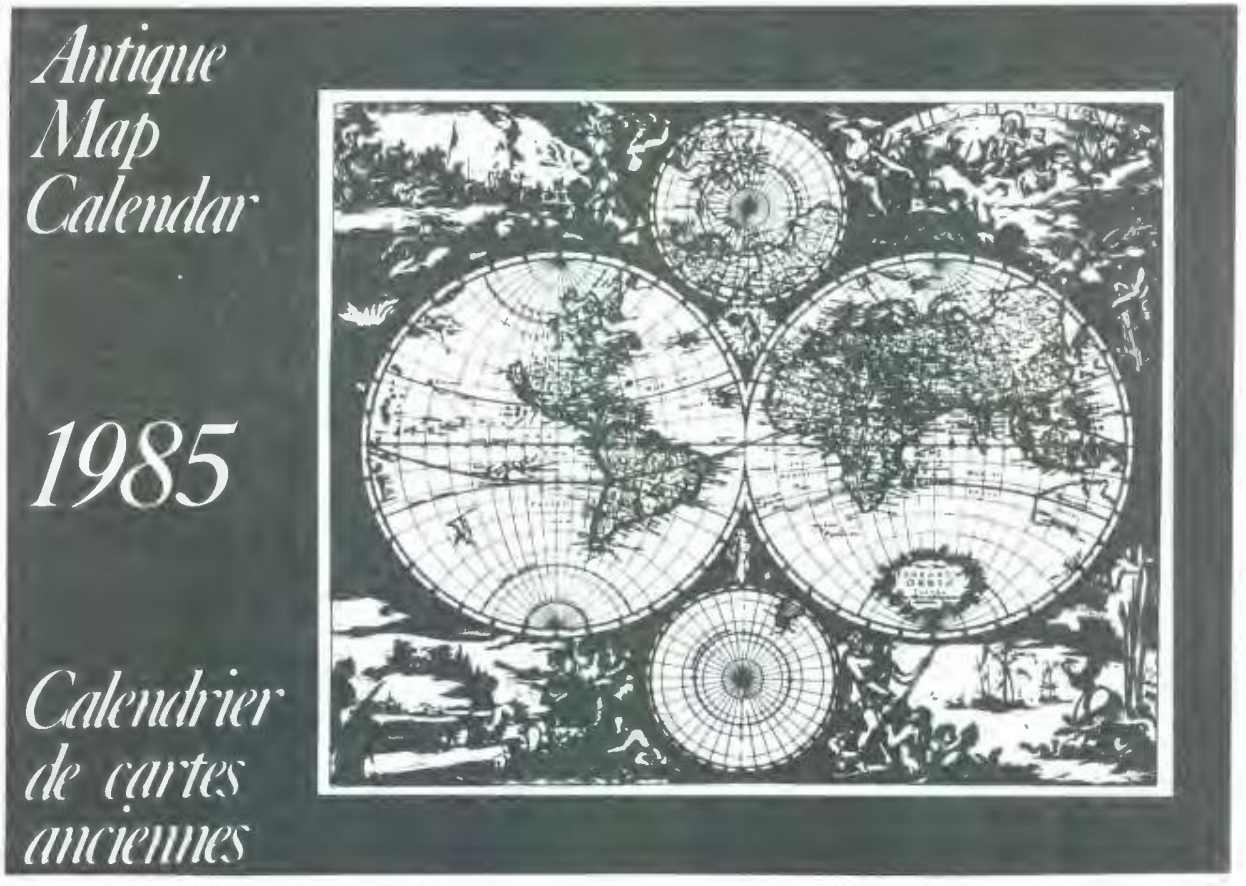
Antique Map Calendar 1985. Compiled by Edward H. Dahl. Published by Rosseau Publishing Corporation Ltd. (Willowdale, Ontario) in co-operation with the National Map Collection, Public Archives of Canada, 1984. ISBN 0-920668-27-7. $7.95 Can.

The Antique Map Calendar for 1985 reproduces in full colour fifteen maps dating from 1570 to 1900. Now in its fourth year of production, this bilingual (English and French), award-winning popular wall calendar focusses on maps of Canada, reflecting the National Map Collection's collecting interest in early maps, but includes maps showing much of the rest of the world as well.

City maps of Canada this year included Toronto (1866), Ottawa (circa 1893) and Winnipeg (1900), the latter two being bird's-eye views. A map of Batoche, Saskatchewan, was selected to mark the centennial of Louis Riel's battle at that place in May, 1885.

The calendar's wide international appeal is a result of the maps which show areas outside Canada. Such maps include a circa 1700 double-hemisphere world map by G. Valck, Western Hemisphere maps by S. Munster (1588), N. Visscher (1680) and H. Teesdale (1831), A. Ortelius' map showing the North Atlantic area (1570), and a seventeen-century north polar projection F. de Wit showing Arctic exploration. A.-H. Jaillot's map of North America and H. Moll's delightful "Beaver Map," first engraved in 1715, show the USA and Canada in some detail.

The calendar can be purchased from many retail stores or from the distributor, Firefly Books, 3520 Pharmacy Avenue, Scarborough, Ontario, Canada M1W 2T8. Individuals unable to obtain copies may also write to the compiler at the National Map Collection, Public Archives of Canada, Ottawa, Canada K1A ON3.



Cover of the National Map Collection's 1985 calendar featuring Justus Danckerts' world map, published in Amsterdam circa 1680, with vignettes representing the four elements -- earth, water, air and fire.

NEWS AND COMMENTS

UTLAS USERS GROUP FOR CARTOGRAPHIC MATERIALS MEETS IN FREDERICTON, JUNE 19, 1984

Thirteen persons attended the first meeting of the UTLAS Users Group as a formally constituted group. Hugo Stibbe chaired this meeting, at which terms of reference (which follow) were adopted and an executive chosen: Alberta Auringer Wood, Chairperson and Carol Marley, Secretary.

In keeping with the aim of the group, common concerns were discussed. Various members of the group reported their progress in creating and/or retrieving records. Hugo Stibbe described the National Map Collection's pilot project. He reported the ranges of numbers for English and French documents respectively as 92-850-003-92-850-091 and 92-235-001-92-235-023. As the file grows the ranges will be extended. These numbers should be useful for other users attempting to find records in the data base.

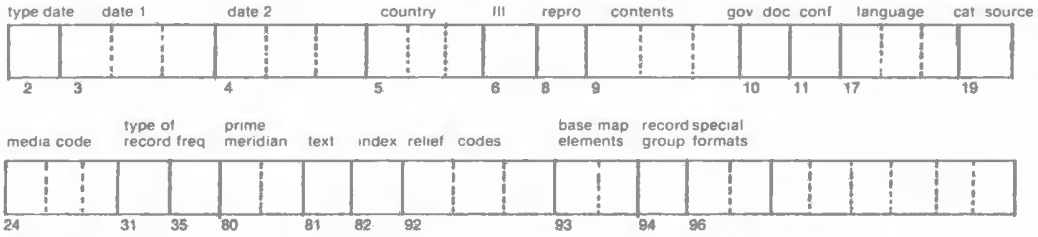
UTLAS was represented by Brian Morrell, Marketing Manager, who indicated he would appreciate feedback from map librarians concerning problems, suggestions, etc. The UTLAS Users Group for Cartographic Materials plans to meet again next year in Winnipeg, hopefully just before the ACML conference begins. The coding sheets created by Memorial University, McGill University and the National Map Collection are reproduced on the following pages.

RSN_____ Date _____

MEMORIAL UNIVERSITY OF NEWFOUNDLAND

UTLAS CODING SHEET Cataloguer _____

MAP



007			$ a b $ c	041			$ a
009			$ a b $ c	043			$ a
010			$ a	045			$ a
020			$ a	055			$ a
034			$ a				

Memorial University coding sheet

35 $a_____ Date cat._____ RSN_____

perator_____ Date input_____

ransfers_____ Not (RSN's)_____

90 ___$a_____

)ATE KEY 2:_____ DATE 1 3:_____ DATE 2 4:_____ COUNTRY 5:_____

:OV PUB 10:_____ LANG 17:_____ CAT SRC 19:_____ BIB LEV 30:__m__

:EC TYPE 31:__e__ COD LEV 32:__o__ DESCR 33:__a__ MERIDIAN 80:_____

:EXT 81:_____ INDEX 82:_____ RELIEF 92:_____ BASE 93:_____

:EC GROUP 94:_____ FORMAT '96:_____

)07	$a	$c	$d				
)10	ß	ß	$a	011	ß	ß	$a
)20	ß	ß	$a	021	ß	ß	$a
)34							
)40			$aQNM$bENG	041		ß	$a
:43	ß	ß	$a	046	ß	ß	$a
)50	ß		$a	092		ß	$a

100/110/111
240/ . /245
250/255/260
300
440/490
500/501/503/505/533/535
600/610/611/650/651
700/711/710/730/740
800/810/811/830

June 1984

McGill University coding sheet

Public Archives Canada — Archives publiques Canada

Priority/Priorité 1 2 3 4 5

CATALOGUING WORKSHEET — National Map Collection

BORDEREAU DE CATALOGAGE — Collection nationale de cartes et plans

NTN

090			LC CALL No. (as applied by NMC) / Cote top. de la LC (attribuée par la CNCP)

Date 1	Date 2	Country/Pays	Govt. Publication / Pub. off.	Mod. Record Code / Code de notice mod.	Catalogue Source / Source cat.	Catalogue Status Code / Code état du cat.	Bibliographic Level / Niveau bibliographique	Type of Record / Type de notice
3	4	5	10	18	19	27	30	31

	Descriptive Cat. Form / Type de cat. desc.	Record Link Code / Code de liaison de notice	Prime Meridian / Code / Code premier méridien	Narrative Text Indic. / Ind. de texte narratif	Map Index Indic. / Ind. d'index cart.	Local Interest Code / Code d'int. local	On Order Status / État de la commande	Status of Collection (Archival) / État de la col. (archives)	Level of Control (Archival) / Niveau de contrôle (archives)
N° d'enr.	33	34	80	81	82	83	85	90	91

									Relief Code / Code de relief	Projection Code / Code de projection
007 MAPS/CARTES			$c	SMD/ISTD 1	2	Col./Coul. 3	4	5 6 7		
007 GLOBES			$d	SMD/ISTD 1	2	Col./Coul. 3	4	5	92	93

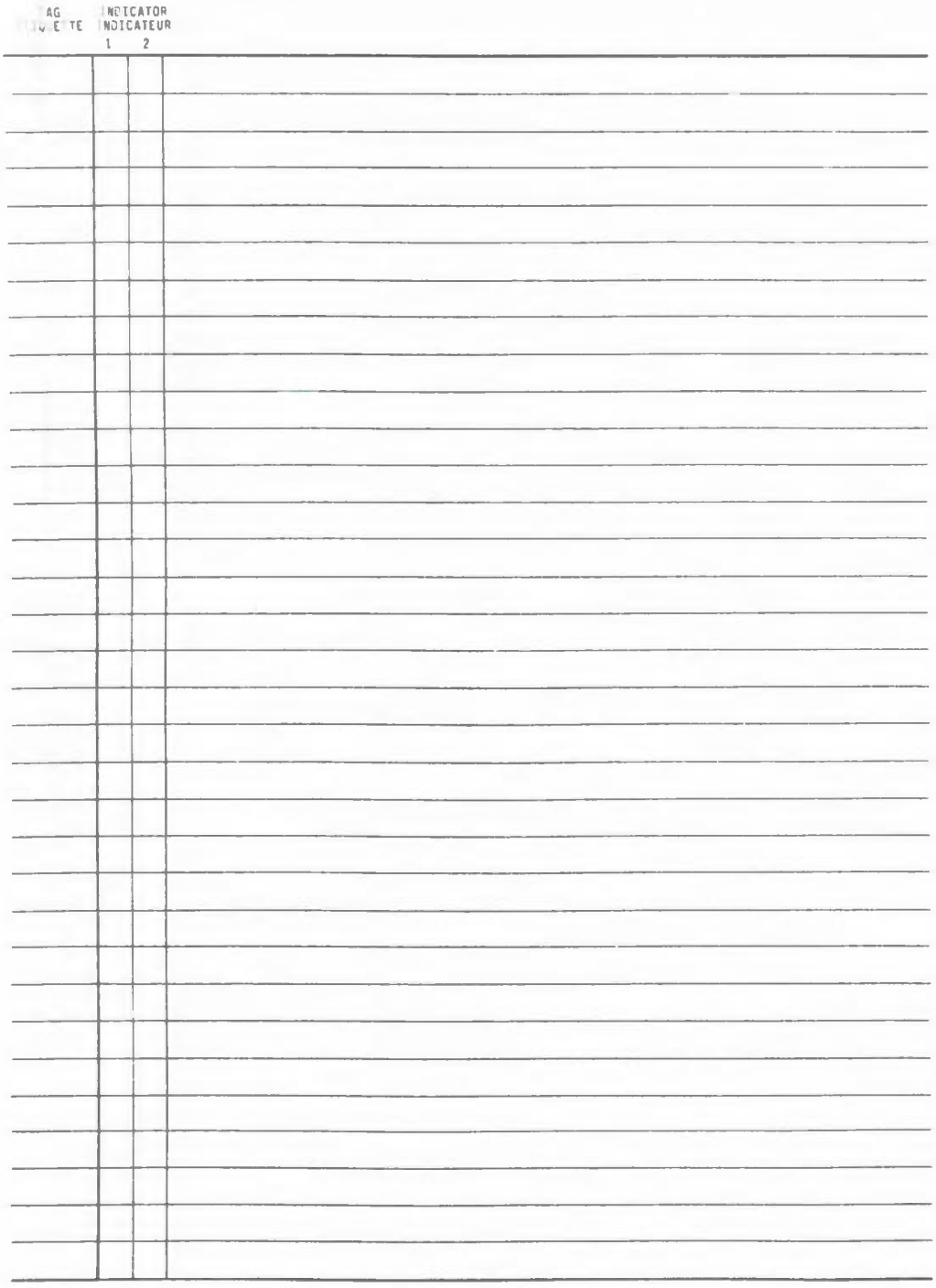
				Physical Dimension / Dimensions		Physical Medium / Support	Creation Technique / Création technique	Form of Reproduction / Type de rep.	Geodetic Adjustment / Opération géodésique	Form of Publication / Type de pub.	Altitude of Sensor / Hauteur du détecteur
009			$c	1	2-3	4-5	6	7	8	9	10

Attitude of Sensor / Position du détecteur	Spectral Bands / Bandes de spectre	Quality of Image / Qualité de l'image	Cloud Cover / Couche nébuleuse						Category of Satellite / Type de satellite
11	12 13	14	15	16-17	18	19-20	21-22	23	24

Satellite	Recording Technique / Technique d'enr.		020		ISBN
25 26	27-28				

034			Mathematical Data Codes / Codes: données mathématiques			
035			NMC Accession No. / N° d'entrée (CNCP)	037		Stock No./Source/Terms of availability/Form of issue / N° de nomenclature/Source/Modalités d'acq./Support
039			Level of Bibliographic Control / Niveau de contrôle bib.	040		Cataloguing Source Name / Nom de la source cat.
041			Language Code(s) / Code(s) ling.	043		Geographic Area Code / Code: Aire géogr.
045			Chronological Code or Date/Time / Code chron. ou date/heure	046		Record Source / Source de la notice
055			Call Nos./Class Nos. Assigned in Canada / Cotes top./ind. class. attrib. au Canada	086		Govt. Document No. / N° du doc. off.

National Map Collection coding sheet (1)



National Map Collection coding sheet (2)

* * *

TERMS OF REFERENCE OF THE UNIVERSITY OF TORONTO LIBRARY AUTOMATION SYSTEMS (UTLAS) USERS GROUP

I. The group's name shall be "**UTLAS** Users Group for Cartographic Materials," with the membership requirement being that a member represents an institution which participates in the **UTLAS** system. A person shall be deemed a member of the Users Group when he or she has registered as such with the Secretary. There shall be no fees or membership dues.

II. The group shall normally meet in conjunction with the Annual Conference of the Association of Canadian Map Libraries (ACML).

III. The group shall select from the members present at the meeting a Chairperson and a Secretary to serve for at least one year or until the next annual meeting, whichever period of time is shorter.

IV. Formal decisions shall be taken by voice vote or a show of hands of the members present with a simple majority carrying. In case of a tie, the Chairperson shall cast the deciding vote.

V. The secretary shall be responsible for keeping a record of business conducted at the annual meeting and for disseminating this information in the form of minutes to the membership. The Secretary shall also be responsible for keeping and maintaining the membership register.

The Chairperson shall attempt to keep members informed of all other matters discussed at the group's meeting, such as solutions to problems, information exchanged, etc.

VI. The aim of the Users Group shall be to serve as a forum for **UTLAS** and its users where common concerns can be discussed, solutions to common technical problems found and disseminated, and information on processes and procedures, etc. exchanged.

* * *

INTEREST SURVEY OF DIGITAL CLI MAP AVAILABILITY

The Canada Land Data Systems Division of the Lands Directorate, Environment Canada are examining the feasibility of making available in machine readable format, the mapped data of the Canada Land Inventory (CLI).

The coverage area of the CLI includes most of the southern portion of Canada and it is proposed initially to make available tape files covering 1:250,000 NTS sheet areas. The data would be in geographic coordinates, suitable for manipulation, projection and display on mini-computers. Because the data are quite detailed, file sizes would be relatively large and geographic application software would be needed for successful processing. Approximately 200 map sheets would be available.

Files would include shorelines, political and census boundaries as a base overlaid with one CLI Theme. The data would consist of geographic boundaries and the coded thematic attributes, including the area and centroid of each polygon. Possible outputs include, derived maps showing selected characteristics at various scales and projections, and tabular or statistical reports for applications such as environmental impact analysis, land use planning, resource management studies, etc.

The notional cost of a data tape of a single theme for one NTS map sheet is $175. Dr. I n Crain, Environment Canada, Place Vincent Massey, 351 St. Joseph Blvd., Hull, Quebec K1A 0E7 (613) 997-2510 is soliciting expressions of interest from those interested.

* * *

DUPLICATE ATLASES AVAILABLE

The Lancaster Sound Region: data atlas / prepared by the Working Group for the Lancaster Sound Regional Study and James Dobbin Associates Incorporated - Ottawa : Indian Affairs and Northern Development, 1982 (4 copies)

The Lancaster Sound Region 1980 2000 green paper. - Ottawa : Indian Affairs and Northern Development, 1982. (3 copies)

Nova Scotia fisheries atlas / Maritime Resource Management Service. - Halifax : Nova Scotia Dept. of Fisheries, 1982. (3 copies)

For those interested, please indicate which item you want and send your reply to:

Karen Young
University of Ottawa
Morisset Library
Map Library
65 Hastey Street
Ottawa, Ontario K1N 9A5

SUPPLIER OF ROMERS SOUGHT

If any reader is aware of a company marketing romers for use with Canadian topographic maps, will he/she please let other map curators know by contacting the ***Bulletin*** editor, who will be pleased to print the information in a later edition.

* * *

JEANNETTE D. BLACK MEMORIAL FELLOWSHIP

We have received the following, dated 12 March 1984, from Norman Fiering of the John Carter Brown Library, Providence, Rhode Island:

As you know, the John Carter Brown Library has an outstanding collection of maps, both printed and manuscript, pertaining to the Americas before 1830. While the Library has long been an internationally recognized center for cartographic research, one of our primary goals in recent years has been to seek ways of encouraging greater use of early maps in historical investigation.

We now have a splendid opportunity to do so, thanks to a challenge from the Horace A. and S. Ella Kimball Foundation of Rhode Island. The Foundation will give us $25,000 to establish a special fellowship in the history of cartography in memory of Jeannette D. Black [former Curator of Maps at the JCB Library], if we can raise an equal amount from other sources. The resulting endowment of $50,000 will enable us to offer a stipend to visiting map researchers at the John Carter Brown Library for three or four months every year.

I am writing to ask for your help in raising this money. A contribution of any amount, small or large, will make a difference. I would also like to ask your help in spreading the word about this undertaking to collectors or others who might be in a position to make a contribution because they recognize the long-term value to the field that will come from the sponsorship of cartographic research.

We hope you will look upon this challenge as a concrete way to contribute directly to map research and at the same time honor a woman who personified the finest in cartographical scholarship. We are pleased to have this opportunity to create a fitting memorial to Miss Black, and earnestly solicit your participation in our effort.

Checks may be made payable to the John Carter Brown Library and endorsed "For the Jeannette D. Black Memorial Fellowship."

* * *

REVISED G SCHEDULE FOR MAPS OF CANADA

The Library of Congress class G schedule, G 3400-3612 for maps of Canada has been revised. This revision was done at the request of the National Map Collection (NMC), Public Archives of Canada by an ad hoc committee composed of NMC staff, Canadian users of the LC classification, and a representative of LC Geography and Map Division. The revision has been officially approved by LC and is now in effect.

(Substitute the following revision for G3400-3402 through G3610-3612.)
pp. 41, 47

G

3400-3402	**Canada** Including southern Canada; eastern Canada, 1870 and earlier; Rupert's Land; and Old Northwest Territories. Class regions and districts of Rupert's Land and Old Northwest Territories by specific location, e.g. G3492.A8, Assiniboia (District of Old Northwest Territories, 1882-1905) History
3401.S1	General
.S12	Discovery and exploration by Europeans Including the exploration of the North and West
	To 1763
.S2	General
.S26	French and Indian War, 1755-1763. Seven Years' War, 1756-1763
	1763-1867
.S3	General
.S32	American Revolution, 1775-1783 Including the American invasions of Canada
.S34	War of 1812
.S36	Rebellions in Upper and Lower Canada, 1837-1838
.S38	Fenian invasions, 1866-1870
	1867-1900
.S5	General
.S55	Rebellion, 1869-1870
.S57	Rebellion, 1885

Canada -- Continued
20th Century
.S6 General
1900-1945
.S62 General
.S65 World War I
.S7 World War II
.S73 1945-
3402 Regions, natural features, etc., A-Z
e.g. .H8 Hudson Bay
.S2 Gulf of Saint Lawrence
3404.A1 Cities and towns collectively
For individual cities and towns, **see** the province or territory
3405-3407 **Eastern Canada (1871 and later)**
3410-3412 **Atlantic Provinces. Atlantic Canada**
3415-3417 **Maritime Provinces**
3420-3424 Nova Scotia
3425-3429 Prince Edward Island
3430-3434 New Brunswick
3435-3439 **Newfoundland**
Class here maps of the island of Newfoundland as well as maps of the province as a whole
3440-3442 Labrador
3445-3447 **Central Provinces**
Including Ontario and Quebec together
3450-3454 Quebec
Including the historical areas of Lower Canada and "Canada East"
3460-3464 Ontario
Including the historical areas of Upper Canada and "Canada West"
3462 Regions, natural features, etc., A-Z
e.g. .G39 Georgian Bay
3465-3467 **Western Canada**
3470-3472
3480-3484 Manitoba
3490-3494 Saskatchewan
3500-3504 Alberta
3505-3507 **Cordilleran Provinces and Territories**
Including British Columbia, Yukon, Alberta, and that portion of MacKenzie District, N.W.T. west of the MacKenzie River treated together
3510-3514 British Columbia
3512 Regions, natural features, etc., A-Z
e.g. .Q4 Queen Charlotte Islands
.V3 Vancouver Island

Canada -- Continued

3515-3517 **Northern Canada**
Including maps of the Northwest Territories and the Yukon together

3520-3524 Yukon

3530-3534 Northwest Territories

3533 Districts, territorial regions, etc., A-Z
e.g. .F7 Franklin
.K4 Keewatin (District)
.K42 Keewatin (Territorial Region)
.M3 MacKenzie

Newfoundland, **see** G3435+

Labrador, **see** G3440+

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CANADIAN COMMITTEE ON CATALOGUING MEETING
6-7 June, 1984

The Canadian Committee on Cataloguing (CCC) meeting was held June 6 and 7 at the Metropolitan Toronto Public Library. One matter concerning map cataloguing as well as other items of a more general concern are reported here.

At the request of the CCC, Vivien Cartmell drafted a rule for Chapter 3 concerning partially parallel titles. Although the rule was approved it was decided that the CCC will ask the Joint Steering Committee of AACR2 (JSC) to make it a general rule in Chapter one as it applies to Chapters 3, 5, and 7 and perhaps to other chapters as well.

The request for general material designators for large print text and music will be resubmitted to JSC as libraries serving the visually handicapped feel that it is necessary.

The wording of subrule .7B3 (Notes on source of title proper) throughout AACR2 is inconsistent and somewhat ambiguous. The matter will be brought to the attention of the editors of AACR2 as it was felt that some clarification was necessary.

The National Library presented a draft of a proposed minimal level record for automated monographic and serial records. After much discussion as to what standard to follow (Mini-Marc, AACR2, etc) it was decided to follow AACR2 level one as the minimal level for description and the minimal requirements specified by Part II of AACR2 for headings and added entries. Added to this will be a number of fixed

fields. The National Library will redraft their proposal in accordance with this decision.

The ***National Library News*** will not publish revisions to AACR2. ASTED, which holds the copyright on the French translation of AACR2, has refused to allow the publication of the French translation of the rule revisions as it will cut into its own sales. Rather than print only the English revisions in one column with the opposite column blank, the National Library has opted not to publish them at all. We must therefore rely on the Library of Congress ***Cataloging Service Bulletin*** or wait for the inserts.

Because of budget and personnel reductions, the National Library must cut back and so is looking for ways to trim ***Canadiana***. Some categories of government pamphlets will be dropped. Any other suggestions will be welcomed by the National Library.

ASTED has created an advisory committee for the French edition of AACR2. Any comments, problems, etc. concerning this edition may be sent to André Paul at the National Library.

Velma Parker
National Map Collection

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1985 CONFERENCE

Would the chairpersons of committees requiring meeting rooms during the Conference please contact Hugh Larimer as soon as possible so that he can reserve appropriate space. Committee meetings are formally scheduled for 2 PM, Monday, June 3. The UTLAS meeting will take place at 4:30 that day. Please note that these times are later than those originally announced for the convenience of delegates arriving that morning.

Hugh Larimer can be contacted at:

Reference Department
Dafoe Library
University of Manitoba
Winnipeg, Manitoba
R3T 2N2
tel. (204) 474-9844

REPRINTS OF INTEREST

One brochure, ***Queen's University Map and Air Photo Library***, has been reprinted here courtesy of Queen's University.

Map and Air Photo Library

Queen's University *Map and Air Photo Library* is located in Mackintosh Corry Hall, Area C-1, entered through the Documents Library. The collection consists mainly of current maps, atlases and aerial photographs, specializing in Canadian topographic maps at all published scales.

Circulation

The Map Library serves the Geography Department, students and staff of other faculties, and the general public. Materials may be borrowed with a staff or student card, or with other suitable identification for non Queen's users.

Hours

Fall and Winter Terms

Monday to Thursday 9:00-5:00, 7:00-10:00
Friday 9:00-5:00

Summer Term

Monday to Friday 8:30-4:30

Reference assistance is available at all times during weekdays. Tours may be given upon request.

Equipment

Available to users upon request are stereoscopes, polar planimeters, a draughting light table, and large study tables. Photocopiers are available in the Documents Unit. More specialized equipment for copying library materials is available from Media IV, Department of Geography, Mackintosh-Corry Hall, Room E205.

The Collection

- *topographic maps of Canada and of most areas of the world*
- *wall maps for lectures and seminars*
- *road maps, city street maps and travel brochures*
- *Canadian hydrographic charts*
- *Canadian aeronautical charts*
- *soil surveys of Ontario as well as other parts of Canada and the world*
- *Canada Land Inventory series*
- *thematic maps of most countries*
- *aerial photographs of southeastern Ontario, and some other parts of Canada*
- *general, regional and subject atlases of all parts of the world*
- *gazetteers*
- *historical map and atlas facsimiles*
- *books and journals relating to cartography, historical cartography, air photo interpretation and photogrammetry*
- *discussion papers from the geography departments of various universities*
- *geographical and language dictionaries*
- *Queen's Department of Geography graduate theses*
- *8½ x 11" base maps*

Other areas in the library system which complement the Map Library are:

- *Geology Library* (Miller Hall)
  geological maps, surveys and atlases
- *Civil Engineering Library* (Ellis Hall)
  soil surveys
- *Special Collections* (Douglas Library)
  historical maps and atlases
- *Government Documents* (Mackintosh-Corry Hall)
  census and electoral maps, and maps included with government reports

ASSOCIATION OF CANADIAN MAP LIBRARIES

19th Annual Conference

St.John's College, University of Manitoba
June 3 - 7, 1985

Sponsored by the University of Manitoba Libraries
and the Provincial Archives of Manitoba

Conference Theme: Mapping the Prairies

DRAFT PROGRAMME

SUNDAY, June 2

7.00 PM Early bird reception at Hugh Larimer's house.

MONDAY, June 3

9.30 AM Board of Directors meeting.

1.30 PM UTLAS Meeting.

2.30 PM Committee meetings.

7.00 PM Ice-breaker and B-B-Q at Faculty Club.

TUESDAY, June 4

8.30 AM Registration.

9.00 AM Official Opening:
Elizabeth Hamilton, President, ACML;
Earle Ferguson, Director of Libraries, University of Manitoba;
Peter Bower, Provincial Archivist.

FIRST THEME SESSION

9.30 AM "Hudson's Bay Company Mapping": Dr. Richard Ruggles, Professor of Historical Cartography, Queen's University.

10.30 AM Coffee.

11.00 AM "Manitoba Atlases": Dr. Thomas Weir, Professor Emeritus of Geography, University of Manitoba.

12.00 Lunch.

SECOND THEME SESSION

1.30 PM "Indian Maps in the Hudson's Bay Company Archives": Judith Beattie, Hudson's Bay Company Archives, Provincial Archives of Manitoba.

2.00 PM "Indian Mapping": Dr. D. Wayne Moodie, Professor of Historical Geography, University of Manitoba.

3.00 PM Coffee.

3.30 PM Tour University of Manitoba Map Library.

OR

Depart for Conservation Workshop at Provincial Archives.

4.30 PM Conservation Workshop. Facilitators: John Kohler, Assistant Conservator, Provincial Archives of Manitoba, and Carol Marley, Map Curator, Rare Books and Special Collections Department, McGill University Libraries. WORKSHOP LIMITED TO PRE-REGISTERED TICKET-HOLDERS. A light supper will be served.

8.30 PM Informal open-house at Provincial Archives.

WEDNESDAY, June 5

FIRST GENERAL SESSION

9.00 AM "The Saskatchewan Archives Map Collection": Margaret Hutchison, Cartographic Archivist, Saskatchewan Archives Board, Regina.
"The Cataloguing of Map Series": Donna Porter, Documentation Section, National Map Collection.
"The Glenbow Library Map Cataloguing Project": Bob Batchelder, Map and Air Photo Librarian, University of Calgary.

10.30 AM Coffee.

11.00 AM Open Forum on Map Redistribution. Chair: Gilles Langelier, National Map Collection.

12.00 Lunch.

SECOND GENERAL SESSION

1.30 PM Forum on Cataloguing and a National Union Catalogue for Maps. Coordinated by Joan Winearls and Bob Batchelder. Speakers: TBA.

3.30 PM Coffee.

4.00 PM Movie: ***Dersu Uzula***, a two-hour saga of a Soviet-Japanese surveying expedition.

7.30 PM Repeat Movie.

THURSDAY, June 6

THIRD THEME SESSION

9.00 AM "Preparing the Canadian West Discovered Catalogue of the Glenbow Museum": Mary Javorski, Okanagan Regional Library, Kelowna, British Columbia.

9.30 AM "The Mapping of Manitoba at the One Million Scale": Sid Hanson, Cartographer, Manitoba Surveys and Mapping Branch.

10.30 AM Coffee.

THURSDAY, June 6 (continued)

11.00 AM "Government Reports".
Speakers: Betty Kidd, Director, National Map Collection, Public Archives of Canada;
John McArthur, Director, Reproduction and Distribution, Energy, Mines and Resources Canada;
Sid Hanson, Surveys and Mapping Branch, Manitoba Department of Natural Resources.

12.00 Lunch.

1.30 PM Annual Business Meeting.

3.15 PM Coffee.

3.45 PM Business Meeting resumes.

6.00 PM Cocktails.

7.00 PM Banquet.

FRIDAY, June 7

TOUR DAY

9.00 AM Depart by chartered bus for Hutterite colony.

12.00 Lunch.

1.30 PM Surveying field trip to replicate a portion of the Dominion Lands Survey of the 1870's and 1880's.
Leader: Lou Sebert.

CONFERENCE INFORMATION

GENERAL. Most conference events will be held at St. John's College, an affiliate of the University of Manitoba. St. John's has lecture theatres, meeting rooms, a dining hall and a residence, and is situated on the main University campus, 10 km. south of downtown Winnipeg.

REGISTRATION. A registration package will be mailed to ACML members in mid-March. The organizing committee urges pre-registration to assist us in planning local arrangements

and to afford yourself early registration discounts. Check-in and daily registration will take place at the College.

ACCOMMODATION. St. John's College offers single rooms only at $15.00 nightly. Since its administration does not wish to deal directly with conference delegates, all bookings are to be made through the Conference Committee. The earliest time that delegates may check in is noon, Sunday, June 2; all rooms must be vacated by noon, Sunday, June 9. Arrangements for university residences other than St. John's should be made directly by delegates. There are also several motels and a large Holiday Inn within 3 km. of the campus. No rooms have been reserved at any of these for ACML members.

MEALS. A dining hall is located in the College and meals will be available there only with the conference meal package. The first meal provided will be breakfast on Tuesday, June 5; the last meal will be breakfast on Friday, June 7. The dinner portion of the Ice-breaker and B-B-Q on June 3 will be sponsored by the University, while drinks will be on a cash-bar basis. There are several other eating places on campus, but prices are likely to be higher than those in the conference meal package.

TRANSPORTATION. Winnipeg is served by all major public transportation networks. For people who plan to travel by air, taxi fare from the airport to the University is approximately $14.00. The municipal transit system serves both the airport and the campus. The trip involves one transfer, costs 80 cents, and takes about an hour. Please note that, unlike most cities, Winnipeg does not have a privately operated "airport bus". Delegates who are within reasonable driving distance, are encouraged to bring their own cars, since most restaurants and tourist attractions in Winnipeg are located at some distance from the University. Parking will be available at the College at nominal cost.

SPECIAL LIBRARIES ASSOCIATION CONFERENCE. The SLA Conference will be held at the Winnipeg Convention Centre, in downtown Winnipeg, from June 8-13. Arrangements have been made for ACML members to receive the same conference rate as SLA members when registering. We are attempting to reserve rooms at the nearby University of Winnipeg residences for ACML members. These reservations cannot be confirmed until April.

CARTES HISTORIQUES

ASSOCIATION OF CANADIAN MAP LIBRARIES
ASSOCIATION DES CARTOTHEQUES CANADIENNES

HISTORICAL MAPS
CANADA
CARTES HISTORIQUES

51 - 100

1982

The Association of Canadian Map Libraries has published 100 reproductions of historical maps of Canada. Individual copies may be obtained by writing to the ACML Publications Officer at the Business Address indicated on the inside of the front cover.

First fifty facsimile maps were assembled in a folio. These sets are now sold out. Maps ##51-100 have also been assembled in a set, consisting of a title page, introduction, indexes, placed in a gold-embossed hard cover. The price of the set is $100. The cover and the introductory pages may be purchased separately for $30; and the four introductory pages - for $6 ($5 + $1 postage). Please place the folio orders with -

PUBLICATIONS COMMITTEE (ACML)
c/o National Map Collection
Public Archives of Canada
395 Wellington Street
Ottawa, Ontario K1A 0N3

HISTORICAL MAPS