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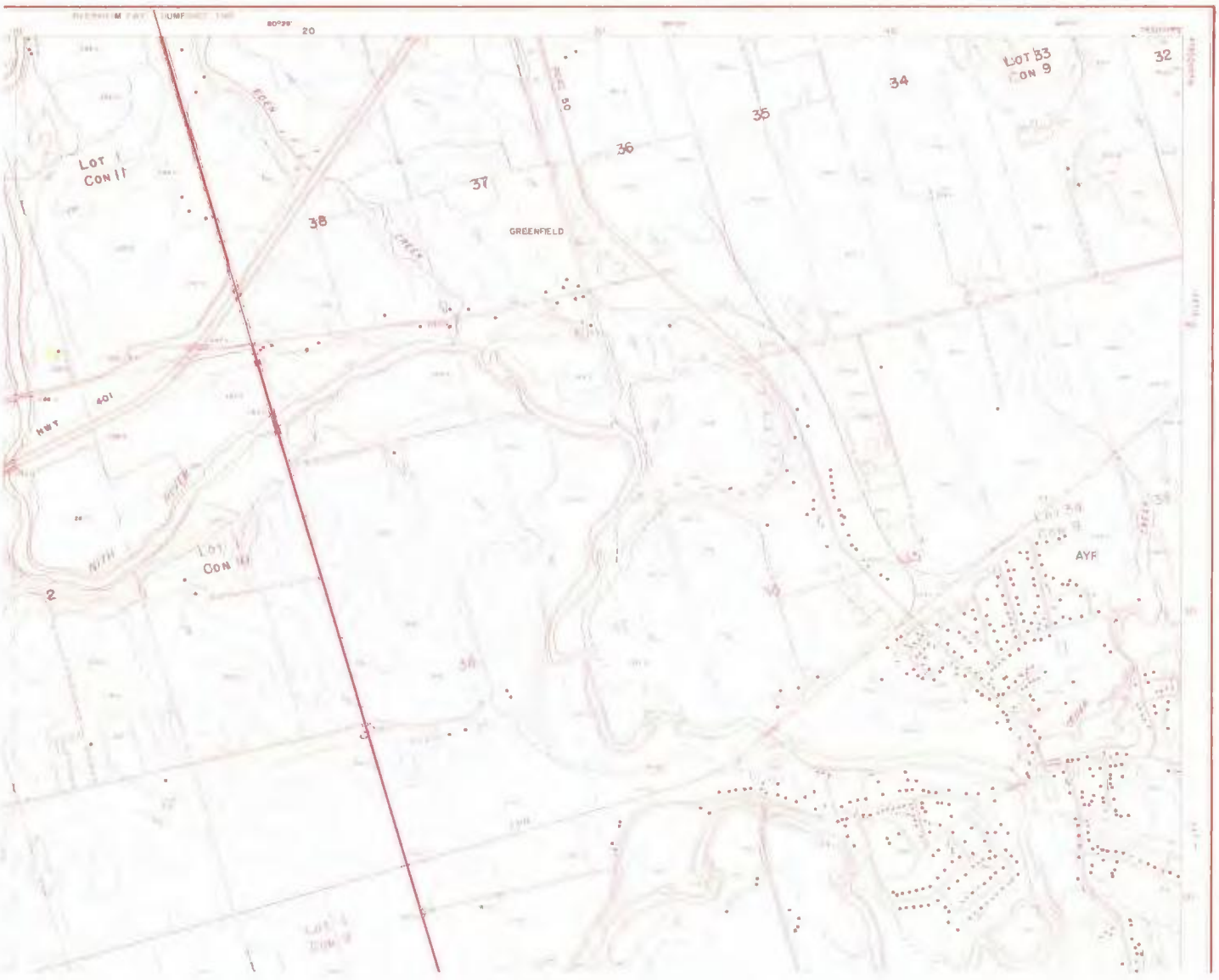
ASSOCIATION OF CANADIAN MAP LIBRARIES

BULLETIN

ASSOCIATION DES CARTOTHEQUES CANADIENNES



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COVER / COUVERTURE

A portion of Ontario Basic Mapping sheet 10 17 5400 47900 (Ayr, Ontario). Scale 1 : 10,000, contour interval 5 metres. Published by the Ontario Ministry of Natural Resources in 1983.

The OBM program was established in the mid 1970s to provide topographic maps covering the whole of Ontario at scales varying from 1 : 2,000 to 1 : 20,000. Maps are available at a cost of $2.00 per sheet from:

Ministry of Natural Resources
Public Service Centre
Parliament Buildings
Toronto, Ontario
M7A 1W3

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BULLETIN STAFF/COLLABORATEURS

REPORT FROM THE PRESIDENT

Here goes another "inaugural" message! (See Bulletin 45). First of all, I would like to convey my appreciation to the membership for placing your support in me during the past election. 1984 promises to be a busy year, as I am also wearing the hat of conference chairman. We in Fredericton are very much looking forward to hosting the annual meeting; a preliminary program will be printed in the next Bulletin.

The annual business meeting in Vancouver was highlighted by the acceptance and adoption of two major committee reports, these being the Rules and Procedures Committee and the Publications Guidelines Committee. As a result, we now have official rules and procedures for the association, and a new Publications Committee is currently being constituted. As well, fifteen non-active/defunct committees were dissolved. My only "prediction" at this time for the 1984 business meeting is that it will be of shorter duration!

Although the summer has been relatively quiet with respect to A.C.M.L. activities, several significant issues are to be discussed when the Board of Directors meet in late October. The next Bulletin will contain an account of this meeting. In the meantime, or at any time, the membership is urged and encouraged to contact me or any member of the board concerning any matter pertaining to A.C.M.L. For your information, the addresses of the current board are repeated in this issue.

Bill MacKinnon
A.C.M.L. President

A.C.M.L. Board of Directors, 1983/84

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presence of farmland with field ditches.

Having established the authenticity of the remnant vegetation, it has to be realized that in the last 100 years, or even 50 years, plant communities may have altered considerably so that a remnant type may not in fact be the same as the natural vegetation which existed prior to commercial agriculture on that same site. Some assumptions on the speed and direction of plant succession have to be made. This is rather complex and not directly germane to this talk; however, the assumption was made that closed coniferous forests were less likely to have changed than scrub or deciduous forest and that communities subject to continual natural disturbance, such as those occupying intertidal sites, may have remained unchanged because of the immaturity and instability of the sites.

A map of the remnant vegetation can thus be reconstructed for, in our case, the lower Fraser floodplain, or could be made for any area where some natural vegetation still remains. Such a map will of course be "full of holes." The question then arises how to fill these in. There are basically two thematic maps which are of crucial importance: these are surficial geology maps and soil maps. The value of these depends upon whether one can establish that a particular type of vegetation always occupies a particular type of surficial material or soil. The classic example in the Fraser floodplain is the bog vegetation, which is found only on peat. Both surficial geology maps and soil maps indicate the extent of these organic deposits and the former extent of bog vegetation.

Again, it is important to stress the use of old soil maps and the accompanying written reports. Most Canadian soils have been remapped since the Canadian soil classification system changed in the 1970s. But the old surveys frequently were made in the 1930s when the remnant vegetation was more extensive and soil surveyors of the time realized that a knowledge of the association of natural plant communities with the type of underlying soil would be of assistance to farmers who were in process of clearing and planting the land.

As a further aid to extrapolating from remnant vegetation, topographic maps may be useful; for instance, river banks were usually occupied by shrub and/or deciduous woodland and old river sloughs were the sites of dense willow scrub. And here again, the older the topographic map the better the chance that more of the natural vegetation existed and was mapped. Also, the very fact that some areas were cleared at a later date by farmers could be useful information, allowing one to infer that a certain vegetation type occupied the least desirable agricultural land. Place names may also help extend the slight information base a little more securely.

Archival collections of photographs may allow a further check on the inferred extent of past vegetation. Unfortunately, many of these photographs are not precisely located, and are usually focussed on people, buildings, or animals, and the vegetation in the background is frequently out of focus. Written accounts may serve a similar purpose for cross-checking inferred extents of different vegetation types.

The first map of the natural vegetation of the lower Fraser floodplain, based on all these sources and checks, was prepared and used as the basis for measurements of areas in different vegetation types. (This information was subsequently used in the environmental impact assessment report on the effect of the proposed extension of the Vancouver International Airport,

1976).[1] These maps were never released for the good reason that they were not particularly accurate, the information was scanty, and the inferences often unsupported. The numerical data based on the maps is similarly of low accuracy. Fortunately, subsequent work using different sources proved that the figures of percentage loss are reasonably accurate for many of the vegetation types though there is one notable error.

During the latter part of this research we were made aware of the presence of the original land surveyors' field notebooks in the archives of the legal surveyors in Victoria. This proved to be an invaluable source of point-specific information, which allowed us to produce an accurate map of the pre farm-settlement vegetation of the lower Fraser--accurate enough to publish (see Figure 1; a folded insert).[2]

The land surveyors were instructed to survey the boundary lines and mark the corners of land subdivisions prior to sale and to establish the legal boundaries of land settled prior to survey. They also noted soil conditions, type of vegetation, presence of water, and other information of pertinence to settlers who might be purchasing the land sight unseen. All surveyors kept their notebooks according to the established chain-survey practice (Figure 2).

There were five distinct surveys of the lower Fraser valley during the initial stages of settlement. The cadastral system varies from place to place in the valley, but for most of the area the survey system was modelled on the United States land survey system (Figure 3). The five surveys which were carried out under different authorities and for different purposes are as follows:

a) Royal Engineers' surveys, 1858-1863, under the supervision of Colonel Moody,

b) Royal Engineers' town surveys, as above,

c) Provincial surveys, 1873-1877,

d) Dominion surveys, 1873 onwards,

e) Indian land surveys.

(Further details of the survey systems used, the areas surveyed, and the precise notebooks used for each area of the lower Fraser valley can be found in B.C. Studies 1977).[3]

As you can see from Figure 2, all the vegetation information is noted down along the lines of the survey. Very little information is given for the areas between the surveyed lines. The line information varies from naming individual plant species such as Douglas fir and cedar to identifying plant communities such as grassland or marsh, where the component species are not identified. The form of the data thus presented two problems which had to be solved before a map of vegetation could be produced.

First, the vegetation, where it was given as individual species, had to be grouped into plant communities. To do this two assumptions were made: 1) the surveyors only noted dominant species present and 2) the dominant species present 100 years ago were likely to be growing in the same kind of association with other plants as is found in the same sites today. These

assumptions allowed the grouping of the vegetation information into twenty-seven distinct classes, which are referred to as vegetation types. The recorded information along each surveyed line was replaced by a letter or symbol, representing the appropriate type. This yielded a map covered with lines of letters and symbols.

Second, lines had to drawn around each distinct vegetation type. Approximately one quarter of the area surveyed was covered by field sketch maps which showed the boundaries of the plant communities as seen by the surveyors (Figures 3 and 4). For the remaining areas, boundary lines which were precisely located along surveyed lines had to be extended across the intervening unsurveyed areas. The bases for such extensions were:

1) soils and surficial geology maps,

2) topographic maps at the 1:25,000 scale showing minor changes in elevation, which appear to be critical determining factors in vegetation change on the floodplain,

3) study of remnant areas, which allowed us to establish the relationships between the various vegetation types and landform units. For instance, levees, back swamps, old sloughs, and islands have distinct and rather homogeneous vegetation types. If our archival information showed only two or three points where a certain vegetation type occurred and we had established in the field that this type occupied old sloughs, then we used the topographic maps to establish the course of the old slough and used this linear feature as the boundary of the vegetation type.

We have already discussed the importance of topographic maps in indicating the location of and access to possible remnant areas. As a final check on the twenty-seven vegetation types, a hunt was made for each type. The remnant areas were mainly located on islands and/or Indian reserves where no dyking or land drainage had occurred. Most types were located, photographed, and more completely described.

The last job which remains to be done to fulfil the original terms of reference of the research is to measure the actual areas of these vegetation types on the map and compare the past areas to those which remain. This will allow the correction of the erroneous data now in circulation and give a sound basis for any habitat-protection policies.

In this paper I have attempted, through describing some of my own recent research, to show how topographic, thematic, and archival maps all contributed towards the production of a map of the pre farming-settlement vegetation of an area. The sources that I have used are available for all the settled parts of western Canada. In eastern Canada the archival sources may not be in the same form. To map the natural vegetation, one needs an archival source which pre-dates settlement.

I hope that I have also indicated that such vegetation maps are not solely of academic interest but form important base lines for examining the impact of human activity on our resources. From such studies our ability to manage our resources may be improved.

References

[1]Environment Canada (1976), An Environmental Impact Assessment of the

Vancouver International Airport Expansion Proposals. A Summary Report. Vancouver, B.C. 91 pp.

[2]M.E.A. North, M.W. Dunn, and J.M. Teversham (1979), Vegetation of the Southwestern Fraser Lowland, 1858-1880. Scale 1:50,000. Environment Canada, Lands Directorate, Vancouver, B.C.

[3]M. North, D. Holdsworth, and J. Teversham (1977), "A Brief Guide to the Use of Land Surveyors' Notebooks in the Lower Fraser Valley, B.C., 1859-1890," B.C. Studies 34, Summer 1977, pp. 45-60.

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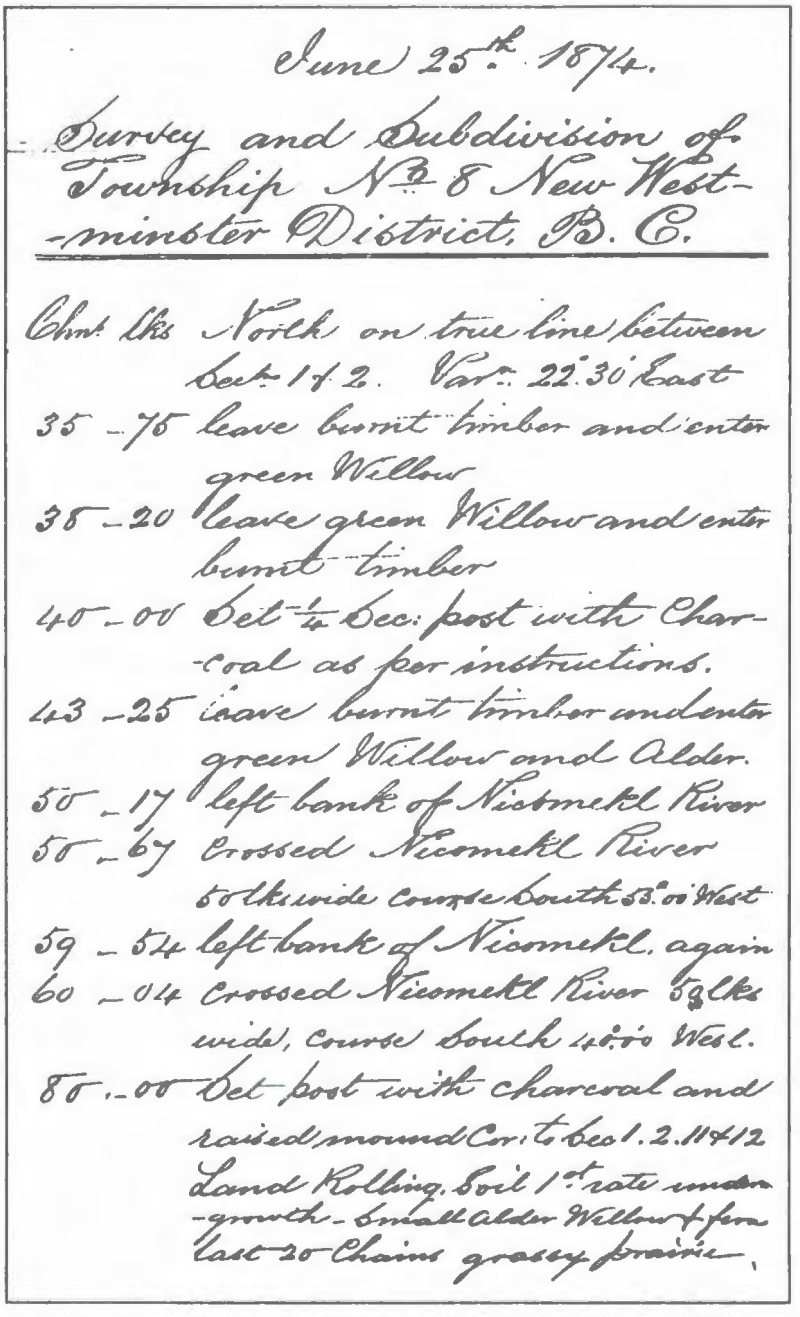

June 25th. 1874.

Survey and Subdivision of Township No. 8 New Westminster District, B. C.

Chns Lks North on true line between Sect. 1 & 2. Var. 22.30 East
35 - 75 leave burnt timber and enter green Willow
38 - 20 leave green Willow and enter burnt timber
40 - 00 Set 1/4 Sec. post with Charcoal as per instructions.
43 - 25 leave burnt timber and enter green Willow and Alder.
50 - 17 left bank of Nicomekl River
55 - 67 Crossed Nicomekl River 50 lks wide course South 53.00 West
59 - 54 left bank of Nicomekl again
60 - 04 Crossed Nicomekl River 50 lks wide, course South 40.00 West.
80 - 00 Set post with charcoal and raised mound Cor. to Sec 1. 2. 11 & 12
Land Rolling. Soil 1st rate under-growth - Small Alder Willow & fern last 20 Chains grassy prairie.

Figure 2 : A page from a surveyor's notebook.

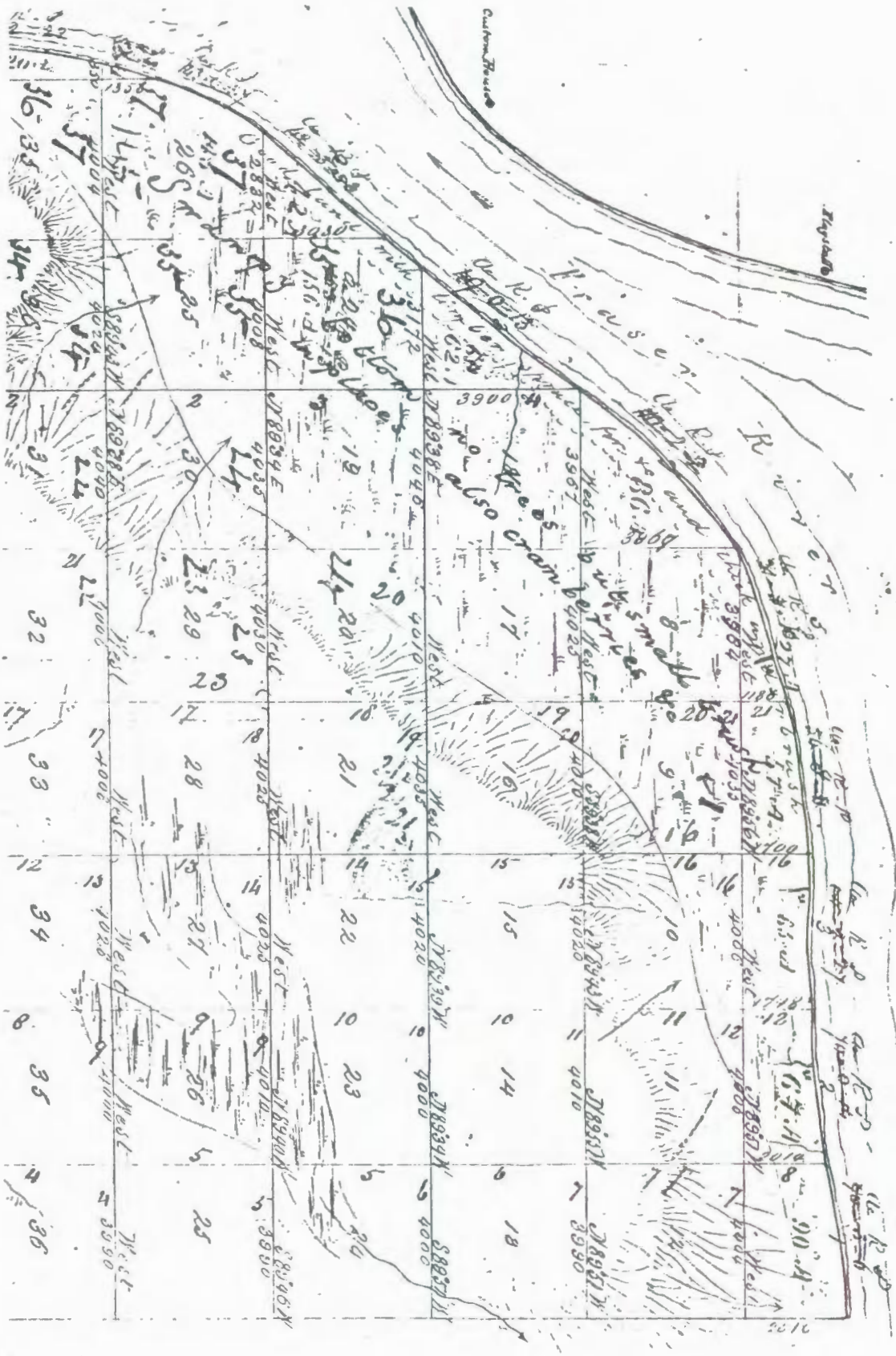

Figure 3 : Surveyor's sketch map of vegetation boundaries along the Fraser River.

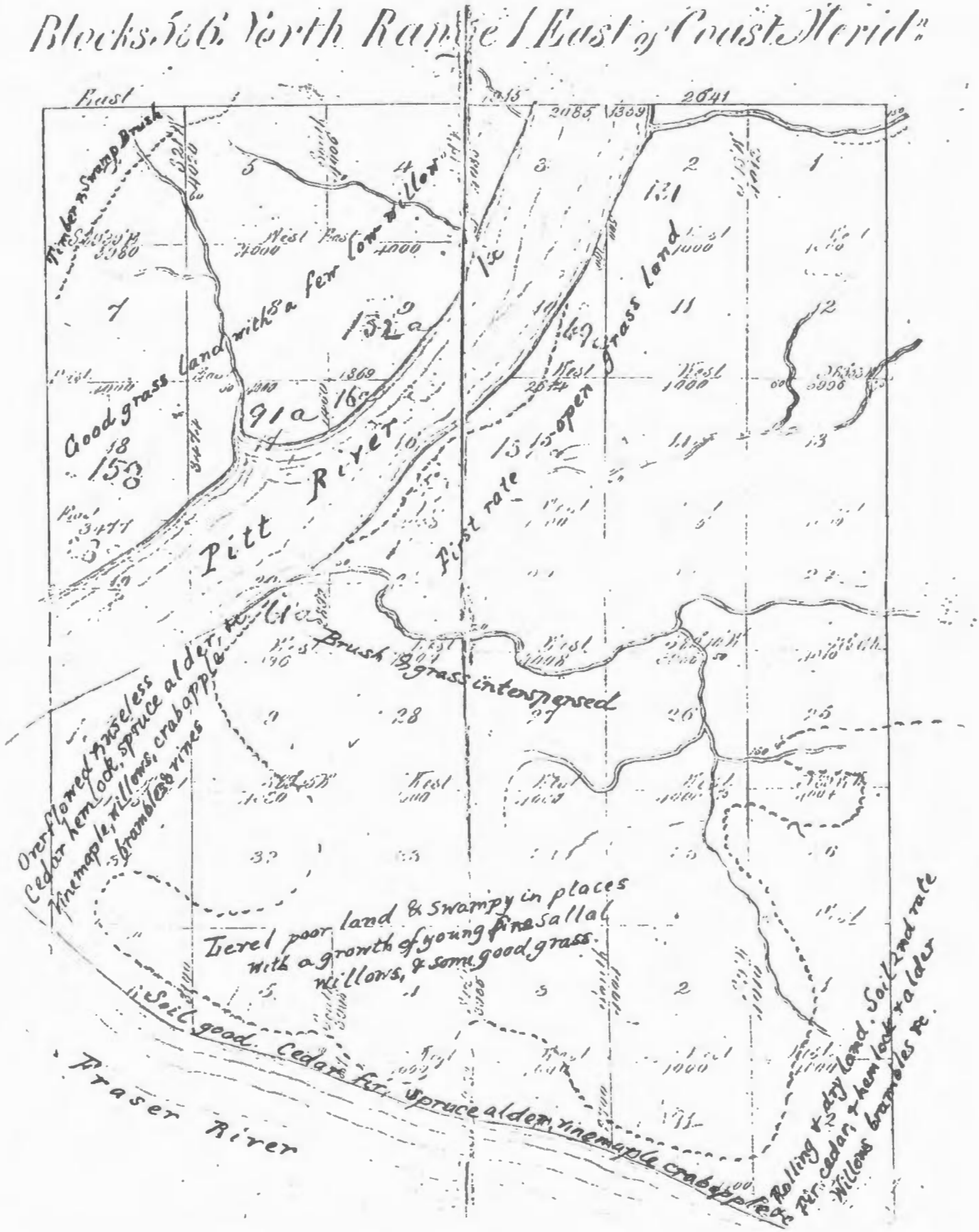

Figure 4 : Surveyor's sketch map of vegetation boundaries along the Pitt River.

RIVER CHANNEL CHANGES FROM MAPS AND PHOTOGRAPHS

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Geography Department
Vancouver, B.C.

Introduction

Geomorphology--literally, knowledge of the form of the earth--has in recent times developed two distinct themes. One is concerned with description and measurement of the earth's surface, continuing the older discipline of physiography: the chief source of data is contemporary topographic maps. The other major theme is concerned with determining how landforms develop.

The latter endeavour faces a major obstacle immediately. By comparison with the usual time scales of personal experience, geomorphological processes are characterized almost universally by low rates of activity and by long elapsed times for cumulatively significant effects to occur. Geomorphologists must seek means both to examine the sequence of events that alter the landscape and to determine its integrated effect over some period that is sufficient to reveal changes.

Along a river, bank erosion and sediment deposition may alter channel alignment by nearly continuous small increments, or changes may be concentrated during occasional extreme floods. In either event, many years--perhaps decades or centuries at many sites--must pass before significant change has occurred. Direct observation of the landscape changes associated with fluvial processes is, then, usually not feasible.

Historical records of former land configurations are of great importance to circumvent this problem. Preeminent amongst the various classes of evidence are maps. In this paper I will illustrate the role of maps and of several related forms of documentation--including photographs, aerial photographs, and satellite imagery--in the study of river channel changes. Unlike experience in physiographic studies, older material is apt to be of great importance. This raises a new set of problems surrounding the accuracy and comparability of sources. I should like also to introduce some questions about the archiving of such materials; their continuing value sometimes is not sufficiently appreciated.

River Channel Changes on Maps

River channel widths characteristically measure between metres and perhaps a few kilometres, very few channels exceeding one kilometre except in tidal estuaries. Usual changes in channel position over many years vary between zero and perhaps a few kilometres. There are, of course, spectacular exceptions when an unconfined river breaks out of its channel and follows a completely new course; more frequently, valley walls strictly limit the extent of short term changes. Hence, river channel changes in general can be studied reliably only within the period since relatively large scale maps have become available. Although interesting local details about rivers may be gleaned from some medieval town plans and other charts, the development of cadastral surveys in the eighteenth century and the beginnings then of topographic mapping mark the earliest opportunities for systematic comparisons. There is available about 250 years of consistently recorded history at the outside limit--not long in geological perspective

but a useful period for geomorphological, engineering, and land status work.

An interesting example of river channel change inferred from successive maps has been presented by Ake Sundborg (1956) for Klaralven, a river in south-central Sweden. Swedish civil records are outstandingly detailed from early times. Sundborg was able to infer useful information from the early seventeenth century on, when local details may be gleaned from records of tax adjustments in consequence of the erosion of farmland by the river. Opportunity for systematic comparisons was afforded by construction of detailed cadastral maps in the course of the great land consolidation exercises near the turn of the nineteenth century (Storskifte) and in the mid-nineteenth century (Lagaskifte). The Lagaskifte maps, at scale 1:4,000, formed the basis for comparison with the earlier maps and with modern air photographs. Comparison was effected by direct optical superposition in a projector which could be adjusted to account for minor scale variations due to paper shrinkage. Fixed landmarks and persistent cultural features were used to register the maps.

Sundborg addressed the question of accuracy in these early surveys by noting that the delineation of property on the relatively high meander headlands was a very important matter; here there was protection from floods, so settlement could occur even though erosion of the riverbank was a continuing problem. Utmost care was taken to survey this land accurately. By comparison, both diminished importance of the land and, perhaps, difficulty of access would reduce accuracy in the watermeadows on the downstream (depositional) sides of the meanders. Few difficulties were encountered in registering fixed points. Sundborg estimated the average error of position to be of order ten metres which, at the compilation scale of 1:20,000, would amount to 0.5 mm map displacement. That is the standard for class A topographic mapping in Canada today.

From results like those displayed in Figure 1, Sundborg calculated that, over a 100 km reach of river, the average erosion was 160 $m^2yr^{-1}km^{-1}$ during the period 1800-1850 and 128 $m^2yr^{-1}km^{-1}$ during 1850-1950. The erosion was, of course, matched by deposition elsewhere. Sundborg did not originate such comparisons; similar work was carried out early in this century by Sten de Geer (1906) using the same surveys.

In Canada, particularly in western Canada, the history of large scale mapping is more brief than in Europe. Nonetheless, opportunities for comparisons arise from the time of the earliest explorers who were, in the main, superlative navigators. Postions fixed by Alexander Mackenzie on McGregor River in the course of his journey to the Pacific Ocean can be used to determine where meander cutoffs have since occurred (D.G. McLean, personal communication, 1981).

Admiralty and Royal Engineer surveys are invaluable. In 1857, Lieutenant Henry Palmer, R.E., was sent upcoast from New Westminster, British Columbia, to reconnoitre for a possible route to the Cariboo gold fields that would avoid Fraser Canyon. He surveyed the mouth of Bella Coola River as part of a reappraisal of Mackenzie's route (cf. Thomson, vol. 1, 1966). In Figure 2 his map is compared with the modern topographic map. With little or no settlement, there are few reliable points by which to register the early Canadian maps. In this exercise, I used principally points where the channel flows against granitic bedrock--places where erosion is unlikely to have been significant. To find these points, field knowledge

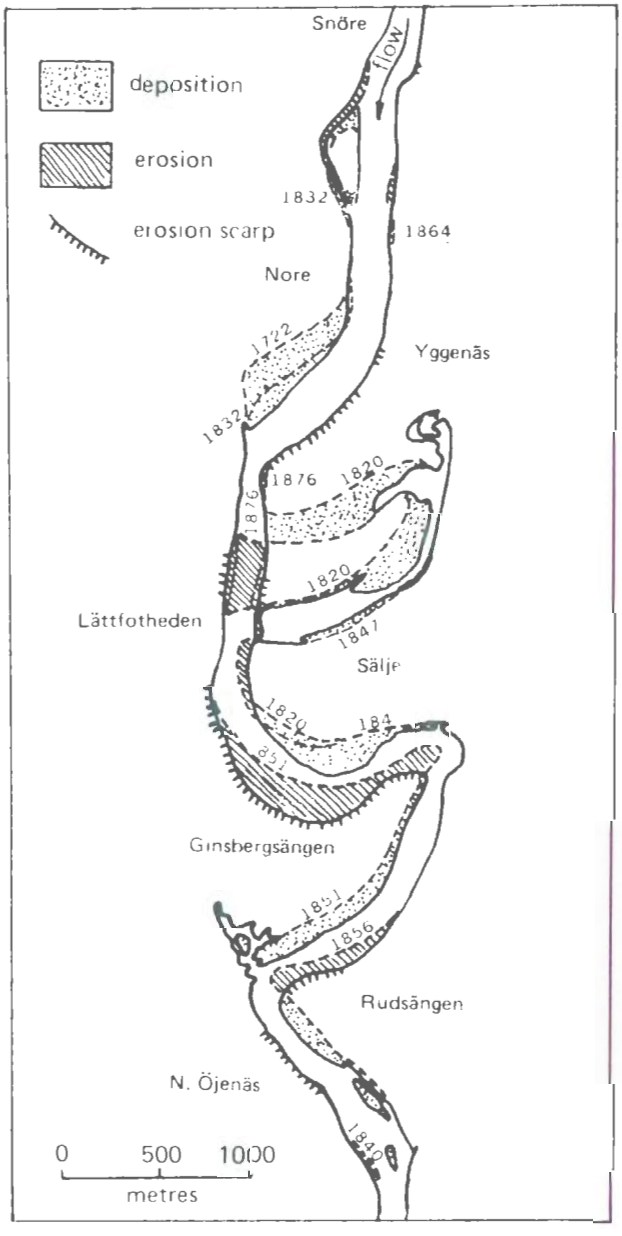

Figure 1 : Changes in the position of Klaralven during 150 years, as derived from cadastral surveys. Since the surveys were carried out over some years, dates are included in the map. [Figure redrawn from a portion of Sundborg's (1956) plate 1].

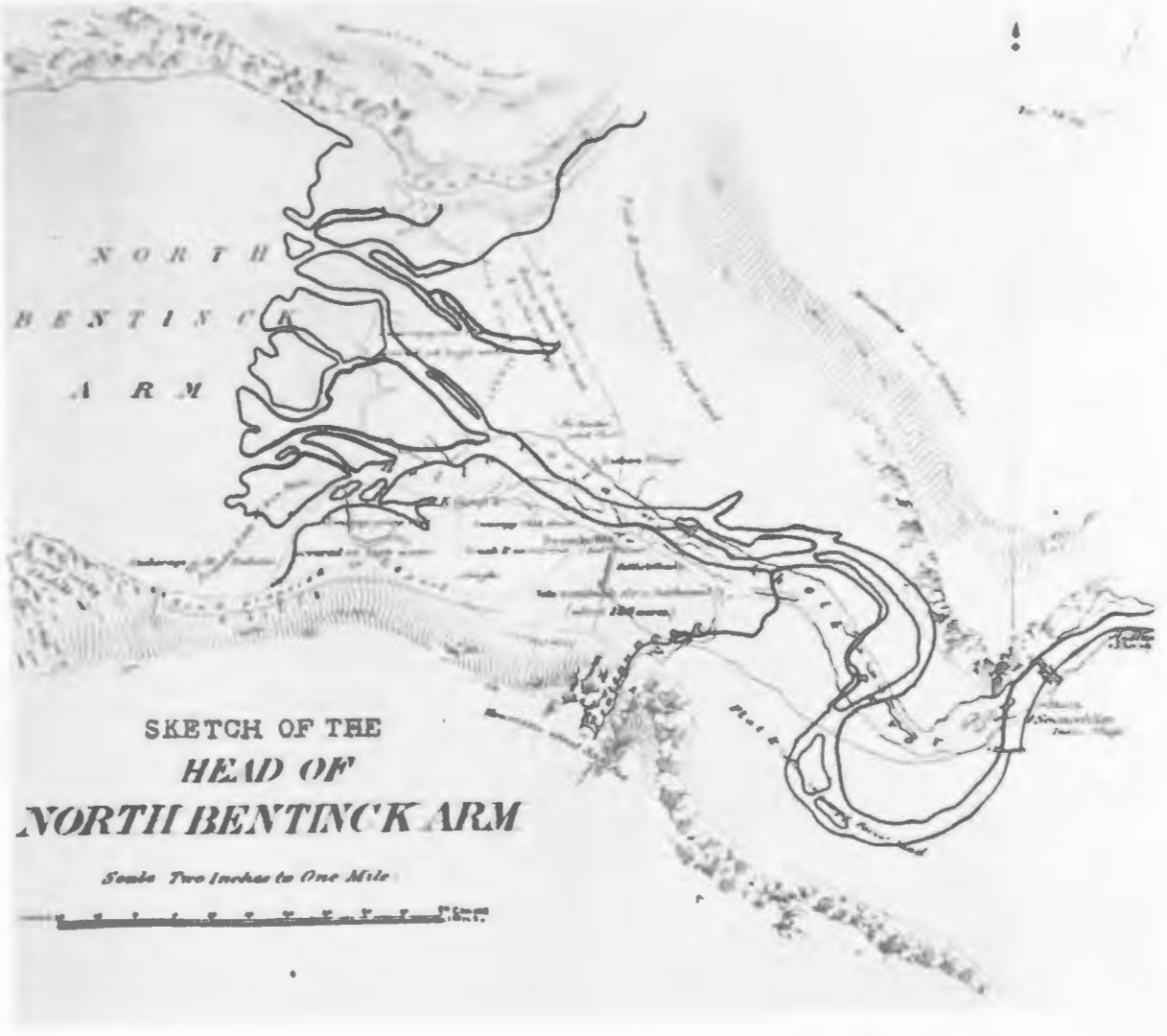

Figure 2 : Lieutenant Henry Palmer's map of the mouth of Bella Coola River (photographic reproduction). The outline of the river from the modern topographic survey is overlaid.

is essential. I remain unsure that the registration of Figure 2 is exact.

The cadastral survey in Bella Coola Valley was carried out during the late 1880s when white settlement was just commencing and the Indian reserves were being defined (see Figure 5). Because the question of arable land was at issue, bank lines appear to have been drawn relatively carefully. Since the river is fairly active, it has since changed along much of its course. There is little evidence upon which to assess the precision of the cadastral survey except knowledge that careful work with decent instruments was the rule in the British Columbia Land Survey and the observation that registration with modern surveys is satisfactory at bedrock-controlled places.

Curiously, in the topographic map of 1905, the river appears to have been drawn clumsily; I do not trust it at all. Even in modern maps details along rivers often are reduced to conventional symbols at scales larger than those at which generalization remains necessary, despite the fact that knowledge of the position of the river channel at a given time may be an important practical matter in respect of land survey. Some recent maps of the United States Geological Survey show successive positions of river channels for different survey dates (Figure 3), possibly as the fortuitous result of revision by "overlays."

There remain the issues of map scale and the limit size of channels that may be studies in a given map. If we accept the Canadian Topographical Survey class A standard of 0.5 mm horizontal placement error on published maps--a standard that appears to have been achieved in carefully constructed maps for over a century--and that a factor of 0.2 channel width represents a significant displacement, then the limit criteria given in Figure 4 hold.

Other landforms for which recent history of changes might be constructed from maps include coastlines and glacier margins; that is, landforms for which horizontal displacement is of paramount importance. Contour intervals and contour error margins are too large even today, on all but the most detailed special surveys, to permit detection of vertical landscape changes other than very large landslides or disastrously rapid gully development--effects that are well known in well settled (hence, well mapped) regions by local notice and record.

Changes Mapped from Air Photography

Inhabitants of a large, sparsely settled country with much difficult terrain, Canadians pioneered the use of air photography as a survey tool. In some areas, coverage is available from the early 1920s. Much of the settled southern fringe of Canada was photographed before 1939, and nearly the entire country was photographed in the remarkable Trimetrogon survey of the late 1940s. More or less frequent photography on one or another scale has been commissioned by provincial and federal governments since the early 1950s. Hence, there is available a record of between 35 and 60 years span in most parts of the country. Few other regions of the world are so fortunate.

Figure 5 illustrates the history of Bella Coola River "big bend" in recent years. It is apparent that there was slow, progressive extension of the bend during most of this century. However, the river broke through the neck of the meander during a flood in September 1973. Since then, it has

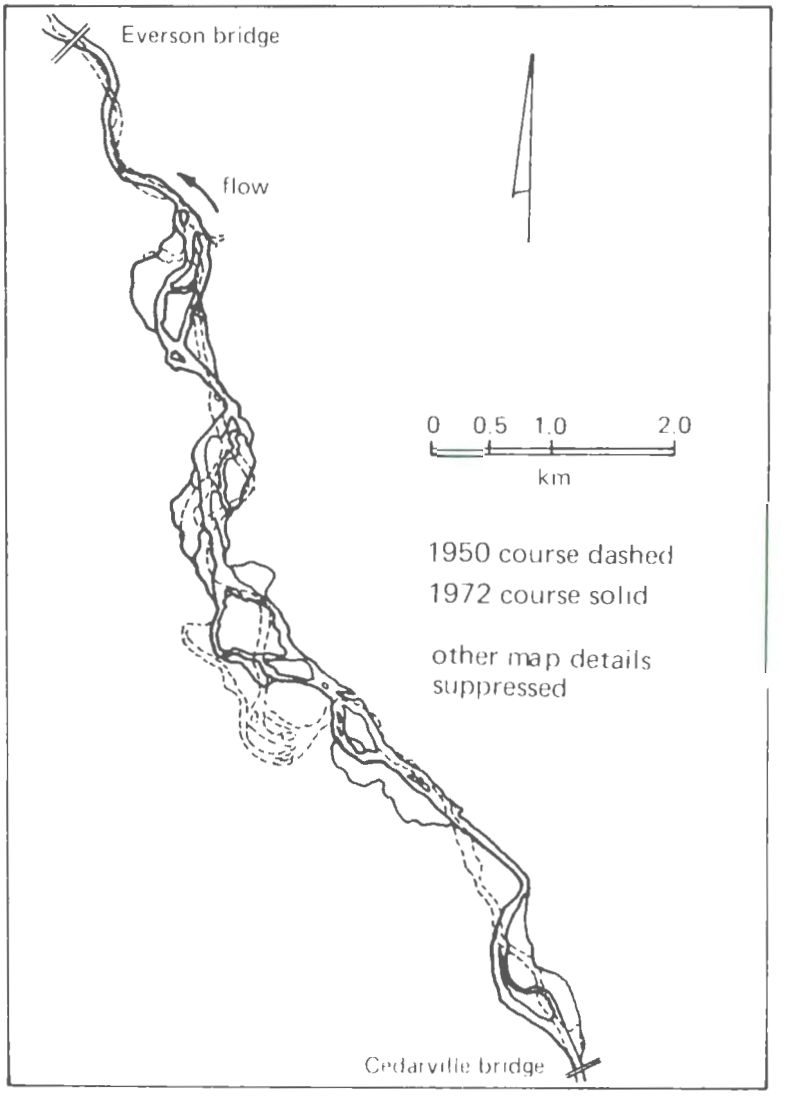

Figure 3 : Nooksack River, between Cedarville and Everson, Washington: channel positions in 1950 and 1972. [Redrawn from USGS Map I-854-D, Engineering characteristics of geological materials, western Whatcom County, Washington, by D.J. Easterbrook (1976)].

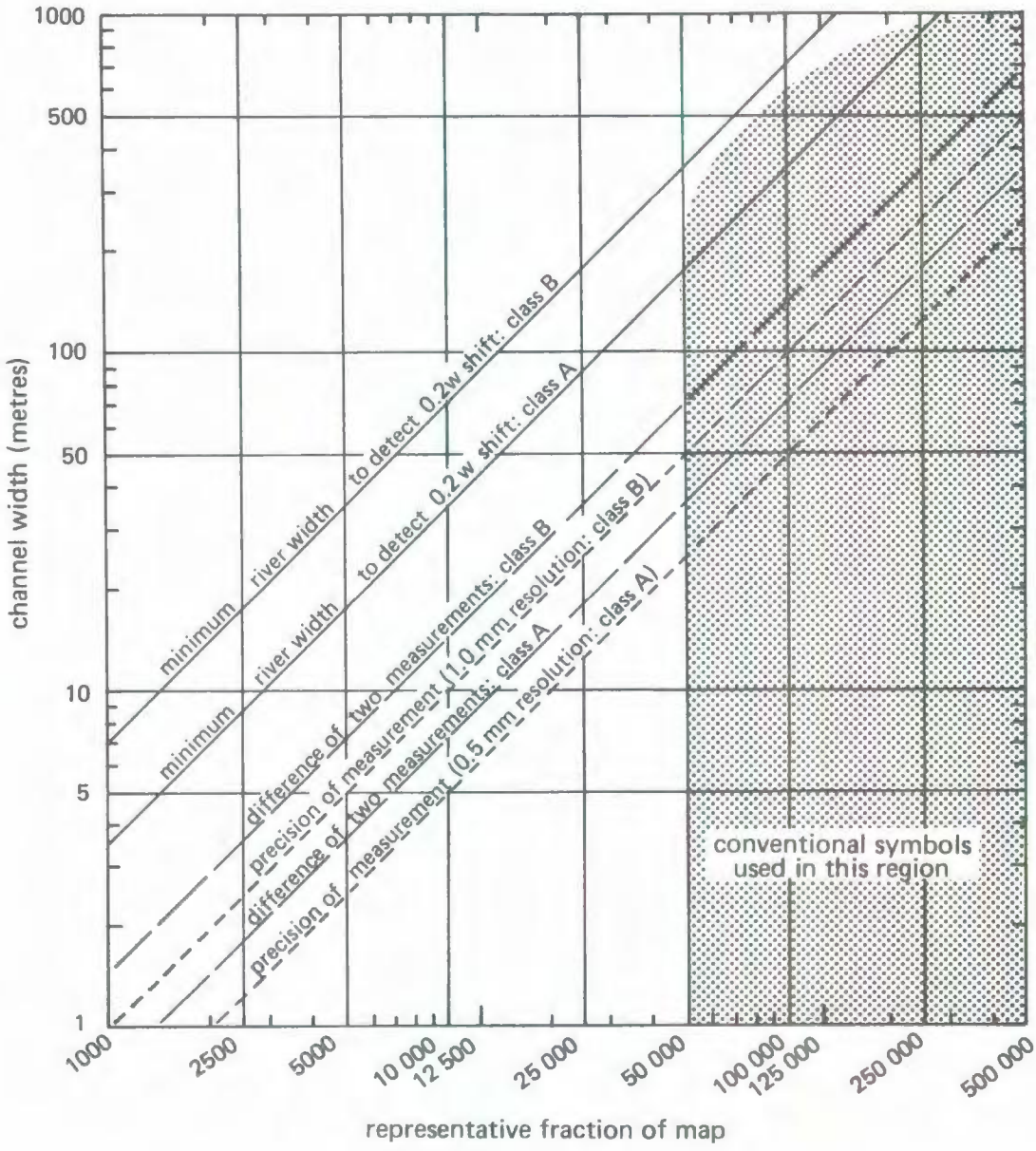

Figure 4 : Limits of resolution for planform displacements between successive maps drawn with similar precision.

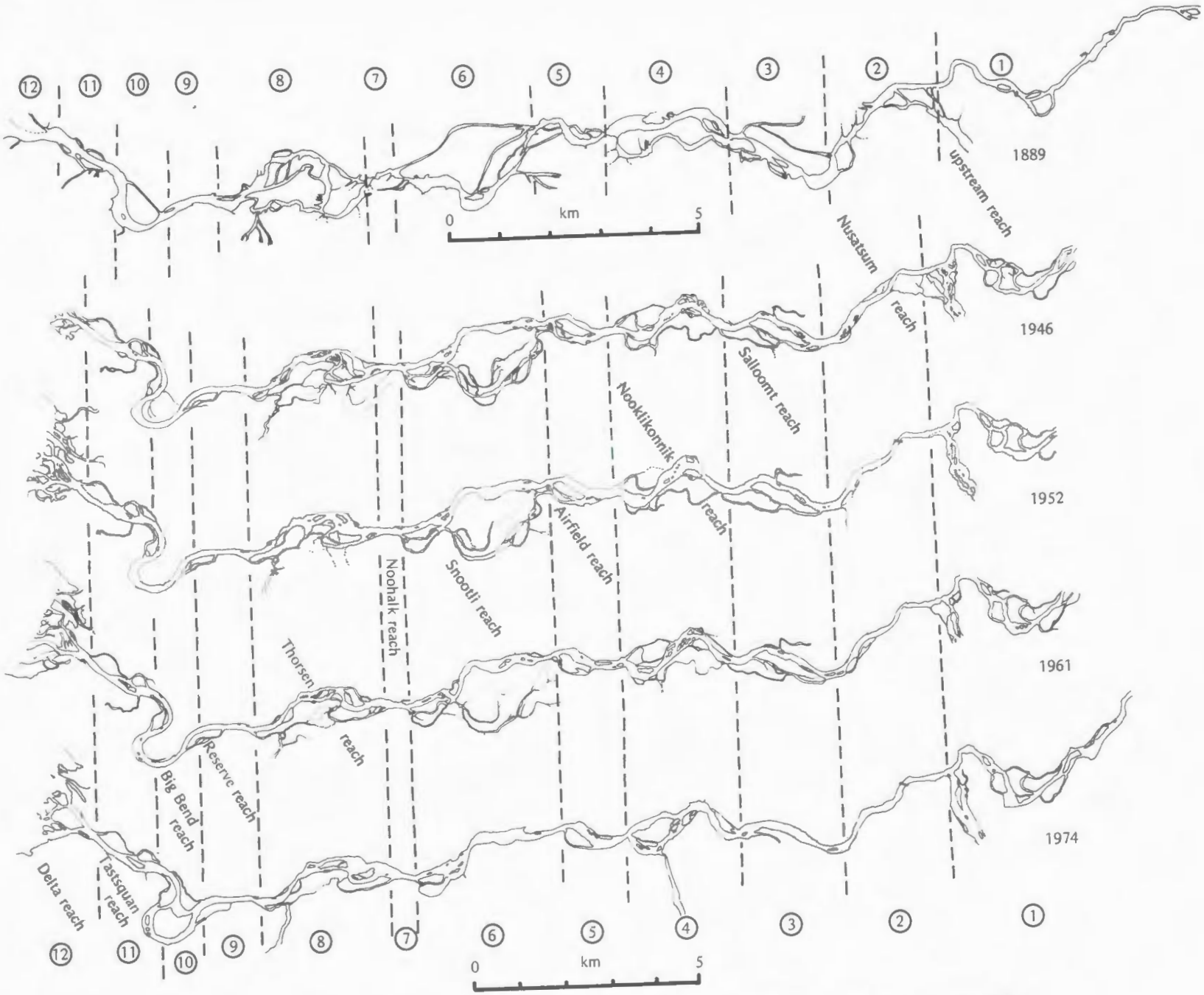

Figure 5 : Successive maps of lower Bella Coola River derived from the cadastral survey (completed in 1893) and from aerial photographs. Reaches are identified to aid comparisons. Note that the cadastral survey is presented at a slightly larger scale than the others.

eroded several hundred metres back toward its former channel. There has been more change here during the past decade than during the previous twelve decades.

Figure 5 shows a selection from twelve surveys available for lower Bella Coola River. Save only the cadastral map, all are derived from air photography beginning in 1946 (and include the photographs that were used to produce the modern topographic map at 1:50,000). Using established ground control points, the surveys were plotted in stereophotogrammetric instruments that ensure rectification of the images. The sequence of maps shown in Figure 5 forms the basis for a study of river channel changes during the past century in response to major floods and changing sediment supply conditions. The river appears to becoming steadily more stable, prolonging a trend that can be confirmed back to 1793 from the journal of Alexander Mackenzie (see Church (1983) for further discussion).

A number of practical problems arise in the use of air photography for geomorphological studies. Three important ones are as follows:

(i) It is difficult to determine what photography is available. Although indices of government photography are complete, much valuable material produced originally for the private sector remains unrecorded. In the short run, proprietary interest may be associated with much of it; in the long run (which is of primary interest in geomorphological work) this probably would not be a significant constraint. Relatively few organizations are in the business of making aerial photography; hence it would be possible to develop a fairly complete index.

(ii) Old photographs (most material predating the 1950s) were exposed on chemically unstable film. The negatives can no longer be used. It is possible to transfer the images to stable base film (much federal material has been treated in this way). Ignorance of the importance of old material has in many cases precluded the possibility for this work to be done, however. Aside from extant prints, the material has become inaccessible.

(iii) Similarly, the documentation of early photography (date, time, flying height, camera) sometimes is not preserved in appropriate archives.

These problems might be dealt with more completely if there existed organizations other than the originators of the material that were interested systematically in the records. Upon the observation that maps and aerial photographs equally represent images of the earth, it is possible that map libraries might fulfil this role. It would not be practical to collect all photography, which is indeed voluminous and much of which is properly filed by government agencies. Nonetheless, deliberate, continuing attention paid to the records and accessibility of the material would achieve a significant scholarly and practical service.

Information from Other Photographic Sources

Conventional photography is useful in support of studies of river changes. Figure 6 illustrates the North Platte River in western Nebraska, U.S.A., at three dates. The reduction in size of the river during 60 years is easily seen. Topographic maps confirm that the channel zone width declined from between 750 and 1200 metres to only 60 metres. The photographs reveal additional details of sedimentation and riparian vegetation of interest to the geomorphologist. The change was produced chiefly by regulation of the

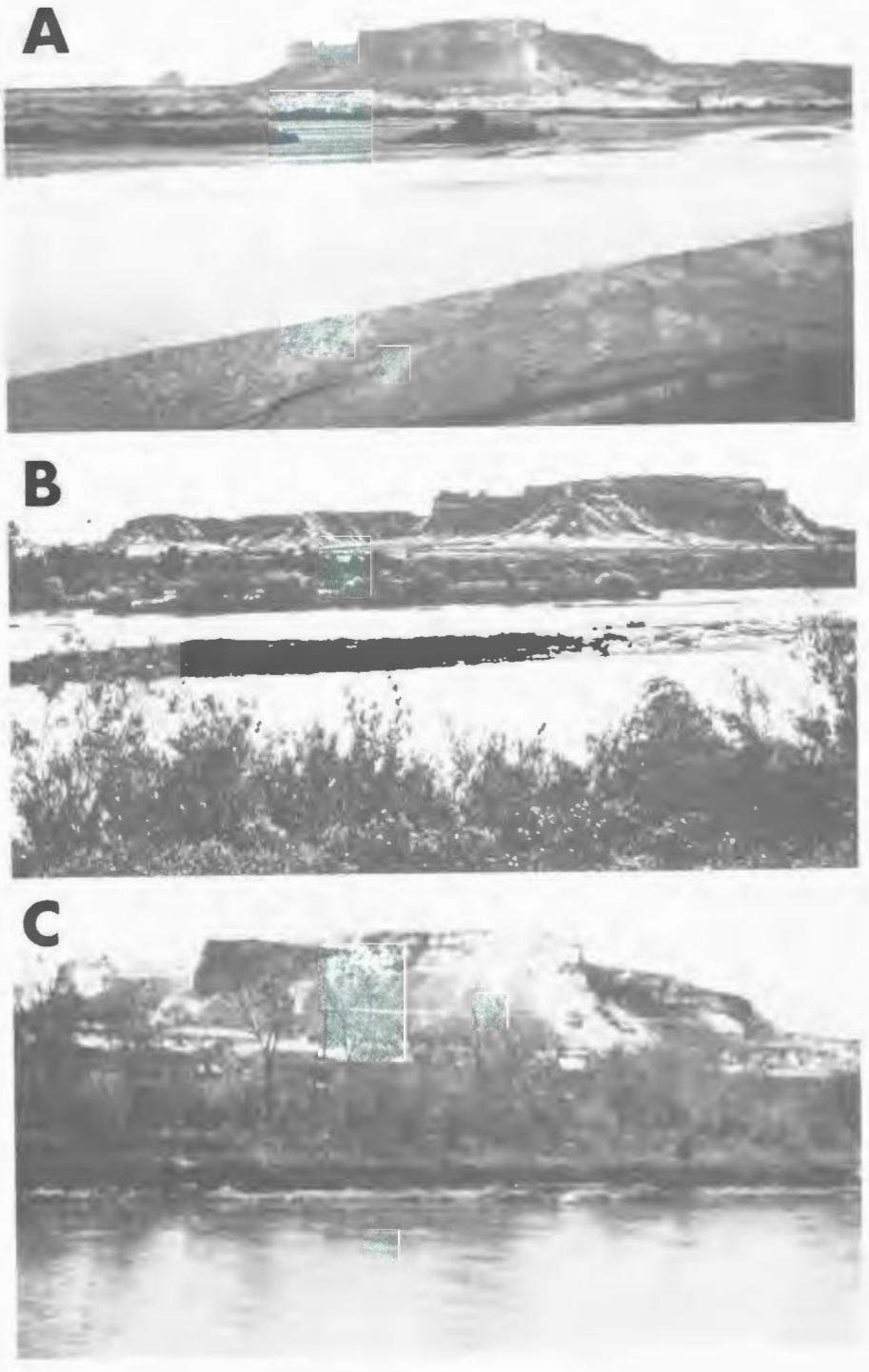

Figure 6 : Three views of North Platte River at Scotts Bluff, Nebraska (a) 1897 (from Darton, 1903: pl. 3, opp. p. 12); (b) ca. 1938 (from Atwood, 1940: p. 273); (c) 1960 (photo by S.A Schumm). All views from left bank.

river and water diversion for irrigation, so that mean annual flood declined from 370 m^3s^{-1} to m^3s^{-1} and mean flow from 65 m^3s^{-1} to only 16 m^3s^{-1} (Schumm, 1977).

Photographs have been taken deliberately to preserve technical records of the landscape since late in the nineteenth century when cameras were adopted by the geological surveys of Canada and the United States. The Canadian Topographical Survey first began to use cameras in 1886 and substantial archives exist from the western boundary surveys. Notable private collections also exist. The cataloguing and preservation of such records would be a formidable task; whenever feasible, it is best left to the originators of the records.

We should, however, recognize that conventional photography may provide a valuable supplement to maps as a record of the surface of the earth (and of what man builds upon it). Much useful material is not held in organized collections. I wonder whether it may be appropriate for map libraries to acquire and preserve outstanding material depicting the local region, as occasion permits. As with maps themselves, the complementary responsibilities of libraries and archives would have to be delineated.

Space Imagery

Space photography has been with us for sufficiently long to make clear that the images possess many of the attributes of maps. Their use in interpreting river behaviour has been limited heretofore since problems of resolution remain severe. Nonetheless, some important prospects are clear. As with many other large scale topographic features, morphological patterns of some of the largest rivers on earth are most clearly revealed from space. Relatively inaccessible rivers in sparsely settled and poorly mapped regions may be examined (cf. V.R. Baker's (1979) analysis of rivers in Amazonia). Relict patterns of former major drainage systems may be revealed--spaceborne radar has discovered extensive Tertiary drainage systems in the eastern Sahara desert (McCauley et al., 1982).

The synoptic nature of Landsat and meteorological satellite imagery yields promise that short term events--particularly passage of seasonal or storm-related masses of sediment laden water, and sediment plume dispersal into receiving waters--may be followed on major rivers where ground observations would become exceedingly expensive.

Synoptic satellite imagery raises major cataloguing and access problems. Whilst the primary material is well handled by the special agencies created to deal with it, casual access for appraisal by intending users remains difficult and expensive. There is, in a sense, a precedent for the situation in the archiving of daily weather maps. Because of the map-like nature of space imagery, this appears to represent a challenge that should be considered by map libraries, working in concert with the special agencies.

Conclusions

This paper has presented some illustrations of the use of maps and photographic images to study river channel evolution. Together, they help to overcome the major problem of time scales necessary to observe significant changes. Because they preserve the longest record, maps represent the most significant source of information at present.

Photographs present many more details than do maps; aerial photography in Canada has a sufficiently long history to reveal important aspects of river behaviour in the intermediate term. Space imagery represents a new source of coverage that may be utilized at synoptic time scale to examine certain phenomena.

I have grouped all of these classes of material as "map-like images": they all reveal information about the earth's surface, often in usefully complementary detail. To the geomorphologist--indeed, to any invesigator of the earth's surface--there are substantial advantages to be gained in a common archive of information about these sources. That is not to say that the primary material need all be collected together--much of it is best held in special repositories. Yet a common place of reference, access, and comparison for the user of the material would substantially aid research. The most likely such facility, in large measure because of the long accumulated experience in cataloguing information on a geographical basis, is the map library. Many map libraries have taken up part or all of the range of materials examined here; others have not. I hope that the illustrations presented in this paper indicate that the challenge is a worthwhile one to consider. Then the two major themes of contemporary geomorphology would be served equally well in the map library.

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MAKING MAPS FOR THE VISUALLY HANDICAPPED

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Maps are designed to transmit spatial information to a user. That information may be simple (as in a monochromatic line map) or complex (as in a multi-coloured thematic map).

For the sighted, maps are designed to be read visually. For the visually impaired or totally blind user, we need to provide spatial information in a non-visual form. Several forms are possible.

One can provide an oral description of a map (or of the mapped environment), helping the blind user to develop a mental map of needed information. This can be done in person or can be recorded for repeated use.

Another method involves a tactile map, a map which can be read by touch. Our research and production efforts have been directed toward development of inexpensive, high-quality tactile maps.

Our technology involves printing--with added texturing material--unlike other systems which emboss, thermoform, or vacuum-form a paper or plastic sheet. The added texture does for the blind user what colour does for the sighted. It can: 1) increase the total recoverable information on the map, 2) make a more interesting map, or 3) emphasize important information.

We presently use three texturing materials in three colours (as an aid to the partially sighted).

1) Thermoengraving powder (black). This provides a smooth, waxy, raised line.

2) Flocking (red) provides a soft, almost felty sensation.

3) Glass beads (blue) come in different sizes, which create different sensations (see Figure 1).

A fourth material, fine sand, has been tried but is too rough. Blind users consider it both unpleasant and desensitizing.

The texturing material is added to a map printed using one or more of four techniques:

1) silkscreen printing

2) offset printing

3) stencil duplicating

4) freehand printing

The key to the use of any method lies in the bonding vehicle used to affix

the tactile material to the map. For silkscreen printing, suitable bonding vehicles include: glass bead ink, 59 series enamel ink, and epoxy ink. Of course, to use multiple textures multiple screens (one for each texture) are used--thermoengraving first, followed by glass beads, and then flocking.

The printing procedure is as follows.

1a) Print with black ink and dust the still-damp map with thermopowder, shaking any excess powder off.

1b) Pass the map through a heat tunnel (thermoengraver). The heat melts the resin powder, fusing and expanding it to produce a raised line.

2a) Print with blue ink and dust on glass beads as in step 1a.

2b) Allow the map to dry for eight hours, then brush or vacuum excess beads from the map.

3a) Print with red ink. The (red) flocking fibres must be aligned vertically for crisp imagery, so we either use electrostatic deposition or spank/vibrate the map to make the fibres stand up (Figure 2).

3b) Allow the map to dry for eight hours, then vacuum excess fibre from the map face.

Offset printing and stencil printing use the thermoengraving powder both as a texture and as a bonding vehicle for glass beads. At present, we can only add two textures with the offset press. Production is straightforward.

1a) Print that information which will be thermoengraved and dust the freshly printed map with thermo powder.

1b) Pass the map through a heat tunnel.

2a) Print the information for which you wish to use the bead texture and dust with a mixture of beads and thermo powder.

2b) Pass the map through a heat tunnel, as before.

Freehand printing procedures are the same as for offset press, except that only a few lines can be drawn (quickly) before the map must be dusted with texturing material and heated. It is critical that the ink be still tacky when texturing materials are added, even if it means completing the map by very small stages.

The comments on "heat tunnels" and "thermoengravers" should be taken as suggestive rather than complete. If we dilute inks with water, we can fuse and raise thermoengraving with a common household microwave oven. Another very effective heat source is the hand-held heat gun, which is an extra hot relative of the blow dryer used in hair styling.

As mentioned earlier, these maps are both tactile and colourful, for use by blind and partially sighted people. In general, we have used conventional

sighted symbols of a size which enables them to be read by touch, rather than redesigning the whole map.

Sometimes we have been forced to invent symbols, due to the differences between vision and touch. For example, A.L. Farley's Atlas of British Columbia denotes migration volume by arrow width, a feature that is not very useful for the blind. Our Tactile Edition uses multiple raised lines to make up each arrow shaft (Figure 3). The sense of touch is sensitive to edges, making it easy for the blind reader to read migration (one line represents up to 20,000 people).

Similarly, we use grid marks at the edge of the map both as a locational aid and to provide scale. On the U.B.C. Research Forest map, for example, the grid divisions are separated by one city block, on the Atlas of British Columbia by approximately 100 km.

We feel that our maps provide a real benefit to the visually impaired reader. Figure 4 is an example of such a map from Tactile Edition, Atlas of British Columbia by R.B. Squirrell, R.B. Horsfall, and P.E. Thiele (Vancouver: U.B.C., in press). We have only scratched the surface, however; the technology is constantly improving.

* * *

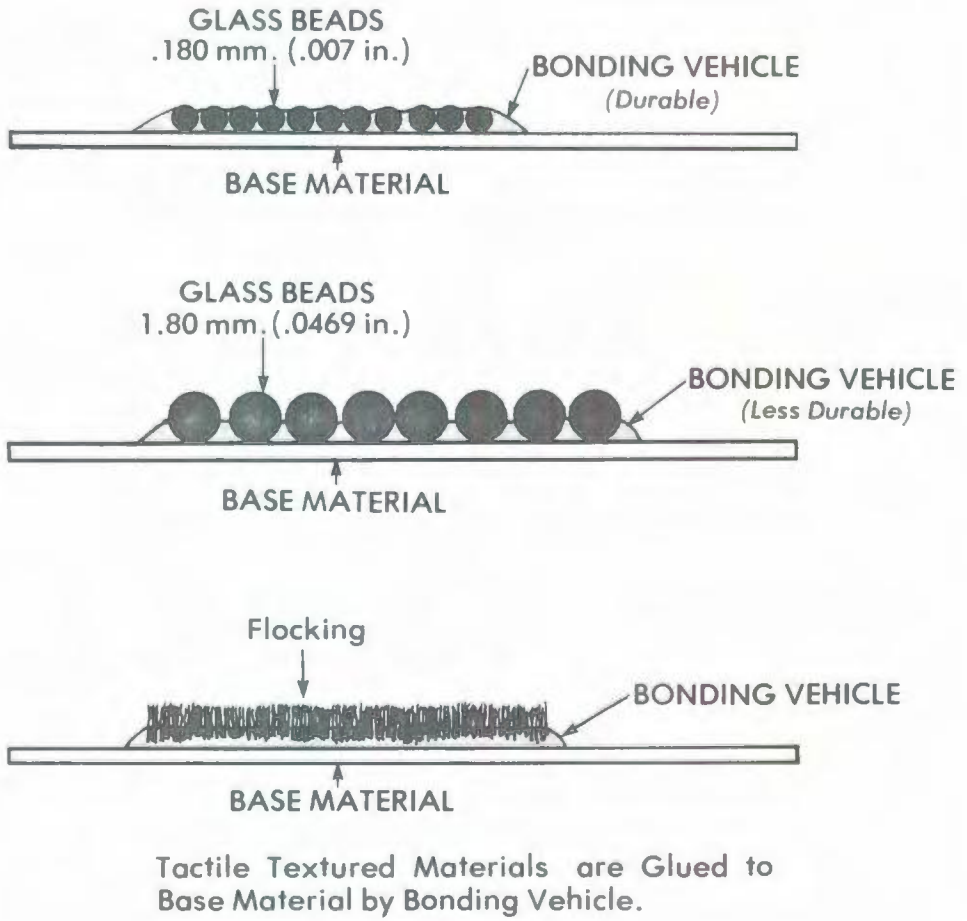

Figure 1 : Glass beads and flocking are used as texturing materials.

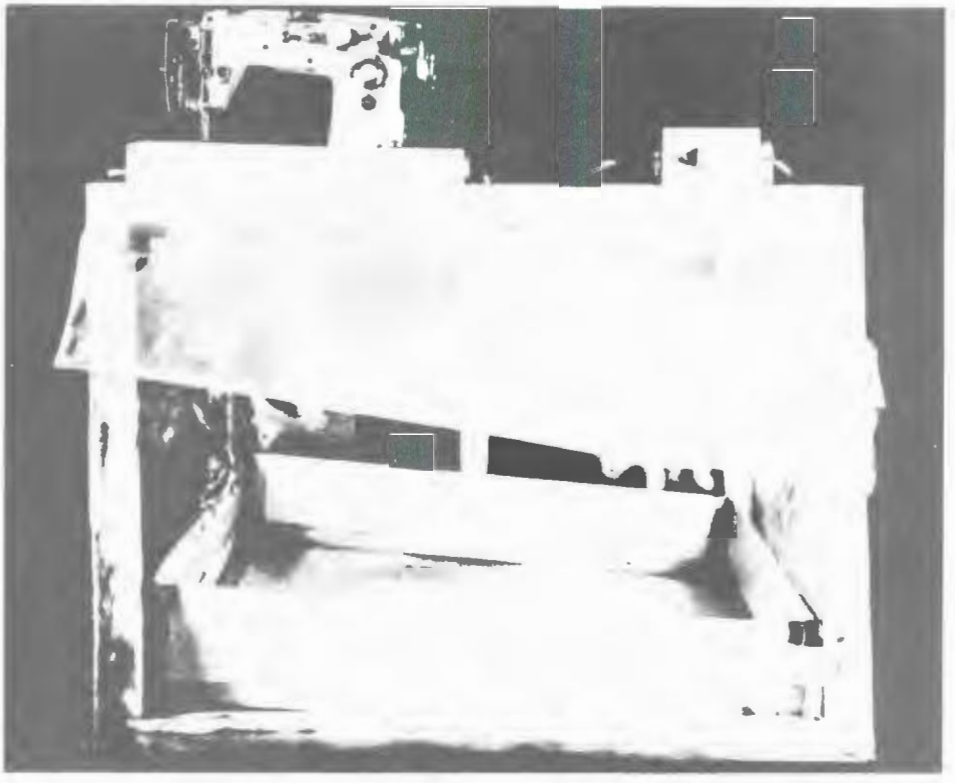

Figure 2 : Vibrating table (sewing machine version) used for flocking.

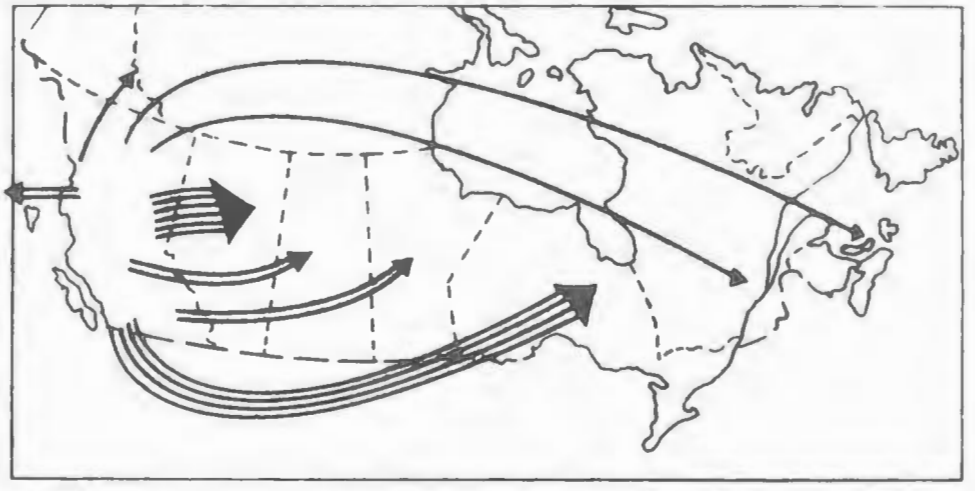

Figure 3 : Outmigration from British Columbia. Each line in the shaft of the arrows represents 39,000 people or a fraction thereof.

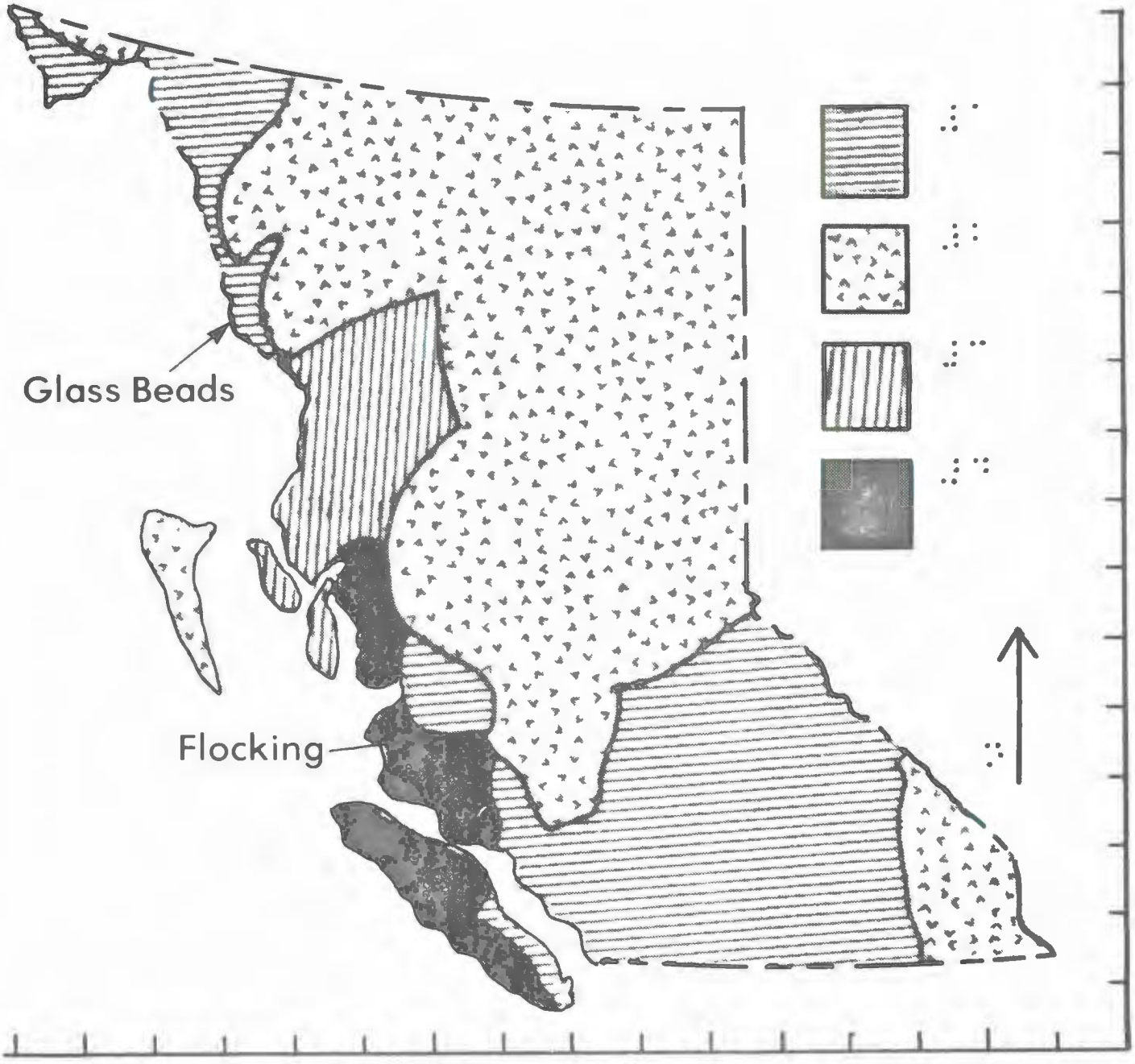

Figure 4 : Native Indians--distribution of ethic groups, 1950. From Tactile Edition, Atlas of British Columbia.

REDISTRIBUTION AND THE ELECTORAL MAP FOLIO

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The word redistribution as used here applies to the periodic rearrangement of the electoral districts of a county or state or province for the purpose of electing political representatives to a legislature. This paper discusses only very briefly the need for the periodic resetting of electoral boundaries for political purposes but describes in some detail the way the process is conducted, in order to demonstrate how its idiosyncrasies impinge on map production activities.

It goes almost without saying that in view of the size of the population in British Columbia it is necessary to have it represented by several political representatives--hence the need for electoral districts, which are in effect political subdivisions of a territory for which there is a single legislature. As the population grows and as the nature of economic activity alters, it becomes necessary to enlarge the number of electoral districts on the one hand and to change their boundaries on the other, so as to ensure proper representation of the population in the legislature.

In the early history of the Province of British Columbia, the Colony of Vancouver Island had the distinction of creating the first electoral districts. They were decided upon by Governor James Douglas and his council in accordance with the ninth clause of his royal instructions. At a council meeting on June 6th, 1856, it was resolved that the settlements on Vancouver Island should be divided into four electoral districts, viz., Victoria, Esquimalt, Sooke, and Nanaimo.

The descriptions were very simple, making use of well known landmarks as in the description for Victoria District: "The country east of Victoria Arm; and of a line from thence running in a northerly direction towards Saanich so as to include Peer's farm."[1]

On June 16th of the same year, Governor Douglas issued a proclamation for an election which returned seven members, some districts electing more than one member. Qualifications for voters were so exclusive that "every member was returned by one or two voters."[2] It is doubtful that specific electoral maps were prepared for the election, but use was probably made of some existing map or maps of this period.

Three years later, as the population had increased and new territory was being settled, an "Act to Increase the Number of Representatives" was legislated, increasing the size of the first electoral districts and creating several new ones.[3] This act, referred to in all legal documents as the "Representation Act, 1859," was the first redistribution.

The Colony of British Columbia, on the mainland, did not achieve representative government until 1870, just prior to entry into Confederation, representatives being appointed by the crown rather than by popular vote. This may explain the lack of reference to electoral-district descriptions or maps for the period 1858 to 1870. In 1870, Governor Anthony Musgrave established electoral districts throughout the colony and issued writs for the first general election. Neither boundary descriptions

nor a map for these districts have as yet appeared.

The Constitution Act, 1871 (following upon the uniting of the two colonies), included a "Schedule A" describing twelve electoral districts for the Province of British Columbia. The descriptions were made up of a collection of municipal boundaries,[4] "Official maps," and the "Mineral Ordinance, 1869," descriptions for mineral lands on deposit in the land office, Victoria.

Twenty-five members were returned to the legislature from the twelve districts. Although much deligent searching has taken place for electoral maps of this period, nothing has as yet been found prior to 1886, not even the Mineral Ordinance Map of 1869--which accounted for five of the twelve electoral-district descriptions.[5]

Reference to these early elections and distributions or redistributions illustrates the importance of electoral maps and legal descriptions, for without them it is difficult if not impossible to know what territory was represented.

From 1871 to 1978 inclusive there have been eleven redistributions and five amendments to boundaries of the electoral districts. The amendment of 1878--as a typical example--added the District of Cassiar, altered the boundaries of Westminster Electoral District, and provided for the redistribution of seats in the districts of Nanaimo, Cowichan, and Kootenay. Excepting for such amendments, the boundaries set by a redistribution remain constant for each general election or by-election occurring between redistributions.[6]

Coming to more modern times, when the Social Credit government was elected in 1952, the electoral boundaries had not changed for fourteen years. Shortly after his election, Premier W.A.C. Bennett appointed a special legislative committee composed of government and opposition members to study the need for redistribution. After lengthy deliberations, one election, and changes to the committee membership, their recommendations were presented to the House. After three days of debate, they were passed without change, amending the Constitution Act in March 1955.[7]

The United States Supreme Court had in 1964 given its opinion that representation by population must receive first importance in the distribution of seats in state legislatures. The same year the Canadian government passed legislation providing for the establishment of ten independent electoral boundary commissions in each of the provinces, to consider and report upon the readjustment of the representation of the provinces in the House of Commons. They were to commence their hearings as soon as possible after each decennial census. The act also placed certain limitations on government intervention in the redistribution process.

These events prompted Premier Bennett to consider redistribution once again. At first he suggested the possibility of aligning provincial electoral boundaries with their new federal counterparts, an idea which would have greatly assisted in the preparation of maps and descriptions for provincial districts. After some consideration he decided to abandon this idea in favour of the appointment in August of 1964 of an independent three-man commission, chaired by Mr. Henry Angus.

His subsequent report was presented to the legislature in January of 1966

and amended extensively before it was presented as the bill to effect redistribution two weeks later, February 15, 1966. Although the bill was passed in February, difficulties were encountered in the preparation of maps in time for the fall general election; the volume and complexity of the work involved in preparing the maps had not been considered adequately.

Because of this situation, detailed maps showing polling division boundaries for the lower mainland area of the province were not produced until after the election, rather than before, and continued to be produced and updated until the appointment of the Norris Commission on Redistribution by the New Democratic Party in August of 1975.

This was again a three-man commission, chaired by Judge T.G. Norris. The report of this commission, although completed in the required time, was not tabled in the legislature because of the November 1975 election called by Premier Dave Barrett. The report was made public after the election and became a valuable source of information and a reference for electoral and political researchers and an acknowledged aid to the next boundary commissioner.

Some aspects of the difficulty of preparing maps presented themselves during the deliberations of the Norris Commission in 1975. This prompted a series of meetings arranged between mapping and electoral officials in Ottawa and Victoria. As soon as the maps and statistics which were prepared from the 1976 mini-census were available, a plan was formulated to extract voter population estimates that would be useful to the next commission. Although it was not known when and in what form the commission would require these statistics, the basic figures were made ready to be regrouped according to their requirements.

In January 1978 the Social Credit Government, which had been re-elected in December 1975, appointed a single commissioner, Judge L.S. Eckardt, to inquire into the need for amendment to the Elections Act and the Constitution Act. On June 21, 1978, Judge Eckardt's "Interim Report on the Redefinition of Electoral Districts" was tabled in the legislature. After three days of debate, the bill was passed into legislation without amendment by government.

Things were now quite different from the early days in 1856, when a handful of voters returned seven members from four districts. The new redistribution had created fifty districts, represented by fifty-seven members and, of the 2,466,608 provincial population, roughly two-thirds, or 1,673,111, were registered voters.

Obviously the sheer size and complexity into which the electoral system had grown necessitated the production of a very large volume of maps and related material. To complicate matters even further, in British Columbia, as can be seen from the brief history outlined earlier, there is no legal requirement of any sort for the regular adjustment of electoral boundaries. Redistribution occurs on an ad hoc basis, anytime, and at the discretion of government. In addition, there is no legislation in place to provide for a support staff of a continuing nature to carry out this work, nor is there a specified period of time in which to accomplish it. Redistribution in all of its phases requires an ongoing gathering of statistics and current mapping materials between the appointments of commissions.

Dealing in greater detail with the map-related work of the Eckardt Commission, the pre-preparation work described earlier was the basis on which the commission based its voter population estimates for boundary changes. To accompany these statistics, the commission requested large presentation maps with clear overlays, showing boundaries of each of the 1966 districts and those proposed by the Norris Commission, grouped according to region. These were displayed during the hearings where participants after presenting their briefs were invited to observe, comment, and be questioned by the commissioner. This action created an atmosphere conducive to good discussion. During the same period 1976-78, current large scale base maps of the urban areas, the lower mainland in particular, were gathered from appropriate mapping agencies to have in readiness for the new constituencies.

From the deliberations of the commission, maps and legal descriptions were prepared for inclusion in its report. Immediately following the report's release, the final bound copies were typeset and printed by the Queen's Printer for public distribution.

The production of the final electoral district maps including polling division boundaries began in September 1978. After establishing a base of operation, an initial meeting with the eight senior government agents was followed by a request to all Registrars of Voters for maps and rough descriptions of the polling divisions to be included within their new electoral boundaries. These were to be prepared in duplicate. As they were received they were delivered to the Legal Surveys Branch for preparation of accurately researched and written descriptions. At the same time, information from the duplicate set was plotted and applied to the base maps by a team of draughtsmen from the Mapping Services Division in the Surveys and Mapping Branch, Ministry of Environment. Any minor changes or discrepancies could then be changed at the receipt of the finished written description.

These same descriptons were typed and delivered to the Queen's Printer for typesetting. After the galleys were proofed, they were printed in the B.C. Gazette. This step completes the official public notice of the district and polls just as the first four were noted in the earliest journals.

The net result of this part of the project was a set of 111 ozalid prints with scales ranging from 1:9,600 for greater Vancouver and surrounds to 1:600,000 for the northern part of the province. The large scale maps were obtained from municipal and regional mapping offices, while the smaller scale maps were provided by the provincial Surveys and Mapping Branch. All fifty electoral boundaries are shown on the IJ-1:2,000,000 base in use for all administrative provincial boundaries. Similarly, the IS base is used for the small report map. A rather old 1:25,000 military map base was used for the Vancouver and Victoria Districts as this was the only suitable one providing empty street casings at that scale. This double-sided map completed the 115 electoral maps produced for the 1978 Redistribution. The project involving four ministries and approximately thirty persons was completed in five months.

The 31st Legislative Assembly was dissolved on April 3, 1979, and writs were issued on that date calling for a general election.

To summarize, the services required by the 1978 Redistribution from the mapping office fall into three general categories:

1) to supply maps, statistics, and related data for commission hearings

2) to coordinate technical production of commission report including maps

3) to coordinate production of electoral maps and descriptions ensuing from amendment to constitution, and production of related data.

Post-election activities included:

1) the Statement of Votes, produced after each election, required all constituency maps to be reduced to approximately 6" x 9". This involved re-setting much of the type to a size readable at such a tiny scale

2) photographing and cataloguing for the Map Reference booklet.

Footnotes

[1]Descriptions of electoral districts from minutes of council meetings, Legislative Journals, June 6, 1856.

[2]Minutes of evidence taken before the Select Committee on the Hudson's Bay Company, May 21, 1857; Mr. J. Cooper, witness.

[3]Representation Act, 1859; first paragraph outlines the reasons for redistribution.

[4]New Westminster City and Suburbs as defined on "Official Map" became New Westminster City Electoral District separate from, but within the boundaries of, New Westminster Electoral District. Similarly, Victoria City Electoral District was separated from Victoria Electoral District.

[5]The 1871 Electoral Boundaries for the Province of British Columbia have been plotted by the author on an appropriate base prepared the same year.

[6]Redistributions and amendments from 1871 to 1978, as well as a list of general elections and electoral maps, are published in a small catalogue available in libraries or may be purchased from the Queen's Printer, Parliament Buildings, Victoria, B.C. Copies of electoral maps may be ordered from the office of the Chief Electoral Officer at the same address.

[7]Ministries involved in the redistribution process were: Ministry of Provincial Secretary; Ministry of Environment; Ministry of Lands, Parks, and Housing; Ministry of Finance.

* * *

GENERAL JAMES MURRAY'S MAP OF THE ST. LAWRENCE RIVER VALLEY IN 1761: A CARTOGRAPHIC COMMENTARY

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In 1759 the fortified city of Quebec fell to the British, signalling the end of French expansion and colonization in North America. Although remnants of the once vast dominion remained loyal to the French crown for some time afterward, by 1763 the Treaty of Paris had ceded all of New France north of the Great Lakes to England, and Quebec became effectively a part of the British dominions in North America.

The British rule of Quebec in the period 1759-63 was characterized by uncertainty. The conflict itself did not cease until the middle of 1760, with the surrender of Montreal. Until 1763 and the signing of the Treaty of Paris, the future of Quebec as a British possession remained in doubt. A military government ruled Quebec while British and French negotiators debated the relative merits of Guadeloupe versus Canada.

Given the standard British policy of mapping as best as possible a newly acquired possession, the survey undertaken by General James Murray in 1761 would have been an important task of the time. Relatively little was known about the new possession and a detailed mapping venture would most certainly have been useful from a military standpoint. The possibility of Canada being ceded back to France likely motivated the British to collect as much information as possible so that in the event of a future campaign to retake Quebec, the task would be assisted by a thorough geographical understanding of the St. Lawrence River Valley. In a letter to Prime Minister William Pitt, General Murray noted that "the whole (survey) will be finished by August...Happen what will, we never again can be at a loss how to attack and conquer this country in one campaign."

The Murray Map was only one of a number of maps produced by the British military establishment during the course of the eighteenth century. As such, comparisons can be drawn here. In the first place, they had a common purpose--that of improving territorial security in order that British administration could be carried out. Second, although there was no British military map specification drawn up until well into the nineteenth century, the military maps produced at the time show a fairly close similarity in symbolism and drafting style. Many of these maps were put into print as a result of their popularity with the population at large as well as with the military. This was not the case with the Murray Map.

It was designed primarily for purposes of topographic reconnaissance and, being of unusually large size, would not have been suitable for printing as the market for such a product simply did not exist. Printed military maps of the period were principally large scale charts of fortifications, which could be easily transported or held for viewing in the field. Moreover, the Murray Map would not have been utilized in this fashion since it was made for a restricted official clientele. The nature of the information portrayed and the context of the period in which the map was made, with the final military situation unclear, would have discouraged the British from disseminating information of such value to the security of the colony.

The Murray Map can be seen as an integral part of the evolution of military mapping in the mid-eighteenth century. Guidelines were present for the design and compilation of the Murray Map and were necessary for the completion of a project which was so massive in scope and involved so many individuals. Ostensibly, each had the potential to introduce a differing style to the mapping had it not been controlled by prescribed guidelines. An eclectic set of maps would have resulted had not common rules for design and drafting been agreed upon by all of the workers at the Quebec drawing room.

The Murray Map was not the first attempt at cartographic portrayal of the St. Lawrence River Valley. French cartographers had been active in the region from the sixteenth century onward. The mapping of the valley commenced with the arrival of the earliest explorers, ultimately laying to rest the misconception that the St. Lawrence River was a strait leading to the Western Sea and thence to the Orient.

The French regime in Canada produced some outstanding cartographical products. The French Empire in North America afforded great opportunity to the explorers and voyageurs who strove to discover and portray cartographically the lands claimed by France, if only to lend substance to their claims of ownership. French advancement in the science of cartography was most pronounced in the late 17th and 18th centuries, particularly in the ability to determine longitude more precisely. As early as 1686, the Quebec Jesuit College had a resident teacher of hydrography, Jean Baptiste Louis Franquelin, whose maps of the St. Lawrence River are a testimony to the skill which he possessed.

While the use of French maps by the Murray Map surveyors and compilers is largely a matter of conjecture, the prior cartographic products of the British Army had an obvious impact.

The cartographic base upon which the Murray Map was constructed can be credited to several individuals including John Montresor, Samual Holland, and James Cook. Both Montresor and Holland would later play instrumental roles in the evolving cartographic portrayal of North America. James Cook would achieve a permanent place in history by charting much of the Pacific Ocean.

Their work may be neatly divided into two parts. The first would include work completed in 1759 or earlier, primarily in the Quebec area. These were battle plans and charts of military manoeuvres which would have served to illustrate the field reports reaching government officials in England. The second category consisted of the mapping of New France which followed the fall of the fortress at Quebec in 1759.

The mapping completed during this period was made possible due to the cessation of hostilities and was needed to guide the British forces through unfamiliar territory which straddled both sides of the St. Lawrence River between Montreal and Quebec. In consequence, the main body of material consists of route maps of the St. Lawrence River showing detail along the banks. These maps are generally not accurate in the location of features on the shore but rather serve to depict the course of a river otherwise little known to the British and give some indication of the land use along both banks.

Both Montresor and Holland undertook extensive mapping projects, completed

in 1760, which covered much of the St. Lawrence River Valley. The resultant maps undoubtedly gave both men a base of experience from which to work on the Murray Map. They were, as a result, given responsibility for large sections of territory bordering the St. Lawrence River.

Samuel Holland was occupied with the preparation of military plans of the area surrounding the seat of government at Quebec shortly after its capitulation to the British in September 1759. There is little question that his appointment as Chief Engineer in the Quebec region stemmed from the experience he had accumulated in previous mapping ventures.

One may note that there was ample opportunity for members of the Murray Map production team to draw from their prior experience in the mapping of the Quebec region and the surrounding countryside. The surveyors were assigned areas of responsibility geographically similar to the areas in which they had previously acquired experience. This leads to the conclusion that the Murray Map was produced, if not directly with the aid of these earlier crucial maps, then with their details at least fresh in the minds of the surveyors.

The surveying operations were undertaken in two sections, with the area from Montreal to Sorel completed in 1760, while the remainder of the surveying was completed by the fall of 1761. The field surveys were also accompanied by an examination of the population and economic characteristics of each parish, designed to give the British some idea of the nature of the seigneuries as well as the number of men able to bear arms. This information would have aided in the maintenance of control during times of unrest.

The field work was divided among several officers, including those mentioned earlier. Soldiers garrisoned at Quebec must have been inducted into the survey effort in order to carry the chain and perform the more menial, though essential, chores.

The Murray Map, as it was eventually completed, encompassed an area bordering both sides of the St. Lawrence River from Les Cedres, upstream from Montreal, to Ile aux Coudres, in the vicinity of Baie St. Paul, on the north shore of the river. It included as well portions of a number of tributary rivers of the St. Lawrence, among them the Richelieu, Yamaska, St. Francois, St. Maurice, and Chaudiere-Kennebec River systems.

The Murray Map was prepared in seven copies for distribution in manuscript form to a selected group of recipients. Included among the seven recipients were such notables as King George III and Prime Minister Pitt, as well as Generals Amherst, Gage, and Murray, who would have had a practical need for the finished maps.

The drawing of the maps commenced in the fall of 1761, with Pitt being the first to receive a copy. The project continued until the fall of 1763, when the last copies of the map were delivered to Generals Amherst and Murray.

The maps exist in two predominant forms. The first form is composed of four large sheets which together make up the complete map of the valley. The second form uses a more compact folio presentation, with smaller sheets of a regular size.

The most interesting facet of the Murray Map is the "snapshot" of the St. Lawrence River Valley of 1761 which it provides researchers today. The maps yield a great deal of information for historians of early settlement in this region of Canada.

The Murray Map stands as Canada's first topographic-like map of importance. The detail and accuracy with which information was portrayed have not been found on any previous maps of the region, and this, combined with the areal extent of its coverage, makes it a landmark in the history of cartography in Canada.

In order to portray the landscape of the St. Lawrence River Valley, the map makers sought to include as much detail as possible pertaining to physical features and settlement characteristics. The representation of terrain features in the valley was given a high priority in the map information. These features include mountains, rolling land, and riverine banks, all portrayed by a scheme of grey watercolour brushstrokes, with intensity increasing proportional to steepness.

The accuracy of terrain rendition may be called into question, for examination of several copies reveals immediately that the consistency of depiction of various terrain features is not maintained. That is, there would seem to have been a fair amount of artistic licence employed. There are several possible reasons for this inconsistency, the first being that the British did not choose to survey the mountainous regions immediately bordering the St. Lawrence River Valley which were, in any event, uninhabited. Second, the surveyors may have noted only generalities in these upland areas bordering the north side of the valley, insofar as they chose to show principal mountain peaks and the general lay of the land. In contrast with this, significant features such as the mountain at Cap Tourmente are shown to a greater degree of accuracy. No doubt, these were features of immediate importance and had strategic implications for the British occupation forces.

In general, it may be said that the representation of landforms on the Murray Map lacks consistency. As such, it was meant only to give the British military commanders some general conception of the land under their occupation.

The hydrographic features of the St. Lawrence River Valley were not comprehensively studied during the survey. The river channel was, according to Murray: "the finest in the universe...and now well known." Hydrographic features were portrayed simply, as such information could have been procured from any one of a number of available hydrographic charts.

The boundary of forest and farmland was the object of particular attention to detail as it delimited the settled portion of the landscape. The forested lands which bounded the ecumene on both sides of the St. Lawrence River were so lightly populated and so impenetrable (except via canoe on the many rivers) that any attempt at mapping these areas would have been unproductive. More useful in these territories would have been route maps which would have assisted in the transit of the hinterland by canoe and portage.

The townsites, of which there were only three at the time of the British takeover, are portrayed in some detail. The P/300 (Murray) copy at the Public Archives of Canada, National Map Collection, depicts the townsites

with the greatest amount of detail, including representation of individual structures. The amount of information shown for the three townsites does not truly indicate the state of knowledge of these settlements; other contemporary plans of Quebec and Montreal, completed soon after the end of hostilities, depict them more fully.

Travellers in New France were largely dependent on the St. Lawrence River for summer navigation, while during the winter snow-packed roads permitted relatively easy movement. A main road on the north shore of the St. Lawrence, the "Chemin du Roi," connected Quebec with Montreal. Only in the Quebec City region did there exist a network of roads extending several kilometres inland.

A comparison with current topographic maps reveals that some roads (those in rural or suburban areas near Quebec City) which have not changed course significantly, were not altogether accurately portrayed on the Murray Map. It may be noted that the road junctions are quite comparable in location and orientation, but the routes connecting these junctions tend to be at variance. In many cases, roads are only roughly approximate in their alignment. Whether this is a result of careless surveying or simply inaccurate copying is unknown and will only be determined if and when the appropriate surveyor's field guides are found.

The Murray Map was an attempt at documenting the landscape of the St. Lawrence Valley as the British found it in 1760. The entire map bears the mark of standard cartographic practices of the time to produce artistic renderings. On such maps, renderings do not fully reflect the true nature of the landscape. More often, the purpose was to convey a general impression with a minimum of accurate survey information, and this would appear to have been the case in the compilation of the Murray Map.

The Murray Map also includes much valuable textual information, including parish descriptions, census records of the number of inhabitants per parish, and, as well, the total number of men able to bear arms. Each Murray Map copy viewed contains the same information. Any inconsistencies which do exist are the result of errors in transcription or the result of the loss of sections of the manuscript due to deterioration through time.

On the basis of the above analysis, the Murray Map can be said to have been a unique cartographic endeavour at a time when most military maps consisted primarily of battle and seige plans. Although some large scale mapping ventures were carried out by the British in other parts of the world during the same period (the Watson-Roy map of the Scottish Highlands in 1755, among others), they were not of the extent encompassed by the Murray Map. This was then a special purpose plan designed to assist the British in governing the newly conquered territory and to ensure some advantage in the event of another war.

The Murray Map could be looked upon, as well, as a "souvenir" of the war in that the dignitaries who received it were intimately involved in planning and completing the conquest or were in the highest echelons of government.

The Murray Map represented the first large scale British survey of any extent on the North American continent. Others were to follow in the period between the signing of the Treaty of Paris and the surrender of British military forces at the close of the American Revolutionary War. It paved the way for these future mapping ventures in that it allowed a large

number of individuals to gain the necessary field experience and consequently apply their talents in new areas. It also signified the first large scale rendering of the terrain of the St. Lawrence River Valley, making it an important milestone in the history of cartography in Canada.

Notes

There are several Murray Map originals known to exist today. They are listed as follows with their intended recipient:

1) British Library (CXIX 29)	William Pitt
2) British Library (CXIX 24-27)	King George III (?)
3) PAC/NMC (H11)	Board of Ordnance
4) Clements Library University of Michigan	General Gage (?)
5) PAC/NMC (P/300)	General Murray (?)

Further reading on the Murray Map:

Nathaniel Shipton. "General James Murray's Map of the St. Lawrence." Cartographer 4, no. 2 (December 1967): 93-103.

* * *

COLLECTING FOR 2084

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McLennan Library
Montreal, Quebec

All sorts of researchers consult historical map collections, rare book rooms, and archives. The one I remember best was a young historian working on tuberculosis in Canada, who spoke at a conference on reference materials. She had a number of valid criticisms regarding the indexing of Canadian materials, but she really hit home when she came to our collections practices. She said: "...no index can direct you to sources which simply are not there." She was referring to popular magazines which are not collected by many university libraries, and if they are collected by public libraries, many of the back-runs are not saved. When you stop to think about it, where can you find a full run of TV Guide? It is apt to be a goldmine of information for the social scientist of the future.

Recently I came across an informative article in The Archivist, Jan.-Feb. 1983. Mr. Barnett, an engineer, worked for various railroads in Canada and over the years collected materials that others were not bothering with--thousands of trade catalogues, advertising flyers, broadsides, clippings, materials which are very relevant today to historians of technology, engineering, and architecture. The collection has now come to the Public Archives of Canada and has been catalogued through the good offices of the Heritage Canada Foundation; now it can be used.

Today I would like to present a slide lecture about sources pertinent to social and urban history that are probably "falling through the boards." Put in more familiar terms, what should we be collecting for the next couple of generations of users?--hence the title, "Collecting for 2084."

I would suggest that we as map collectors, particularly those of us who work with maps in a historical context, should be collecting ephemeral topographical materials, those which will likely be disposed of by our society. Of obvious value are guide books. But what kind of guide? We have found in our own library that important series have been kept, e.g., Murray, Appleton, and Baedeker, although even the latter's quintessential guide to Russia is missing. Another important series is the Department of Interior's immigration guides about which Karen Young has prepared a bibliography (see A.C.M.L. Bulletin 45, Dec. 1982, pp. 12ff.).

Not all guides, however, are part of a large series. Many are of a more ephemeral nature. At McGill, within the Department of Rare Books and Special Collections, we make a point of collecting these.

At the present time, many guides are easily obtainable, an example being the C.A.A.'s tourbooks. They are so ubiquitous that I wonder how many collections are bothering to keep them? Publications from official sources such as the various governmental tourist bureaux may be marvelous period pieces. It is not so long ago that the Trans-Canada Highway was under construction. There must be many booklets, of fairly recent vintage, which describe it.

Railroads were prolific publishers of tourist guides, which were often in pamphlet form. Guides exist to fill every need; they were created for the sportsman and for the tourist in pursuit of scenic attractions such as Niagara Falls or the provincial parks. For the jaded Montrealer, the day tripper, there are guides to the suburban attractions reached by such and such a railroad. There are children's guides to the city, diners' guides, and brochures distributed by transportation companies. The modern equivalent of our old Gray Coach Line brochure would be pamphlets such as C.P. Air's mini-guide to Montreal. There are popular guides such as those published by Reader's Digest, which vividly recreate urban pastimes and pleasures of a particular era.

Our collection of topographical ephemera does not end with the various guides. We are collecting anything that might one day help us reconstruct what exists now in our environment, urban or rural. These items, usually of a pictorial nature, are organized geographically and are linked administratively with the map collection.

Over half of the items presented today do contain maps. In fact, some are maps themselves--the three-dimensional map of Montreal, a metro system hand-out, road maps of the province of Quebec. Within the map collection, we are particularly interested in city plans, but we cannot properly catalog the quantity of plans that we are amassing. Therefore, many of our more ephemeral ones are put into Topography.

You are all familiar with directories and probably have them close at hand to your map collections. We are collecting less "official" publications like the Montreal People's Yellow Pages and Information N.D.G.

Commercial histories are used hand-in-hand with our maps for reconstructing various neighborhoods in Montreal. Those of a more ephemeral nature are placed in Topography, rather than in our reference collections.

The contents of programs and calendars are valuable for cultural historians. Current Events, distributed in the rooms of many Montreal hotels, is such a calendar. The full run is rather difficult to come by, even in Montreal. Only one location is given for it in one of the older union lists of serials in Montreal.

Probably all of you have some real estate maps in your collections. We have a few which are evenly divided between the Map Collection and Topography. Those with associated brochures go to the latter collection.

Picture albums of Canadian cities have been saved by the library for some time. They provide invaluable information on the look of a place at a particular date. Our new and rapidly expanding postcard collection specializing in Quebec Province is in demand for exhibition purposes. The bulk of the cards are Edwardian, but we collect from all periods. Obviously contemporary cards are the cheapest to purchase. We do encourage donations and have had a very good response from the McGill community.

Other pictorial sources include glossy photographic essays such as de Visser's Canadian books, souvenir albums, histories of buildings and neighborhoods, propaganda distributed by architectural conservation organizations, handouts by neighborhood entrepreneurs describing local attractions, tourist brochures disseminated by hotels and travel and tourist bureaux. Photographs are not to be forgotten. We do not, however,

great effort in that direction because one of our allied institutions, the McCord Museum, has a first-rate collection.

We would appreciate hearing from others who are collecting similar materials. Perhaps we can share ideas and solve some of the problems associated with collecting printed ephemera.

* * *

ETHICS AND THE MAP CUSTODIAN

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The last session at the 1983 conference was a workshop dealing with situations in which ethical considerations ("rules of conduct arising out of moral principles") come into play.

The fifteen hypothetical situations given below were presented to participants several days before the workshop, and two or three individuals were asked to prepare comments on each case.

The object of this workshop was not to come up with "the right answer," but rather to learn a thoughtful approach to such situations, which usually arise without forewarning. The consequences of each course of action were examined during a very lively discussion and, as was often seen, there were more sides to each story than at first met the eye. The three hours allotted for the workshop turned out to be too little time, but discussion continued after the close of the session, and it is hoped that it did not end there. [Note: Readers are welcome to use these situations as the basis for a discussion among map custodians in their area. I would be interested in hearing about the experience.]

1. A small island off the southern end of the Canada-Alaska boundary is considered to be Canadian, but suddenly the U.S. Government has reason to believe that a case can be made for its claim to the island, which offers excellent harbour possibilities for oil-carrying tankers. Both governments dispatch researchers to map collections. The Canadian researchers locate three maps in your collection which support the Americans' case, and you are asked not to show these to the American researchers. Do you comply? (Does the possibility of the tankers breaking up and spilling their oil affect your decision? And the fact that the island is a nesting area for a rare species of bird whose extinction would be ensured by activity on the island? And what about the certain destruction of Tsimshian artifacts and the disturbance of sacred burial sites?)

2. A professor sets a project for students and subsequently discovers that the question is mostly answered by an atlas in your collection. He asks you to hide the atlas for the duration of the project and you agree. Ethical?

3. A professor in your geography department has been indispensable in helping build your collection during the past decades both by donating hundreds of maps and by helping secure financial and other resources. This professor expects special favours from you: she borrows maps without signing them out (in fact, has lost some of them), and transgresses your collection's rules in other ways. How do you handle this situation?

4. You are preoccupied with numerous tasks and also happen to be extremely tired. A researcher asks a difficult question. You have explained the use of the collection to this person in the past; you feel in fact that the researcher lacks initiative and may not really be a bona fide researcher (he did have his research pass withdrawn for a period of three months earlier that year). You make some unhelpful suggestions and are pleased when the researcher soon leaves. Besides, you think, the catalogue is there and the collection is open to him--tough luck!

5. One of your maps is damaged to the extent that portions of the map image are missing. A conservator claims to be able to restore the map in such a way that it will be unnoticeable what part has been filled in. Since you plan to exhibit this map and reproduce it in a catalogue, do you authorize this conservator to proceed with the treatment proposed?

6. Because The Northpart of America, an important publication on the history of Canadian cartography, costs $500.00, it is locked away in your library's rare book collection. You have xeroxed it for your users and for $40.00 have made the volume readily accessible to researchers. This has clearly advanced scholarship and won you the goodwill of important supporters of your operation.

7. You have microfilmed or photocopied parts of your collection of valuable original maps and have withdrawn the originals from circulation. Researchers requesting maps are given access only to these copies as a rule. Is this ethical?

8. You are working after hours on an article and in your research gain detailed knowledge about certain maps. A researcher asks for some information which you know is shown on these maps, but you have come upon this information after hours. The information is what sets your article apart from previous studies, but you will not be ready to publish for some time, whereas the researcher would publish it immediately were he made aware of it. Your own article would risk not being published in these circumstances. Do you give away the information you have about these maps?

9. A foreign government claims that maps in your collection were removed from its country some time ago without an export permit. Since these maps are important documents in that country's national heritage, a request is made of you to return these maps. How would you advise your administration to deal with this request?

10. An invaluable unique manuscript map is available for purchase, but your institution cannot afford it. You are certain that since you cannot buy it, another individual, who purchases strictly for investment purposes and allows no public access, will acquire it. Could you be considered unethical for not ordering the map on approval, photocopying

it, and returning it to the vendor?

11. A reputable Canadian association of map librarians produces facsimiles of early maps. In preparing for the reproduction, the negative is cleaned up by removing flaws that appeared on the original printing plate, library stamps and notations, and even page numbers in the upper corners indicating where the map originally appeared in a book or atlas. The print run is limited to 500 copies, giving purchasers the impression that these items will increase in value. The facsimiles are numbered 1 to 500, though not necessarily in the sequence in which they are printed from the plate (although some purchasers might assume so). Could the association be considered guilty of supporting an unethical practice?

12. One of your colleagues likes to decorate his working area with duplicates of the various documents that come his way. He is even building a nice private collection with this material. What action should you take?

13. You are responsible for purchasing maps for your collection. One that is available is already in your collection. Would you consider adding it to your personal collection of works of art?

14. A teacher located a great distance from your institution requests a detailed list of maps relating to her area, but your institution cannot afford the time to handle such an inquiry. The teacher knows that you are the best person to do the job (you could do it in less than half the time any researcher they might hire would need), and since she has money to spend offers you a fee (payable to your brother-in-law, of course) to prepare the list after hours. Do you accept? (You need the money to attend the A.C.M.L. annual conference.)

15. A map librarian is married to a professor in her university's geography department. Is this ethical?

* * *

GEODESY FOR MAP LIBRARIANS

Colonel Lou Sebert
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Surveys and Mapping Branch
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Today almost every map library has, as part of its basic equipment, a pocket calculator. If it is one of the so-called scientific calculators (i.e., with sine, cosine, and tangent buttons) it can be used to work out answers to problems in map measurement that are often asked by users of a map library. A question such as: "How far is it in a straight line from Mirabel to the airport at Whitehorse?" can be answered by simple arithmetic made even simpler by the little calculator.

The difficulty in getting some map librarians to work out earth-measurement problems is that they freeze when they hear the term spherical trigonometry. This short course of several articles is designed to teach geodesy "without tears."

First of all, in working out distance problems where accuracy is required only to the nearest half kilometre, the earth can be considered a perfect sphere. Secondly, it is best to work out such problems in nautical miles and then convert to statute miles or kilometres at the end of the problem. The reason for this will become obvious shortly. One should recall that one nautical mile is, by definition, one minute of arc measured along a great circle of the earth, and the shortest distance between two points on the earth's surface is always a great circle.

Warm-up Problems

Q 1. What is the distance between the equator and the north pole in nautical miles?

A 1. As this distance is 90° of latitude, or 5400 minutes of latitude, the distance is 5400 nautical miles.

Q 2. What is the circumference of the earth?

A 2. It must be four times the answer to Q 1. Therefore it is 21,600 nautical miles. To convert this to kilometres, multiply by 1.853 giving 40,029 km. For statute miles, multiply by 1.1515 giving 24,872 miles.

Q 3. What is the scale of a map on which two parallels of latitude that are five degrees apart are 3.65 inches apart on the map?

A 3. Five degrees of latitude are equal to 5 x 60 = 300 nautical miles. This is equivalent to 300 x 1.1515 statute miles which is 345.45 statute miles. The scale in miles per inch is therefore 345.45 - 3.65 which equals 94.697 miles per inch. To calculate the representative fraction we recall that there are 63,360 inches in a mile; 94.697 x 63,360 equals approximately 6,000,000. Therefore the RF is 1:6,000,000.

Most pocket calculators will not handle angles expressed in degrees and minutes; therefore such angles must be changed to degrees and decimals of a degree. Take, for example, the angle 67°21'. To change to decimals, enter 21 in your calculator, divide by 60, and then add 67. The required angle is then in the calculator ready to be used.

Minutes of latitude, being minutes of a great circle, are always one nautical mile in length. Minutes of longitude vary in length from one nautical mile at the equator to zero at the poles. The formula for the length of a minute of longitude at any latitude is one nautical mile multiplied by the cosine of the latitude.

Q 4. What is the length of one degree of longitude along the 49th parallel?
A 4. Cosine 49° is 0.65606. Therefore one degree (60 nautical miles) is 60 x 0.65606 = 39.36 nautical miles or 45.33 statute miles.

Q 5. In the NTS 1:50,000 map series, the sheets in southern Canada cover 15 minutes of latitude and 30 minutes of longitude. What are the dimensions of the sheets at 51° north latitude?
A 5. The north-south dimension is 15 nautical miles or 15 x 1.853 km, which is 27.79 km. The east-west dimension in nautical miles along the 51st parallel is 30 x cosine 51° or 30 x 0.62932 giving 18.88 nautical miles or 34.98 km.

We can now progress to true geodetic problems such as finding the distance between points on the earth's surface for which the latitude and longitude are known. This involves the solving of the terrestrial triangle, but this is really quite simple.

The terrestrial triangle is a triangle on the earth's surface, and for our problems it will be formed by the north pole and the two points between which we want the distance. As this is a spherical triangle the rules of spherical trigonometry must be followed. The main difference between a plane triangle and a spherical triangle is that the sides of the latter are measured in angles subtended from the centre of the earth. As this leads directly to an answer in nautical miles, this can be looked upon as an advantage.

Figure 1 illustrates a typical spherical triangle PAB. The sides opposite each angle are lettered with the corresponding lower-case letter. The letter a is opposite angle A, and so on. Let us presume that A is Mirabel Airport, B is the airport at Whitehorse, and P is the north pole. The coordinates of the two airports are as follows:

Whitehorse	latitude 62.51°	longitude 135.12°
Mirabel	latitude 45.61°	longitude 74.14°

We can now add some dimensions to Figure 1. The angle P is obviously the difference in the longitudes of the two airports and amounts to 60.98 degrees. The side b is 90 degrees minus Mirabel's latitude and therefore is 44.39 degrees. Side a is 90 degrees minus Whitehorse's latitude and equals 27.49 degrees. What is required is side p, which is the straight line (great circle) distance between the two airports.

The cosine formula in spherical trigonometry (which we must accept here on faith) is:

$$\cos p = \cos a \times \cos b + \sin a \times \sin b \times \cos P$$

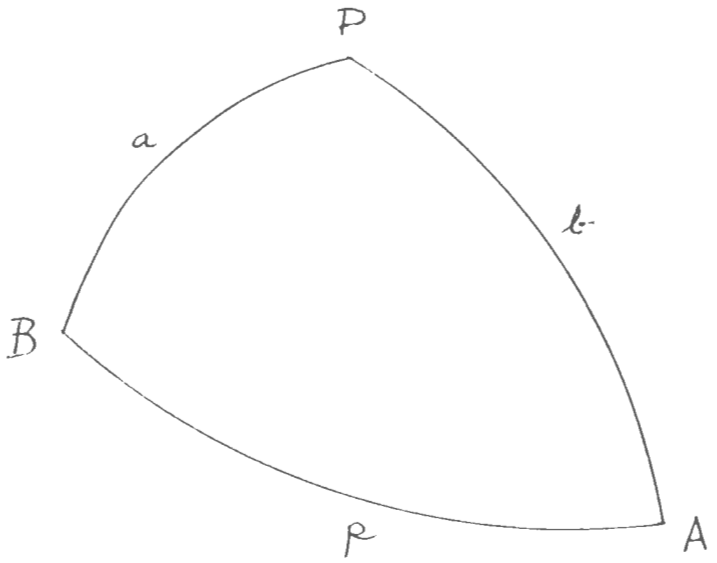

Figure 1 : Spherical triangle PAB.

We obviously can solve for p as we know all the values on the right hand side of the equation. To make the calculation easier we can set up the following tabulation.

(1) cos a = 0.88709

x (2) cos b = 0.71459 equals 0.63391

(3) sin a = 0.46159

x (4) sin b = 0.69953

x (5) cos P = 0.48511 equals 0.15664

totals 0.79055 which is cos p (the required distance)

Arc cos 0.79055 equals 37.76 degrees or 2265.8 nautical miles. Finally, 2265.8 nautical miles x 1.1515 = 2609 statute miles, which is the distance between the airports.

In the next issue some slightly more complicated problems will be covered including: lines going across the equator, lines extending more than 90 degrees in longitude, and finding the bearings between two points on the earth's surface. This last problem will be encountered more often now that satellite dish receivers are becoming more popular.

* * *

RECENT ACQUISITIONS

compiled by Karen Young
University of Ottawa Map Library
Morisset Library
Ottawa, Ontario

Contributors: GSC - Geological Survey of Canada Map Library
MU - Memorial University Map Library
OOU - University of Ottawa Map Library
UT - University of Toronto Map Library

NORTH AMERICA - Maps

MU Map showing approximate eastern limit of commercial oil and gas fields in relation to structural features and physiographic provinces in the Appalachian region / K.C. Bayer. - Scale 1:2,500,000. - Reston, Va. : U.S. Geological Survey, 1982.

CANADA

UT Facsimile / Association of Canadian Map Libraries = Fac-similé / Association des cartothèques canadiennes
No. 83. Carta particolare della terra nuoua con la gran Baia et il Fiume grande della Canida / A.F. Lucini, fece.

UT Canada showing location of Medical Services Branch facilities 1980 = Canada et l'emplacement des installations de la direction générale des services médicaux 1980 / compiled by the Dept. of National Health and Welfare, Medical Services Branch. - Scale 1:6,336,000 (W141°--W52°/N85°--N41°). - [Ottawa] : produced by Surveys and Mapping Branch, 1980.

UT Carte topographique de la province du Bas Canada / par Joseph Bouchette, ecuyer; présentée par Pierre Lépine. - Scale [1:184,000]. - Montréal : Editions Elysée, 1980.
1 map on 8 sheets : Facsim.

GSC Economic geology series / Canada Dept. of Indian and Northern Affairs. - Scales vary. - Yellowknife, Northwest Territories, 19-.
EGS 1983-1 - Proposed mineral exploration activity, Keewatin, 1983. - ca. 1:1,000,000, 1983.

UT [Maps to accompany the report on the Exploratory Survey of the Canadian Pacific Railway, 1874]. - Scales differ. - [Ottawa] : Canadian Pacific Railway Co., 1874.
Sheet 8 - Map from the Pacific Ocean across the Rocky Mountain Zone.
Sheet 10 - Map to accompany the report on the Exploratory Survey of the Canadian Pacific Railway.
Sheet 14 - Chart of Nipigon, Lake Superior.
Sheet 16 - Chart of coast of British Columbia.

Northern Canada

OOU Reconnaissance geology of the Precambrian Shield of Ellesmere, Devon and Coburg Islands, Arctic Archipelago : A Preliminary Account / Thomas Frisch. - Ottawa : GSC, 1983.
Paper 1982-10
Report + Figures

OOU Vegetation of North-Central Queen Elizabeth Islands / S.A. Edlund. - Ottawa : Geological Survey of Canada, 1982.
GSC Open File 887

OOU Vegetation of Polar Bear Pass Bathurst Island / S.A. Edlund. - Ottawa : Geological Survey of Canada, 1982.
Open File 884.

British Columbia

OOU British Columbia geological highway map / British Columbia. Ministry of Energy, Mines & Petroleum Resources. - Victoria, B.C. : Ministry of Energy, Mines & Petroleum Resources, 1983.

OOU Cityscape: a map of downtown Vancouver / cartography & design by Weller Cartographic Services Ltd. [1983?].

UT Provincial parks of British Columbia / compiled and produced by Map Production, Surveys and Mapping Branch, Ministry of Environment. - Scale 1:2,500,000 ; Polyconic proj. (W139°30'--W109°30'/N60°--N47°). - Victoria : B.C. Ministry of Lands, Parks and Housing, Parks and Outdoor Recreation Division, 1981.

UT Outdoor recreation maps of British Columbia : a year round guide to your outdoor recreation. - Scale 1:100,000. - Vancouver : Outdoor Recreation Council, B.C., 1981.

New Brunswick

UT Woodstock, New Brunswick, 1889 / L.W. McAnn & Co. - Scale indeterminable. - [Woodstock] : Non-entity Press, 1980.
1 map : facsim.

Newfoundland

MU Communities maps along Labrador Coast: L'Anse au Loup; Pinware; Capstan Island / Nfld. Dept. of Forest Resources and Lands. - Scale 1:2,500. - St. John's : Dept. of Forest Resources Lands.

OOU Geology of the Strait of Belle Isle area, Northwestern Insular Newfoundland, Southern Labrador and adjacent Quebec. - Ottawa : Geological Survey of Canada, 1983.
1495 A (3 sheets)
Memoir 400

MU St. John's muncipal plan / City of St. John's. - [St. John's : The Council], 1983.

MU An average winter iceberg density distribution along the Labrador. - Scale 1:1,200,000. - St. John's : M.U.N., 1979.

Nova Scotia

GSC Pleistocene geology and till geochemistry of Southwestern Nova Scotia / by R.R. Stea and D.R. Grant. - Scale 1:100,000. - [Halifax] : Dept. of Mines and Energy, 1982.
(82-10, sheets 7,8)

Ontario

UT Canada electoral boundaries readjustment act, Ontario: proposals of the Commission. - Scales differ. - Ottawa : Electoral Boundaries Commission for the Province of Ontario, 1982.

OOU Areas excluded for any facility component. - Scale [1:200,000].
With report, Ontario Waste Management Corporation Facilities Development Process Phase 3, Interim Report - Selection of Candidate areas, May 1983.

OOU Candidate areas. - Scale [1:300,000].
With report, Ontario Waste Management Corporation Facilities Development Process Phase 3, Interim Report - Selection of Candidate areas, May 1983.

UT Midwestern Ontario, outdoor recreation / Cartographic Centre, University of Waterloo. - Scale 1:300,000 (W82°15'--W79°46'/ N44°45'--N43°13'). - [Kitchener] : Kitchener-Waterloo Record, [1982?].

OOU Flood Risk map: Metropolitan Toronto and region / Canada-Ontario Flood Damage Reduction Program. - Scale 1:25,000. - Toronto : Ministry of Natural Resources, 1983.

OOU Land use in Ottawa-Carleton / Regional Municipality of Ottawa-Carleton. - Ottawa : Regional Municipality Ottawa-Carleton, 1982.

OOU National Capital Region: 13 orienteering maps / Ottawa Orienteering Club. - Ottawa : Ottawa Orienteering Club, 198-.

UT Metropolitan Toronto federal, crown agencies, provincial [and] local properties = Toronto métropolitain propriété fédérales, organismes de la couronne, provinciales [et] locales / City of Toronto federal, crown agencies, provincial [and] local properties = Cité de Toronto, propriétés fédérales, organismes de la couronne, provinciales [et] locales. - Scale [ca. 1:50,000 and ca. 1:25,000]. - Ottawa : Canada Public Works, [1980?].

UT Urban design opportunities, West downtown and central waterfront / Kenneth Greenberg, architect. - Scale [ca. 1:1,200]. - [Toronto] : Planning and development Dept., Urban design group, 1981.

OOU The Waterloo Region / L.T. Guelke. - Waterloo : University of Waterloo, Dept. of Geography, 1980.
(University of Waterloo Occasional Paper ; no. 9)

Quebec

OOU Carte des gîtes minéraux du Québec, région Abitibi / Québec. Ministère de l'énergie et des ressources. - Québec. Ministère de l'énergie et des ressources, 1982. DPV 744

OOU Carte des gîtes minéraux du Québec: Région Laurentie-Saguenay / Québec. Ministère de l'énergie et des ressources. - Québec : Québec. Ministère de l'énergie et des ressoures, 1982. DPV 809

OOU Carte des gîtes minéraux du Québec: Région de Baie d'Hudson / Québec. Ministère de l'énergie et des ressources. - Québec : Québec. Ministère de l'énergie et des ressources, 1983. DPV 926

OOU Carte des gîtes minéraux du Québec: Région fosse de l'Ungava / Québec. Ministère de l'énergie et des ressources. - Québec : Québec. Ministère de l'énergie et des ressources, 1982. DPV 897

UT Les îles de la Madeleine / dressée par la Division de la cartographie, Ministère des Transports du Québec. - Scale 1:50,000 (W62°03'--W61°23'/N47°39'--N47°12'). - Québec : Ministère des Communications, Québec, 1982.

OOU Secteur ouest des îles de Mingan / Québec. Ministère de l'énergie et des ressources. - Québec : Québec. Ministère de l'énergie et des ressources, 1983.

UT Montreal in 3D: a balloon's eye view of North America's most exciting city, Montreal - Montréal en 3D: la ville la plus excitante d'Amérique du Nord, vue d'un ballon, Montréal. - Scale [ca. 1:3,500]. - [Montreal] : Penthouse Studios Inc., [1982?].

UT Concessions below Anticosti Island granted by French / [by James White]. - Scale 1:875,000 (W62°45'--W55°30'/N53°35'--N50°). - [Ottawa : s.n., 1926].

Manitoba

UT General geological map of Manitoba / cartography by Dave McShane. - Scale [ca. 1:5,500,000]. - [Winnipeg?] : Manitoba Dept. of Energy and Mines, Petroleum Branch, 1980.

UNITED STATES

MU Seismicity map of the conterminous United States and adjacent areas, 1965-74 / C.W. Stover. - Scale 1:5,000,000. - Reston, Va. : U.S. Geological Survey, 1977.
MF-0812

OOU Geothermal gradient data and map of the United States / Andrea Kron and John Stix. - Scale 1:2,500,000. - Boulder, Colorado : U.S. Dept. of Commerce, NOAA, National Geophysical Data Center, 1982.

UT Explorer's map & directory of the New England Coast: New London, Connecticut to Passamaquoddy Bay, Canada / cartography & design David Weaver ; research & design Elizabeth Sorenson. - Scale 1:330,000 ; Transverse Mercator proj. - Southwest Harbor, Me. : Great Circle Productions, 1981.

OOU Map showing distribution, composition and age of Late Cenozoic Volcanic Centers in Arizona and New Mexico. - Reston, Va. : U.S. Geological Survey, 1978.
(Miscellaneous investigations series ; Map 1-1091 A)

OOU Map showing distribution, composition and age of Late Cenozoic Volcanic Centers in Colorado, Utah and Southwestern Wyoming. - Reston : U.S. Geological Survey, 1978.
(Miscellaneous Investigation Series ; Map 1-1091 B)

OOU Central places in the Pacific northwest in the early 1960s / R.E. Preston. - Waterloo : University of Waterloo, Dept. of Geography, 1977.
(University of Waterloo Occasional Paper ; no. 6)

Washington

UT Mount St. Helens land management plan: final environmental impact statement / U.S. Forest Service. Pacific Northwest Region. Gifford Pinchot National Forest. - Scale ca. 1:140,000. - [Portland?] : U.S. Forest Service, Pacific Northwest Region, 1981.
24 maps on 12 sheets

Illinois

MU Pictorial map: Chicago / David Fox. - New York : Urban Graphics, 1982.

Connecticut

GSC Natural drainage basins in Connecticut / compiled by Marianne McElroy. - Scale 1:125,000. - [Hartford] : Connecticut. Geological and Natural Survey, 1981.

North Dakota

UT Generalized bedrock geologic map of North Dakota / by John P. Bluemle. - Scale [ca. 1:2,550,000]. - [Bismarck] : North Dakota Geological Survey, 1982.
(Miscellaneous map/North Dakota Geological Survey ; no. 22)

UT Structure map on top of the Cretaceous Pierre Formation in North Dakota / by C.G. Carlson. - Scale 1:1,000,000 (W104°--W96°30'/ B49°--N46°). - [Bismarck] : North Dakota Geological Survey, 1982.
(Miscellaneous map/North Dakota Geological Survey; no. 23)

Georgia

UT The coast, rivers and inlets of the Province of Georgia surveyed by Joseph Avery and others / Joseph F.W. DesBarres. - Scale indeterminable. - Athens : Institute of Government, University of Georgia ; Georgia Surveyor-General Dept., Office of the Secretary of State, 1981.

Indiana

OOU Map of Indiana showing topography of the bedrock surface / Henry H. Gray. - Scale 1:500,000 ; Lambert Conformal Conic proj. - Bloomington, Ind. : Indiana Geological Survey, 1982.

OOU Map of Indiana showing thickness of unconsolidated deposits / Henry H. Gray. - Scale 1:500,000 ; Lambert Conformal Conic proj. - Bloomington, Ind. : Indiana Geological Survey, 1983.

Montana

UT Travel plan Gallatin National Forest, Montana, Principal and Boise Meridians. - Scale ca. 1:170,000 ; Polyconic proj. (W111°40'--W109°30'/N46°25'--N44°30'). - [Washington?] : U.S. Dept. of Agriculture, Forest Service, 1982.

Nebraska

MU Nebraska land use map. - Scale 1:1,000,000. - Lincoln, Nebraska : University of Nebraska, n.d.

Virginia

MU Topographical map Colonial National Historical Park, Virginia. - Scale 1:25,000. - Reston, Va. : U.S. Geological Survey, 1981.

MEXICO & CENTRAL AMERICA - Maps

GULF OF MEXICO

GSC Gulf of Mexico / Outer Continental Shelf Regional Office. - Scale 1:200,000. - New Orleans : Dept. of the Interior, 1982.
Set of 14 sheets

MEXICO

OOU Preliminary photogeologic map of Chiapas, Mexico, and adjacent northwestern Guatemala prepared from Seasat Radar Image / L.C. Rowan. - U.S. Geological Survey, 1982.
USGS Open File 82-0995

CENTRAL AMERICA

UT Central America II including Texas, California and the northern states of Mexico / J. & C. Walker, sculpt. - Scale [ca.

1:7,600,000] (W125°--W92°/N43°30'--N22°30'). - Lampasas, Texas : L.M. Buttery, [1974].

COSTA RICA

GSC Mapa geologico de Costa Rica / Costa Rica. Direccion de Geologia, Minas y Petroleo. - Edi ion preliminar. - Scale 1:700,000. - [San Jose], 1968.

GUATEMALA

GSC Geologische ubersichtskarte / Deutschen Geologischen Mission in Guatemala = Mission Geologica Alemana en Guatemala. - Scale 1:125,000. - Hannover : Bundesanstalt fur Bodenforschung, 196-.
Holdings: Baja Verapaz und Sudteil der Alta Verapax 1971.

SOUTH AMERICA - Maps

MU Vegetation map of South America. - Scale 1:5,000,000. - Unesco, n.d.

ARGENTINA

GSC Argentine continental margin: Argentine Basin, North Scotia Ridge, Falkland Plateau / Columbia University. Lamont-Doherty Geological Observatory. - No scale given. - Tulsa : American Association of Petroleum Geologists, 1977-78.
Holdings: 1. Bathymetric chart 1978
2. Free air gravity anomalies 1977
3. Magnetic anomalies 1977
4. Sediment isopach map 1978

BOLIVIA

UT Mapa de Cobertura y uso actual de la tierra, Bolivia / preparada por: Rubén Zerain F., Reinaldo Oroz E., Jorge Cordova G. - Ed. 1-p. E.B. (preliminar). - Scale 1:1,000,000 ; Lambert Conformal Conic proj. (W70°--W57°/S9°45'--S23°). - La Paz : Programa ERTS, 1976.

EL SALVADOR

MU El Salvador / U.S. Central Intelligence Agency. - Scale 1:750,000. - Washington, D.C. : U.S. Gov't. Printing Office, 1980.

PERU

GSC Geological map of the western Cordillera of northern Peru / Servicio Nacional de Geologia y Mineria del Peru. - Scale

1:500,000. - Lima, 1973.
2 sheets.

OOU Peru Selva Central 1982 . - Scale 1:100,000. - World Bank, International Mapping, 1982.

URUGUAY

UT Republica Oriental del Uruguay, carta geografica. - Ed. provisoria. - Scale 1:500,000 ; Gauss proj. (W58°15'--W53°/S30°--S35°). - [Montevideo] : Servicio Geografico Militar, [1981].

EUROPE - Maps

MU The European Community member states, regions and administrative units. - Scale 1:3,000,000. - Brussels : Commission of the European Community, 1980.

MU Map A. Map of recent vertical crustal movements in Carpatho-Balkan region. - Scale 1:1,000,000. - Budapest, Hungary : Foldmeresi Intezet, n.d.

MU Map B. Land use map of Europe. - Scale 1:2,500,000. - Budapest, Hungary : Foldmeresi Intezet, n.d.

MEDITERRANEAN AREA

UT The historic Mediterranean 800 B.C. to A.D. 1500 / map compilation: Juan J. Valdés. - Scale 1:4,730,000 ; Lambert Conformal Conic proj. (W12°--E42°/N46°--N28°). - [Washington] : National Geographic Society, 1982.

SPAIN

UT Barcelona, plano guia urbana. - Scale [ca. 1:16,250]. - Barcelona : Editorial Pamias, 1980.

CYPRUS

GSC Mineral resources map / Cyprus. Geological Survey Dept. - Scale 1:250,000. - Nicosia : Ministry of Agriculture and Natural Resources, 1982.

FRANCE

UT Carte de la nouvelle France ou, se voit le cours des Grandes Rivières ... dressée sur les mémoires les plus nouveaux recueillis pour l'établissement de la compagnie Françoise Occident / [par Nicholas de Fer]. - Scale 1 inch - ca. 16°"Lieues communs de la France". - [Toronto : Academic Press, 1979].
1 map : facsim.

OOU France: carte des infrastructures. - Scale 1:1,000,000. - Paris : Institut géographique national, n.d.

OOU Carte des lineaments de la France à 1:1,000,000 par G. Weekstein et J.V. Scanvic. - Orlean, France : Bureau de recherches géologiques et minières, 1981.

OOU Environs de Paris 1:100,000. - Echelle 1:100,000. - Paris : Institut géographique national, 1982.

UT Plan de la ville de Paris au XVIe siècle: plan en perspective de la ville de Paris telle qu'elle était sous le règne de Charles IX, gravée d'après une tapisserie conservée dans l'Hotêl de Ville / Dheulland delin et sculp. 1756 ; Praefect et Aedi Acquisiv. 1766. - Scale indeterminable. - Paris : A. Taride, [190-?].
1 view on 2 sheets : facsim.

GREAT BRITAIN

UT City of Bath. - Scale 1:10,000. - Southampton : Ordnance Survey, 1982.

UT Two hundred and fifty years of Map-making in the County of Hampshire: a collection of reproductions of printed maps published between the years 1575 and 1826 / introductory notes by Paul Laxton. - Scales differ. - Lympne Castle, Kent : Harry Margary, 1976.
11 maps on 22 sheets : facsim.

OOU Londinium 1:2,500: A descriptive map and guide. - Scale 1:2,500. - Southampton : Ordnance Survey, 1981.

OOU The "Rhinebeck" Panorama of London c1810. - London : London Topographical Society, 1981.

GREECE

UT Rhodes / produced and published by Clyde Surveys Ltd. - Scale [ca. 1:120,000]. - Maidenhead, Eng. : Clyde Surveys, [1981?].

HUNGARY

MU Satellite image map of Hungary. - Scale 1:500,000. - Budapest, Hungary : Foldmeresi Intezet, n.d.

SWITZERLAND

GSC Geologischer atlas der Schweiz / Schweizerischen Geologischen Kommission = Commission géologique suisse. - Scale 1:25,000. - [Basel, 19-].
Holdings: Blatt 1115, Santis, 1982

AFRICA - Maps

OOU Assessment of the petroleum, coal and geothermal resources of the economic community of west African states / R.E. Mattick, compiler. - U.S. Geological Survey, 1982.
(USGS Open File 82-0714)

DJIBOUTI

GSC Carte magnétique de la république de Djibouti: anomalies du champ total - Magnetic map of the Republic of Djibouti: anomalies of the total field / Institut de physique du globe de Paris. - Echelle 1:250,000. - [Paris, 1982?].

ZIMBABWE

UT Guide to the streets and buildings in the built-up areas of Greater Salisbury. - 4th ed. rev. - Scale 1:33,333. - Salisbury : M.O. Collins (Pvt.) Ltd., 1976.
1 map in 22 sections in a 64p. booklet

SENEGAL

GSC Carte sédimentologique du plateau continental Sénégambien (extension à une partie du plateau continental de la Mauritanie et de la Guinée Bisseau). - Echelle 1:200,000. - Paris : ORSTOM, 1977.
3 feuilles accompagnées d'une notice explicative

SOMALIA

OOU A preliminary evaluation of the nonfuel mineral potential of Somalia / William Rucker Greenwood. - U.S. Geological Survey, 1982.
(USGS Open File 82-0788)

SOUTH AFRICA

GSC Mineral maps of the republic of South Africa, Transkei, Bophuthatswana, Venda and Ceskei and the kingdoms of Lesotho and Swaziland, 1981. - Scale 1:1,000,000. - Pretoria : Government Printer, 1982.

UGANDA

OOU Kampala Planning Area. - Scale 1:10,000. - 1st ed. - Uganda : Lands & Surveys Dept., 1959.

ASIA - Maps

ARABIAN PENINSULA

OOU Physiographic provinces of the Arabian Peninsula 1:4,000,000 / G.F. Brown. - U.S. Geological Survey, 1982.
(USGS Open File 82-0889)

CHINA

UT [Maps of Chinese provinces, autonomous regions and government-controlled municipalities] / J. Humlum ; Anne Skodt. - Scale 1:2,500,000. - Aarhus : Aarhus Universitet, Kulturgeografisk Institut, 1979-81.

MIDDLE EAST

UT Mideast in turmoil / produced by the Art Division, National Geographic Society ; drawn by Leo B. Zebarth. - [Rev. 1982]. - Scale ca. 1:14,000,000. - Washington : National Geographic Society, 1982.

MU Middle East area oilfields and facilities. - Scale 1:4,500,000. - Washington, D.C. : U.S. Central Intelligence Agency, 1980.

ISRAEL

UT Sinai - Mapattsilum géologit = Sinai - geological photomap / by Y. Bartov ... [et al.] ; Sinai - Mapah géologit = Sinai - geological map / by M. Eyal ... [et al.] ; prepared and printed by the Survey of Israel. - Scale 1:500,000 (E32°20'--E35°10'/N31°N27°45'). - [Jerusalem] : Survey of Israel, 1980.

MU Jerusalem - Old City. - Scale 1:2,500. - Tel Aviv : Israel Dept. of Surveys, 1975.

INDIA

UT Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura. - 1st ed. - Scale 1:1,000,000 ; proj. International (Polyconic) (E90°--E97°/N29°30'--N22°). - [Dehra Dun] : Surveyor General of India, 1981.

JAPAN

GSC Hydrogeological map of Japan / Geological Survey of Japan. - Scales vary. - Kawasakai, 19- .
Holdings: no. 37 Takada Plain, Niigata Prefecture

PHILIPPINES

OOU Republic of the Philippines 1:2,000,000. - Manilla, 1978.

OCEANIA - Maps

AUSTRALIA

OOU Vegetation of Western Australia 1:3,000,000 / J.S. Beard. - s.l. : s.n., 1981.

SAMOA

UT Islands of Samoa : Tutuila, Manu'a, Upolu, Savai'i / James A. Bier, cartographer. - Scale [ca. 1:80,000 and ca. 1:205,000]. - Honolulu : University Press of Hawaii, 1980.

OCEANS - Maps

ARCTIC OCEAN

GSC Arctic Ocean / National Geographic Society. - Cartographic Division. - Scale 1:8,721,000. - Washington, D.C., 1983.

WORLD - Maps

GSC Geologic map of the Southern Hemisphere / Richard A. Mills. - Scale 1:28,000,000. - Houston : Felmont Oil Corp., 1981.

MU Old maps of the world / by Jacques Nicholas Bellin. - Scales vary. - Cleveland : Block, 1959.

OOU A provisional methodology for soil degradation assessment 1:5,000,000. / FAO, UNEP, Unesco. - Scale 1:5,000,000. - Rome : FAO, 1979.

OOU A provisional map of present degradation rate and present state of soil / FAO, UNEP, Unesco. - Scale 1:5,000,000. - Rome : FAO, 1979.

UT Sea disasters, [World] / Rick and Jack Salen. - Scale [ca. 1:45,500,000]. - Tobermory, Ont. : Mariner Chart Shop, 1980.

OOU World map - Maritime claims / F. Webster McBryde. - Washington, D.C. : Transemantics Inc., 1982.

SATURN - Maps

OOU Preliminary pictorial map of Iapetus. - Scale 1:10,000,000. - U.S. Geological Survey, 1982.
(USGS Miscellaneous Investigations Series No. I-1486)

OOU Preliminary pictorial map of Rhea. - Scale 1:10,000,000. - U.S. Geological Survey, 1982.
(USGS Miscellaneous Investigations Series No. I-1484)

OOU Preliminary pictorial map of Enceladus. - Scale 1:10,000,000. - U.S. Geological Survey, 1982.
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OOU Preliminary pictorial map of Tethys. - Scale 1:10,000,000. - U.S. Geological Survey, 1982.
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OOU Preliminary pictorial map of Dione. - Scale 1:10,000,000, U.S. Geological Survey, 1982.
(USGS Miscellaneous Investigations Series No. I-1488)

OOU Preliminary pictorial map of Mimas. - Scale 1:10,000,000. - U.S. Geological Survey, 1982.
(USGS Miscellaneous Investigations Series No. I-1489)

NORTH AMERICA - Atlases

CANADA

OOU Mother tongue atlas of metropolitan Toronto. - Toronto : The Ministry of Citizenship and Culture, 1982.

CARIBBEAN

OOU Atlas of the Caribbean Basin. - U.S. Dept. of State : Bureau of Public Affairs, 1982.
SN 044-000-01921-3

UNITED STATES

UT This remarkable continent: An atlas of United States and Canadian society and cultures / John F. Rooney, ed. - Texas : A & M University Press, 1982.

Florida

UT Atlas of Florida / ed. by Edward A. Fernald. - [Tallahassee] : Florida State University Foundation, 1981.

Maryland

UT The Hammond-Harwood House atlas of historical maps of Maryland, 1608-1908 / Edward C. Papenfuse and Joseph M. Coale III. - Baltimore, Md. : John Hopkins Univ. Press, 1982.

New Mexico

MU New Mexico in maps / ed. by Jerry L. Williams and Paul E. McAllister. - Albuquerque : University of New Mexico Press, 1981.

Vermont

OOU The shaping of Vermont: from the wilderness to the centennial 1749-1877. - Old Bennington, Vermont : Vermont Heritage Press, n.d.

EUROPE - Atlases

OOU Staedte 25 bildplane von Hermann Bollmann. - Bollmann-Bildkarten Verlag K.G. Braunschweig, [1960].

DENMARK

UT Flyfoto-atlas Danmark / redaktion, Bjarne Furhauge ... [et al.] ; [flyfotografier, Svend Tougaard ; tilrettelaegning og tegninger, Horst Meesenburg] ; [forfattere, K.E. Balsvig ... et al.]. - Esbjerg : Bygd ; Brenderup : GO Geografforbundet : eksp., Geografforlaget ; og Esbjerg : Bygd, 1980.

FRANCE

OOU Atlas de la région Centre. - Tours : Institut de Géographie de l'Université de Tours, 1982.

OOU Atlas des Dept. Français d'Outre Mer: Guadeloupe / Centre d'Etudes de Géographie Tropicale. - Paris : CNRS, 1976.

GREAT BRITAIN

OOU An Atlas of rural protest in Britain 1548-1900 / ed. by Andrew Charlesworth. - Kent : Croom Helm, 1983.

POLAND

MU Early maps of Poland, 1508-1772, in the American Geographical Society collection / Michael J. Mikos ; [photography by David J. Gess]. - Milwaukee, Wis. : University of Wisconsin - Milwaukee Printing Services, 1982.

ROMANIA

MU The "Iron Gate" complex atlas. [The co-ordination committee: academician Stefan Milcu, C.S. Nicolaescu-Plopsor, Romulus Vulcanescu, Mihai Ionescu. The editorial board: scientific co-ordinator Romulus Vulcanescu, for geology Vasile Mutihac, for geography Mihai Iancu ... Cartography: Stefan Pandele]. - [Bucaresti] : The publishing house of the Academy of the Socialist Republic of Romania, 1972.

AFRICA - Atlases

ETHIOPIA

OOU National Atlas of Ethiopia. - Preliminary ed. - Addis Ababa : Ethiopian Mapping Agency, 1981.

NIGERIA

MU Nigeria in maps / K.M. Barbour, ..S. Oguntoyinbo, J.O.C. Onyemelukwe, J.C. Nwafor. - New York . Africana Pub. Co., 1982.

ASIA - Atlases

INDIA

UT India literacy atlas. - Manasagangotri, Mysore : Central Institute of Indian Languages, 1978.

OCEANS - Atlases

ANTARCTIC OCEAN

UT Southern ocean atlas / Arnold L. Gordon and E.J. Molinelli. - New York : Columbia University Press, 1982.

PACIFIC OCEAN

MU Atlas of marine use in the North Pacific region / Edward Miles ... [et al.]. - Berkeley : University of California Press, 1982.

BOOKS

GENERAL BOOKS

OOU Colour proofing systems in cartography = Epreuves d'essai en cartographie / ed. by C. Palm. - Enchede, Netherlands : Commission Cartographic Technology International Cartographic Association, 1980.

MU The Ocean floor : Bruce Heezen memorial volume / ed. by R.A. Scrutton, M. Talwani. - Chichester, New York : Wiley, c1982.

OOL Phanerozoic paleocontinental world maps / Alan Gilbert Smith, A.M. Huntley & J.C. Briden. - Cambridge : Cambridge University Press, 1981.

MU Portraits of the world : an exhibition of world maps from the Period of the Great Discoveries, February 3 - March 1, 1981. - [Lincoln], Nebraska : Sheldon Memorial Art Gallery, University of Nebraska-Lincoln, 1981.

OOU Saturn / by Patrick Moore & Garry Hunt. - Rand McNally, 1982.
(Rand McNally Library of Astronomical Atlases Series)

OOU Terrain sensitivity classification methodology / by Richard Shelford & Kevin J. Crockett. - Edmonton, Alberta : Energy & Natural Resources, 1981.

OOU Topological principles in cartography / by James P. Corbett. - [Washington, D.C.] : U.S. Dept. of Commerce, 1979.
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OOU War maps / Simon Goodenough. - MacDonald & Co., 1982.

REFERENCE BOOKS

MU Archives & manuscripts : maps and architectural drawings / Ralph E. Ehrenberg. - Chicago : Society of American Archivists, 1982.
(Basic manual series / Society of American Archivists)

OOU Fire insurance maps in the Library of Congress / Library of Congress Geography and Map Division. - Washington, D.C. : Library of Congress, 1981.

OOU Map user's sourcebook / Lance Feild. - N.Y. : Oceana Publications Inc., 1982.

OOU Maps: A visual survey & design guide / Michael Southworth. - New York Graphic Society Books, 1982.

OOU Map classification: A comparison of schemes / Christopher Edmond Merrett. - University of Illinois, 1982.

MU Maps for America : cartographic products of the U.S. Geological Survey and others / Morris M. Thompson. - 2nd ed. - Reston, Va. : U.S. Dept. of the Interior, Geological Survey, 1981.

MU National Ocean Survey cartobibliography Civil War collection / compiled by Map Library, Physical Science Services Branch, Scientific Services Division. - Rockville, Md. : U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Ocean Survey, [1980].

OOU Thematic maps: their design and production / by Mark T. Mattson and David J. Cuff. - London : Methuen, 1982.

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MU The A to Z of Georgian London ; introductory notes by Ralph Hyde. - Kent, [Eng.] : Published for the London Topographical Society by Harry Margary in association with Guildhall Library, 1982.
(Publication / London Topographical Society ; no. 126)

UT The discovery of Australia : the charts and maps of the navigators and explorers / T.M. Perry. - Melbourne : Nelson, 1982.

TRAVEL BOOKS

OOU 95 Hikes in the Canadian Rockies, Banff, Kootenay & Assiniboine / by Gordon King & Vicky Sorings. - Vancouver, B.C. : Douglas & McIntyre Ltd., 1972.

OOU The cockpit of Europe: A guide to the battlefields of France and Belgium / Howard Green. - N.Y. : Hippocrene Books, 1976.

OOU France / Baedeker's Guide. - Prentice-Hall, 1980.
(The Complete Traveller)

PLACE NAME BOOKS

MU Place name reference list, Atlantic Provinces = Liste de référence des noms de localité, Provinces de l'Atlantique / Statistics Canada. - Ottawa : Supply and Services Canada, 1983.

GAZETTEERS

MU Geographic names of the Antarctic / compiled and edited by Fred G. Alberts. - Washington, D.C. : National Science Foundation, 1981.

MU The National gazetteer of the United States of America - New Jersey, 1982 : prepared in cooperation with the U.S. Board on Geographic Names. - Washington : U.S. G.P.O., 1982.

Addendum

ARGENTINA

UT Atlas de la Republica Argentina. - 1a ed. - Buenos Aires : Instituto Geografico Militar, 1979.

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NEW PUBLICATIONS

PUBLICATIONS OF CANADIAN CARTOGRAPHICS LTD.

The recently produced maps listed below may be ordered from Canadian Cartographics Ltd., 508 Clarke Road, Coquitlam, British Columbia V3J 3X2.

Greater Vancouver and Fraser Valley, street map 1:45,000, 4 colours, 53cm x 93.5cm folded to 10.5cm x 23cm with insets of Fraser Valley at 1:250,000, downtown Vancouver 1:25,000, major ferry terminals 1:5,000 and 1:10,000, and a regional map of southwestern B.C. at 1:1 million; price $1.35.

Energy Resources of British Columbia, a wall map 1:2 million in 8 colours, 77.5cm x 103cm with 6 inset maps at 1:8 million; price $15.00.

Kitimat-Stikine Regional District, Regional Resource Inventory, northwestern British Columbia, wall map 1:500,000, 6 colours, 101cm x 142cm with insets of major urban areas at 1:35,000 and 1:110,000, rainfall at 1:4 million, location and transportation corridors 1:8 million, development potential 1:8 million, and population characteristics 1:4 million; price $20.00.

Northwestern British Columbia Travel and Recreation Guide, 1:1 million, 5 colours, 67cm x 95cm folded to 10.5cm x 23cm, with insets of photographs sampling the geographic diversity of the region; reverse side made up of oblique views of Prince Rupert, Kitimat and Masset, oblique map of Terrace with a base scale of 1:28,500, insets of Hazelton and Stewart areas at 1:250,000 showing full relief and large scale generalized urban maps; price $2.50.

Transportation Network and Industrial Sites of Lower Mainland, British Columbia, a folio of seven maps in a presentation folder, all in 4 colours: Map 1, 1:125,000, 37cm x 95cm presenting industrial sites, rail and road networks, powerlines, pipe lines, isochrones, road traffic volume and other appropriate information; Map 2, 1:275,000, 21cm x 27cm--CPR access to Roberts Bank; Map 3, 1:100,000, 21cm x 27cm--Port of Vancouver Terminals; Map 4, 1:100,000, 21cm x 27cm--CP Rail and V & LI Railway; Map 5, 1:25,000, 21cm x 27cm--Mayfair--Fraser Mills Industrial Area, Coquitlam, B.C.; Map 6, 1:15,000, 21cm x 27cm--Port Coquitlam Industrial Area; Map 7, 1:35,000, 21cm--Annacis Island--Surrey Docks Industrial Area, B.C.; price $20.00.

Biogeoclimatic Units, Victoria-Vancouver Sheet 92SE, 1:500,000, 8 colours, 69cm x 94cm, incorporates cross-section of zonal ecosystems, soil profiles and descriptive text; price $5.00.

Treatment Units, Koprino River Watershed, Vancouver Island, 1:20,000, 2 colours, 65cm x 97cm, incorporates a cross-section of biogeocoenotic units, tables and text; price $5.00.

Resource Management Areas, Koprino River Watershed, Vancouver Island, 1:20,000, 2 colours, 65cm x 100cm, incorporates tables and text; price $5.00.

Ecosystems of MacMillan Park, Vancouver Island, 1:2,500, 4 colours, 64.5cm x 90cm, incorporates 3 levels of information in addition to descriptive text: plant associations, tree and shrub stratum data and recreational value in 4 categories; price $5.00.

Minimum handling and mailing charge--$3.00.

* * *

MAPS PUBLISHED BY UW CARTOGRAPHIC CENTRE

The following maps are available from the Faculty of Environmental Studies, Cartographic Centre, University of Waterloo, Waterloo, Ontario N2L 3G1.

Glacial features map of Kluane National Park, 8½ x 11", two-colour (25¢)

The Waterloo Region, hypsometric tints, four-colour, 30" x 36" ($2.75)

Its Your World Toronto, Azimuthal Equidistant Projection centered on Toronto, three-colour, 30" x 33" ($4.95)

Outdoor Recreation Map of Mid-Western Ontario, five-colour, 31" x 24", 1:300,000 ($2.75)

Outline Map Series, new additions:

Central America	- Series A, Series B
Scandinavia	- Series A, Series B
World, Homolosine	- Series B only
Greece	- Series A only

Please note all orders must be prepaid. All non-Canadian orders please add 20% postage/handling.

* * *

HISTORICAL YUKON MAPS

The Yukon Historical and Museums Association is producing a series of historical Yukon maps, in cooperation with the Association of Canadian Map Libraries. These reproductions of the maps of early explorers are available through the YHMA at the following address:

P.O. Box 4357
Whitehorse, Yukon
Y1A 3S6

* * *

EARLY MAPS OF SCOTLAND

The following publication is now available (July 1983) from the Royal Scottish Geographical Society: The Early Maps of Scotland to 1850: Volume 2. The first volume was published in 1973.

Volume 2 contains details of over 2,000 maps or plans dated before 1850 in ten sections: (1) marine charts, (2) road maps, (3) military roads and maps, (4) canal plans, (5) railway plans (43 pages), (6) agricultural maps, (7) geological maps, (8) historical maps, (9) county maps (95 pages), and (10) town plans.

310 + vii pp. 215 x 135 mm. 4 black and white plans. Price £12.00. Order from the Society at 10 Randolph Crescent, Edinburgh EH3 7TV, Scotland.

* * *

WATER PROOFING MAPS

Raincharts, a division of the Martensen Company, has developed a new chemical formula for treating and making maps water repellent. Aptly named Stormproof, this liquid is clear, water repellent, and mildew resistant, and penetrates paper when applied. It is not a plastic coating compound and does not stiffen maps. Treated maps can be rolled, folded, and written on.

Stormproof is applied to maps with cloth, paper towel, brush or sponge. The applicator must be discarded after use, since this material obviously cannot be washed out. Hot soapy water will, however, cleanse your hands of this liquid.

Approximately 100 square feet, which amounts to eight NOAA charts or about 14 USGS topo maps, can be protected with a one pint container. A one pint container is available from the manufacturer for $7.49, plus $1.50 for postage and handling; one-half pint container costs $4.49, plus the same postage and handling. To order or obtain more information, write: Martensen Company, Inc., Dept. FS, P.O. Box 261, Williamsburg, VA 23185.

* * *

REVIEWS

Moore, Patricia A., compiler. Checklist of Printed Maps of The Middle West to 1900: North Central States Region. Boston: G.K. Hall, 1981. xx, 439, 4p. of maps, figs., table, bibliogs. (Volume 1) $90.00 (ISBN 0-0-8161-0345-3).

Barnett, LeRoy, compiler. Checklist of Printed Maps of The Middle West to 1900: Michigan. Boston: G.K. Hall, 1981. xx, 747p., 3p. of maps, figs., table, bibliogs. (Volume 5) $95.00 (ISBN 0-8161-0349-6).

These two volumes, provided by the publisher for review purposes, are part of a major carto-bibliographic work which eventually will consist of twelve volumes. The eleven volumes currently available may be purchased as a set for $850.00. The volumes represent the culmination of a project begun in 1972 at the Newberry Library's Hermon Dunlap Smith Center for the History of Cartography. The project director was David Woodward; Robert W. Karrow Jr. was the cataloguing instructor and general editor, Patricia A. Moore was the project coordinator and assistant editor, and Jeffrey Auld was the project typist. The compilation was made possible through grants from the U.S. National Endowment for the Humanities.

According to the preface, the Checklist includes 25,478 entries in eleven volumes: one each for Illinois ($95.00, ISBN 0-8161-0348-8); Indiana ($70.00, ISBN 0-8161-0347-X); Iowa ($75.00, ISBN 0-8161-0352-6); Michigan; Minnesota ($85.00, ISBN 0-8161-0351-8); Missouri ($95.00, ISBN 0-8161-0353-4); Ohio ($95.00, ISBN 0-8161-0346-1); Wisconsin ($85.00, ISBN 0-8161-0350-X); and the Middle West as a whole. North Dakota and South Dakota ($75.00, ISBN 0-8161-0355-0) are combined in one volume, Nebraska and Kansas ($95.00, ISBN 0-8161-0354-2) in another. The Middle West in this case comprises the North Central States, and the first volume bears the subtitle "North Central States Region."

The catalogers or compilers consisted of sixteen individuals, some of whom worked in the fourteen cooperating institutions (primarily historical societies but including some libraries). An attempt has been made to include all types of maps: "maps published separately, flat or folded; maps in books, atlases, periodicals, and newspapers; state, county, and city atlases; and bird's-eye views of cities and towns." However, in the case of the Michigan volume it was not possible to include many maps in newspapers, general atlases, and non-American publications.

The two volumes examined indicate the format followed for each one. Each has a preface by David Woodward, who gives the background of the project and acknowledgements. Robert Karrow has done a general introduction for each which gives the scope and organization; discusses the collections represented in them; describes in very clear terms the cataloguing format and control that was used; gives guidelines to readers in using the Checklist; mentions the treatment of cross references and handling or amount of inclusion of listings for topographic maps, maps of cities and towns, bird's-eye views, fire insurance maps, and maps in government documents; briefly describes the access that the index volume projected for publication in 1983 will have; and notes that information about additions,

corrections, and additional locations will be welcomed. This is followed by a general bibliography of books which were "either in general use by all the cataloguers involved in the project or which were used by the project staff at the Newberry during the compilation and editing." Each volume also has a table of scale conversions giving, for twenty-three often-encountered representative-fraction scales ranging from 1:2,500 to 1:5,000,000, the equivalent feet per inch, miles per inch, and inches per mile.

In addition to these features, the two volumes examined each had individual introductions giving details pertinent to that volume. For volume 1, the introduction notes that there are entries for 1,727 maps covering three or more of the states in the Middle West as well as maps and charts of the Mississippi, Ohio, and Missouri Rivers and the Great Lakes plus 142 entries from other volumes which are listed in the appendix. It is also explained that due to time constraints a scale cut-off of 1:13,000,000 was used for maps published up to 1820, while after 1820 it was 1:5,000,000. The maps of the rivers were included in this volume because each forms a boundary of three or more states. Navigation maps, in the form of river guides used by tourists and perhaps river boat pilots, are also listed.

Volume 1 includes listings for some very early manuscript maps because it records pre-1900 printed facsimiles of them. The libraries consulted by the compiler in doing volume 1 were the Library of Congress, New York Public Library, American Geographical Society Library, and the Newberry Library. Maps of North America and the U.S. as a whole after 1875, regardless of scale, were excluded.

In the introduction to volume 5 covering Michigan, it is noted that the entries "mainly reflect the maps available to researchers in the southern lower peninsula" and that some major map collections were not visited, such as Detroit Public Library and Michigan Technological University. The compiler did consult the collections of the Newberry Library, the Library of Congress, and the National Archives. A special attempt was made to seek out maps in the annual statements of railroad and mining companies, which resulted in a large number of entries with subject subdivisions of mining, geology, and railroads. Although it is not specifically mentioned in the introduction to volume 5, it contains entries for more than 3,915 maps and has two appendices, one listing seventy-four maps from other volumes and the other showing pre-1900 U.S. Geological Survey quadrangles and listing U.S.G.S. depository libraries in Michigan.

Each of the volumes has a bibliography of works the compiler found particularly useful in doing the volume. In the case of volume 1, twenty-one items are listed, while volume 5 has eight items. Some entries in volume 5 for Michigan contain notes referring to books listed in the bibliography, e.g., Karpinski, Koerner, and Miles, and the relevant entry number from that volume.

The arrangement of the photographed catalogue card entries in each volume is alphabetically by geographic names, further subdivided by date, and then by subject (such as land ownership, cadastral maps, and views) where appropriate. For volume 1, a list of the thirty-two geographical names which were used as headings is given. This volume also has nine outline maps showing the states included by each of nine regional terms. Volume 5 does not have a separate list of geographical names used, but it does have an outline map of regions of the state with the caveat that, though

approved for use, not all the names necessarily appear as headings. The general introduction notes that all personal, corporate, and subject names were verified, and an authority file was kept at the Newberry.

The format of each entry is governed by an antiquarian-map cataloguing manual developed by the general editor based upon Chapter 11 of The Anglo-American Cataloguing Rules (first edition) revised to some extent as a result of ISBD(CM) in 1976. The example from the general introduction is reproduced below (see Figure 1). The numbers along the sides refer to the explanation which is given for each segment of the entry.

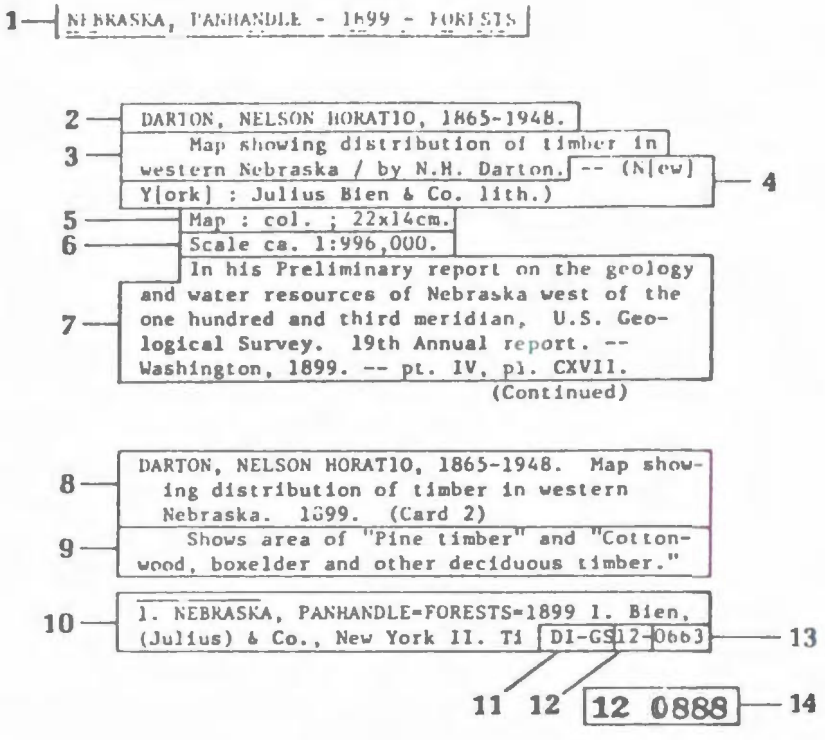

Figure 1 : An entry from Checklist of Printed Maps of the Middle West to 1900.

One important item in each entry is that designated by the number 11 in the illustration. This indicates the library in which the described map is to found. It is noted in the introduction that it was not possible to record all locations for each item. The symbols used are the standard symbols for American libraries, and the complete list of library symbols used are given inside front and back covers of each volume.

As is the case in other G.K. Hall productions of this type, the reproduction of catalogue cards leads to considerable waste of space on each page, as do the generous margins and the use of cards for headings and cross references, which is a shame considering the permanent/durable acid-free paper upon which it is printed. Even though the volumes are oversize (11 x 8 1/2 inches or 28 x 22 cm), it was necessary to reduce the cards; this may cause some readers problems with readability. The use of larger and bolder type in the subject headings and having a heading at the beginning of each page would also improve the readability of the volumes.

A couple of typographic errors crept into the general introduction (pages i and vi).

Both of the volumes examined have relevance to Canadian map libraries in terms of materials included, especially volume 1. Under the subject of Canada there are fifty-five entries and seventy-five cross references, beginning with a 1612 Champlain map and ending with an 1897 map of the boundary with the U.S. (a cross reference). Parts of Canada are also covered by maps listed under the headings of Great Lakes or Great Lakes Region (eighty-seven entries and thirty-four cross references). Maps of the U.S. and Canada together were listed in the Checklist under U.S. The listings for the individual lakes of the Great Lakes also provide entries of Canadian interest. Volume 5 uses the designation "MI/ONT" as part of the subject headings for the Detroit, St. Clair, and St. Mary's Rivers, as well as for Lakes George and St. Clair. It is not clear, nor is it explained (size, perhaps?), why Lake St. Clair is in the Michigan volume rather than in the regional volume along with Lakes Michigan, Superior, Huron, Ontario, and Erie. Both volumes include other U.S. and Canada boundary survey maps in addition to the 1897 one mentioned earlier.

These volumes should prove to be useful to Canadian map libraries as well as American ones. As noted previously, the regional one has the most general maps of likely interest. However, that for Michigan and other states bordering Canada should also be useful with their inclusion of maps of border areas. Since it is not possible for most Canadian map libraries to have in-depth collections of early maps of U.S. regions, states, and cities, these volumes should prove useful in directing requestors to such maps. It is recommended that Canadian map libraries purchase as many of the volumes as they possibly can, but at least the regional one. The people involved in the project must certainly be pleased with the information that has resulted from their efforts.

Alberta Auringer Wood
Memorial University of Newfoundland
Queen Elizabeth II Library
St. John's, Newfoundland

* * *

Wilford, John Noble. The Mapmakers. New York: Vintage Books, 1982.
xi, 414 p., ill., maps. $11.95. (ISBN 0-394-75303-8)

John Noble Wilford's The Mapmakers is an intelligent and thorough examination of the development of surveying and cartography from the time of the earliest extant map records right up to the 1970s. The author is science correspondent for the New York Times, and while he is not a geographer, surveyor, or cartographer by profession, he has produced a well researched and highly informative book for the non-specialist.

The Mapmakers is an episodic treatment of the history of cartography with each chapter focussing on an important contribution or contributor to the field. The individuals Wilford treats "were chosen for inclusion... because of achievements that promoted (or in a few cases, hindered) the

development of certain important types of mapping or that illustrated the expanding reach and growing precision of cartography." The author's own experience of working alongside a survey crew in the Grand Canyon is sketched in the prologue to each of the four sections of the book and in the epilogue. These vignettes tie present-day mapping activities to the four major developmental phases Wilford covers: the earliest period to the Age of Discovery and the evolution of map projections; the era of direct measurement of the earth (i.e. through the nineteenth century); the age of indirect or remote surveying (employing airborne cameras and radar, satellite-borne sensing devices and terrestrial and marine electronic measuring instruments); and the new age of extraterrestrial mapping--measuring and accurately depicting the moon, Mars, and other bodies.

The first two parts cover ground usually surveyed in histories of maps, but the last two sections pick up the story of cartography well into the twentieth century. Wilford serves general readers well in the last ten chapters with his understandable and often exciting narratives of the development of important modern surveying techniques. This period is generally not covered in histories of cartography, and technical literture is not accessible to the non-specialist.

The "Bibliographical Notes" at the end are a valuable feature of this book. Book and article citations are arranged under the related chapter headings, and the occasional note or recommendation entices the reader into exploring cartography in greater depth. Thus, the general reader need not let the enthusiasm kindled by Wilford die when the cover is closed.

The Mapmakers would be unassailable but for the author's rather dogmatic approach to the development of cartography which here, as in many other works, obscures somewhat a serious appreciation of early maps or the cartographic productions of contemporary preliterate peoples. The quotation in the second paragraph above neatly summarizes Wilford's thesis: the history of cartography is the recounting of an evolutionary development which has progressed toward greater and greater precision and accuracy. Condescending statements are sprinkled throughout: "Whatever the mapmaker's ambitions, a paucity of knowledge and a chauvinistic conceit rendered the Babylonian world-mapping efforts meaningless, except perhaps as a philosophical or political statement" (p. 10); [Earlier perceptions of Earth] "... were visions of wonder and myth, and often they were marvelously wrong" (p. 15). "Maps produced in Europe in the Middle Ages were more ecclesiastic than cartographic, more symbolic than realistic... The result was... a millenium without a significant advance in the mapping of the world" (p. 34). "The style [of maps] was symbolic, ornamental, and often beautiful; the geographic content, impoverished and usually misleading; the purposes, a representation of the mind more than of the Earth" (p. 45). If we accept Blakemore and Harley's argument "that the concept of maps as language offers the most appropriate underlying structure for the history of cartography" (M.J. Blakemore and J.B. Harley, Concepts in the History of Cartography: A Review and Perspective, 1980. Cartographica, v. 17, no. 4, p. 87), then Wilford may be said to view many map traditions merely as "English mispronounced," rather than significantly different languages. Although a work of this scope could not be expected to draw out detailed arguments for viewing older or so-called primitive cartographic forms as having their own, rather different scope and intent, it is irritiating to have it repeatedly suggested that "yes, they were different, but wrong all the same."

A large portion of Wilford's book is devoted to American achievements, which, I presume, would interest his intended audience, but Canadian readers may be disappointed that land-based photographic surveying is totally untouched. While this is not a Canadian invention, Edouard Deville, Surveyor General of Canada, led the way in applying it here more extensively than anywhere else in the world. Indeed, it was not fully supplanted by aerial surveying in British Columbia until the late 1940s. If Wilford projects another edition, his book would be improved by the addition of this story of ingenuity and effective use of resources to map a vast and difficult terrain.

These criticisms do not, however, seriously diminish the value and usefulness of The Mapmakers. The book is intended as a general overview of the history of mapping for the non-specialist. An easy writing style, a broad perspective on the subject, and coverage right up to the recent past makes Wilford's work the ideal book to put into the hands of the literate layman--or the librarian or archivist suddenly cast into the role of map curator.

David R. Chamberlin
Provincial Archives of British Columbia
Library and Maps Section
Victoria, B.C.

* * *

Gregor, Howard F. Industrialization of U.S. Agriculture: an Interpretive Atlas. Boulder, Col.: Westview Press, 1982. 259 pages, 38 maps, 26 tables, index. (Westview Special Studies in Agriculture/Aquaculture Science and Policy) $25. (ISBN: 0-86531-236-2; LC #82-050180)

"This book offers a geographic view of what many consider the ultimate revolution in American agriculture: industrialization." Its pace in recent decades has proceeded from "a brisk walk to a dash," and lately there have been many calls for regulatory action. "Yet...much is still unknown about its regional character," and such information ought to be at hand "before any major conclusions or policy decisions are taken." [Preface] To this end the author has undertaken a spatial assessment of the regional character and extent of the subject.

The findings make interesting reading, but since it is the purpose of this review to evaluate the work as an atlas, no detailed comments on them will be made. The work is divided into six chapters, addressing in turn the "conceptualization" of agricultural industrialization, its "intensity," "scale," "structure," "types," and "performance." Of these, "intensity" occupies more than one-third of the book. In addition to the maps and tables noted above, there are 171 pages of text, with extensive notes at the ends of the chapters, and a 22-page index. There is no separate bibliography. The book has been printed directly from the typescripts, with no justified right margins. The binding is quite satisfactory for library use.

It is a misnomer to sub-title this work "an interpretive atlas" since it is primarily a geographic (and also, to some extent, economic and sociological) study which includes a number of maps to illustrate its findings. The maps are identical in format, displaying the contiguous forty-eight states, with Alaska and Hawaii tucked into the corner below California and Arizona. They are computer-produced, colour-coded in six shades from very light grey to black, and designed to illustrate the variations not by state, but by counties within each state.

Unfortunately, the maps as published here just do not do the job. Whatever their original size, they are here reduced to only 3¼ by 5½ inches. The scale is not given, but it appears to be about 1:35,000,000. As a result, details for individual counties are almost indistinguishable; the greys are just not sufficiently distinctive. Thus, for machinery and equipment investment, the difference between New Jersey (high) and Montana (low) is readily apparent, but the variations among the counties of Ohio or Indiana are almost impossible to determine even when using a magnifying glass (e.g., Figure 2.3). Most of the other maps suffer in like manner.

This is a serious defect in an otherwise useful study. The book is a justifiable addition to university geography collections and a must for any institution with an agricultural program. As an atlas, it is not appropriate for a map library, and its purchase by such is not recommended.

Bruce Cossar
Map Librarian
Trent University Library
Peterborough, Ontario

* * *

NEWS AND COMMUNICATIONS

CANADIAN CARTOGRAPHIC ASSOCIATION

A recent brochure of the association states that the officers for 1982-1983 are:

President	Michael Coulson University of Calgary
Vice-President	David Douglas University of Ottawa
Secretary	Clifford Wood Memorial University
Treasurer	Carolyn Weiss Statistics Canada
Publications	Bernard Gutsell York University
Past President	Henry Castner Queen's University

The association holds annual meetings at various centres throughout Canada; it also holds regional and interest group meetings. Chairpersons of the interest groups are:

Map Use	Jean Carrière, Université du Quebec a Montréal Grant Head, Wilfrid Laurier University
Technology	John Belbin Nova Scotia Land Survey Institute
Automation	Jean-Claude Muller University of Alberta
Education	Norman Drummond McGill University
History	Betty Kidd Public Archives of Canada
Design	Shelley Laskin University of Toronto

The association has nearly 400 members; membership is available to any person interested in the objectives of the association:

- to promote interest in maps and related cartographic material;
- to further the understanding and knowledge of maps by encouraging research in the field of cartography, both historical and current;
- to provide for the exchange of ideas and information, and for the discussion of mutual concerns, through meetings and by publications;
- to advance education in cartography and in the use of maps.

Members are issued the quarterly publication, Cartographica, published by the University of Toronto Press. Members also receive a quarterly newsletter and, on an irregular basis, Technical Notes and Queries.

Correspondence should be addressed to:

The Secretary
Canadian Cartographic Association
c/o Department of Geography
University of Ottawa
Ottawa, Ontario, Canada K1N 6N5

* * *

1984 IGU MAP AND ATLAS DISPLAY

The Canadian Committee for Geography will be organizing the Canadian contribution to the Scientific Exhibit at the 25th International Geographic Congress in Paris in August 1984. The 1984 IGU Map and Atlas Display Committee now seeks your assistance in collecting maps and atlases produced in Canada between 1980 and 1984 and suitable for the Canadian national display.

Although the Paris Organizing Committee has not specified particular exhibit themes, our committee would be pleased to receive examples of all types of cartographic materials, including recent thematic maps, recent national and regional atlases, urban and metropolitan maps, experimental maps and maps for the future including computer-assisted cartography. Two basic criteria to keep in mind are:

- maps and atlases must be printed between 1980 and 1984;
- maps and atlases should be innovative in content, technique, design, or presentation.

Anyone wishing to send material for consideration is requested to follow the directions below:

1) Send two (2) copies of the material (maps should be flat or loosely rolled, NOT folded).
2) Ensure that materials are wrapped safely in sturdy map tubes or boxes.
3) Send materials to:

   Clifford H. Wood, Chairman
   1984 IGU Map and Atlas Display Committee
   c/o Department of Geography
   Memorial University of Newfoundland
   St. John's, Newfoundland A1B 3X9

4) Prepare a brief caption of 200 words indicating:

   - name and address of the map/atlas author
   - name and address of the publisher
   - the official retail price
   - the scale (if not stated on the map) and dimensions (centimeters) of the map or atlas

- the purpose for which the map was developed
- the type of information portrayed along with any outstanding or unique features related to the map/atlas's content, technique or design
- the users of the map
- the languages in which the map/atlas is available

5) Submissions must be received no later than September 21, 1983, as the Paris Organizing Committee requires our space requirements by the end of November 1983. Please note that all materials will become the property of the 1984 IGU Map and Atlas Display Committee and the decision of the committee will be final.

In order to meet the short deadlines and to prepare an interesting and impressive exhibit for Paris, we require your assistance and co-operation.

Clifford H. Wood
Chairman
1984 IGU Map and Atlas
Display Committee
Aug. 8, 1983

* * *

W.A.M.L. FALL MEETING

The Fall Meeting of the Western Association of Map Libraries was held in the Tan Oak Room, Student Union Building, University of California, Berkeley, California, on Thursday, September 22 and Friday, September 23.

The lectures that were delivered at that meeting are those that follow:

East Asian Maps

"Japanese maps with particular emphasis on the map collection of Berkeley's East Asiatic Library," Jack Tobin, Univ. of California, Berkeley

"Maps and Map Libraries of Taiwan," Harold M. Otness, Southern Oregon State College, Ashland

"Services and Products of Geogroup Corporation," Ann Ebert, Geogroup Corp., Berkeley, Calif.

"Image Processing, Microforms and Optical Disk Storage of Cartographic and Related Images," Peter Cukor, President, Teknekron Controls Incorporated, Berkeley, Calif.

"New Products and Services from the Geological Survey," Randle Olsen, Chief, Branch of Geometronics, U.S. Geological Survey, Menlo Park, Calif.

"The Farmland Mapping and Monitoring Program," Robert Yoha, Farmland Mapping and Monitoring Program, California Dept. of Conservation, Sacramento

"Preservation and Conservation Considerations for Cartographic Materials," Nancy Harris, Paper Conservator, Conservation Dept., General Library, University of California, Berkeley

"The UCSD/WAML Map Encapsulator," Larry Cruse, Map Librarian, University of California, San Diego

"Geographic Indexing of Research Material," Daniel O. Holmes, Librarian and Equipment Manager, Dept. of Geography, University of California, Berkeley

* * *

NEW MAP LIBRARIAN AT MEMORIAL

Alberta Auringer Wood is now Map Librarian at Memorial University of Newfoundland. Administratively this position has been upgraded from that of a Section Head position within the Information Services Division of the Library to Division Head. The Map Library has a total staff complement of four and a collection of approximately 45,000 maps. Alberta may be reached at: (709) 737-8892 or 737-8168

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MEMORIAL UNIVERSITY "WANT" LIST

The following maps are required by the Map Library at Memorial University of Newfoundland. Alberta Auringer Wood has lists of their duplicates in the Gravity Map series, Canada Land Inventory maps, census maps, and U.S. hydrographic charts. She is willing to trade.

(1) N.T.S. 1:50,000 - 3D/12W,E.
3D/13W,E.
1N/11, 1971-Edition 5 only

(2) 1:125,000 Series- 31-JNE Lac Ascension, Que.
31-LNE Lac Beauchene, Que.
62-MSW Ituna, Sask.
62-ONW Winnipegosis, Man.

(3) 1:126,720 sheets- 32-CNE Cuvillier, Que.
32-ENW Chabbie, Que.-Ont.
32-ESE Mistawak Lake, Que.
32-ESW Patten River, Que.-Ont.
41-ISW Espanola, Ont.
41-PNW Gogama, Ont.
42-ASE Kirkland Lake, Ont.
42-ASW Timmins, Ont.
42-BNE Elsas, Ont.
42-BSE Foleyet, Ont.
42-CNE Kabinakagami Lake, Ont.
42-CNW White River, Ont.
42-CSE Goudreau, Ont.

42-ENE Longlac, Ont.
42-ENW Jellicoe, Ont.
42-ESW Roslyn Lake, Ont.
42-GSE Kapuskasing, Ont.
42-HNE Montreuil Lake, Ont.
42-HSE Little Abitibi, Ont.
42-ISW Coral Rapids, Ont.
52-ASW Fort William, Ont.
52-FSW Rowan Lake, Ont.

(4) Joint Operations Graphic Air, Series 1501,1:250,000-Sheet NM 12-05

(5) Gravity Maps and Reports:Earth Physics Branch, Dept of Energy, Mines and Resources.
1967. Map Nos. 39-43. Report: The Gravity anomaly field in Western Canada, Part I, by R.J. Buck.
39-Medicine Hat-Hanna
40-Lethbridge-Banff
41-Red Deer-Edmonton
42-Wainwright-Battleford
43-Saskatoon-Prince Albert

(6) Mineral Policy Sector & Geological Survey of Canada, Dept. of Energy, Mines and Resources Map 900A, 1:7,603,000

Edn. 24-1974	Edn. 17-1967	Edn. 11-1961
23-1973	16-1966	9 -1959
21-1971	13-1963	8 -1958
20-1970	12-1962	7 -1957
		6 -1956

(7) World Map 1:2,500,000 (Karta Mira) No. 227-George V Coast, 1973
No. 228-Roosevelt Island, 1973

Alberta also notes that the Map Library is missing A.C.M.L. Bulletin 12 (which is now out-of-print); she would like to buy it or trade with someone who has a spare.

* * *

DIGITAL MAPPING SEMINAR

Both the Land Registration and Information Service (LRIS) and Energy, Mines and Resources (EMR) have now moved to storage of topographic base maps in digital form. While maps in future will still be available in hard copy, the storage of maps in digital form creates new possibilities for land information managers, both private and public. The maps will take on the flexibility that we have come to expect from computer sorts of alphanumeric data.

This seminar is intended to inform land information managers of the plans for digital mapping proposed by LRIS and EMR. As well, the seminar will familiarize the participant with digital mapping services and systems available within the Maritimes.

There is no registration fee. However, space is limited. Please phone in your intention to attend.

1. Halifax, Nova Scotia: Tuesday, November 8, 1983, 9:30 a.m. - 5:00 p.m. at Admiral Salon, Lord Nelson Hotel

2. Charlottetown, P.E.I.: Wednesday, November 9, 1983, 9:30 a.m. - 5:00 p.m. at Parkview Salon, Hotel Charlottetown

3. Fredericton, N.B.: Thursday, November 10, 1983, 9:30 a.m. - 5:00 p.m. at Petitcodiac Room, Lord Beaverbrook Hotel

The agenda includes the following sessions:

1. Large and Medium Scale Digital Mapping--The CARIS System and LRIS Plans

   R. Laurence Simpson, Executive Director, Land Registration and Information Service

2. Digital Topographic Information--The Energy, Mines and Resources View

   Richard Groot, Director, Topographical Survey Division, Energy, Mines and Resources

3. Computerized Resource Information Management--The MRMS GEOBASE Experience

   James Stanley, Executive Director, Maritime Resource Management Service

4. CARIS (Computer Aided Resource Information System)--A Universal System

   Salem E. Masry, President, Universal Systems Ltd.

5. A Resource for Computer and Digital Analysis Projects--The Land Survey Institute

   James Doig, Principal, Nova Scotia Land Survey Institute

6. The Data Base Inventory Project

   John Wightman, Vice Principal, Nova Scotia Land Survey Institute

* * *

"SAILING AND WHALING" EXHIBITION

There will be an exhibition and sale of marine art, artifacts, early charts and maps pertaining to sailing and whaling at Exploration House, 18 Birch Avenue, Toronto, 15 October - 26 November, 1983. Canadian, American, and British paintings and memorabilia are strongly represented, including such

Canadian artists as William Armstrong, Daniel Fowler, John Hammond, Marmaduke Matthews, and others. For more information call Exploration House at (416) 922-5153.

* * *

DISCOVERING HIGH PARK

High Park, a charming oasis on the City's western fringe, has been delighting Torontonians for more than a century. In celebration of the special place High Park holds in the hearts of young and old alike, the City of Toronto Archives--Market Gallery is mounting a unique display entitled Discovering High Park from September 24 to November 20, 1983.

The display offers visitors to the gallery a chance to picture High Park then and now, tracing the park's development from 19th century gentleman's estate to undisputed queen of the city's public gardens.

You'll see early maps of the park prepared by John George Howard, who donated 165 acres of the 399-acre park; landscaping plans for many of the park's outstanding gardens; artifacts from Howard's home, Colborne Lodge, as well as documents and records highlighting the park's development from 1873 to the present.

The exhibition will also include the works of contemporary artists Warabe Aska, Stephen McCarthy, and photographer Gerard Gotzman, complemented by fascinating historical photographs from the City of Toronto Archives, Ontario Public Archives, and Metropolitan Toronto Library as well as watercolours by John George Howard from the Toronto Historical Board.

And because High Park is first and foremost a people place, visitors can enjoy an indoor mini-park in the west mezzanine, complete with trees, picnic tables, park benches and jungle gyms.

Discovering High Park was created in co-operation with the Department of Parks and Recreation and is the second Market Gallery exhibition to showcase a city department. Last year's show featured some of the Department of Public Works' outstanding architecture. High Park was chosen as the focus for the exhibiton because it incorporates most of the elements and activities synonymous with the Department of Parks and Recreation.

The Market Gallery is located in Toronto's historic South St. Lawrence Market, 95 Front Street East at Jarvis, and is open to the public, free of charge, Wednesday to Friday, 10:00 a.m. to 4:00 p.m.; Saturday, 9:00 a.m. to 4:00 p.m. and Sunday, 1:00 to 4:00 p.m. The gallery is closed Mondays, Tuesdays, and all Civic Holidays.

For further information, call 947-7604.

Bill Kennedy
Communications Services
(416) 947-7795

* * *

WAML HONOURS ROY V. BOSWELL

In a press release dated 25 September 1983, Stanley D. Stevens, member of the Executive Committee of the Western Association of Map Libraries, reports that WAML has conferred the title "Honorary Life Member" upon Roy V. Boswell. The text of Mr. Stevens' letter to Mr. Boswell reads as follows:

During the banquet that evening [September 22, 1983], I was given the honor of making the presentation. Among my remarks on this auspicious occasion, I included the following:

> The Executive Committee has conferred this award to only one other person in the sixteen-year history of WAML.
>
> The contributions made by Roy Boswell to the field of map librarianship rank as a "lifetime achievement" worthy of this high WAML award.
>
> Roy Boswell has been a long time personal member of WAML; he has been a frequent contributor to our Information Bulletin; he has been a speaker at our meetings; and, in addition to having been the host of a WAML meeting at Fullerton, he has offered to be our host once again if we should choose to visit Fullerton.
>
> The Collection for The History of Cartography at California State University, Fullerton, was established on October 22, 1971--by Roy V. Boswell--as a volunteer curator--and in addition to the seven exhibitions of pre-1901 maps in his collection, he has produced nine fine press publications that provide reproductions of some of the exhibited maps and textual guides to the exquisite material in this world-renowned collection. In addition, he is working on a card catalog that will be published upon completion. His collection is recognized by curators for its care, preservation, and organization and serves as one of the world's superior models for collections of rare maps.
>
> Roy V. Boswell will have his 90th birthday next month, and although this award is not being presented to him for that achievement--that is certainly cause for celebration--and while we wish he were with us for this presentation, please join me in a toast to Roy Boswell--that he may enjoy many more years of good health and prosperity. Cheers!

I know this conveys the sentiments of our entire membership.

I wish to add that a certificate is being prepared by Harold Otness (Chair of the WAML Awards Committee) on his handpress. When it is printed, inscribed with your name, matted, and framed, it will be forwarded to you.

On behalf of the entire membership of WAML, Congratulations!

* * *

SPOT SATELLITE

The following news item was taken from the Summer 1983 issue of the

Cartographic Information Center Bulletin (South Carolina Land Resources Conservation Commission).

In February 1978, the French government approved and funded the Earth Observation Satellite Project (SPOT). The government plans to launch its first earth resources satellite (SPOT-1) on October 15, 1984. On board the SPOT satellite will be two high-resolution visible sensors. Objects as small as 10 meters (30 feet) and 20 meters (60 feet) will be distinguishable in the panchromatic and multi-spectral modes, respectively.

SPOT will be launched into a near-polar, sun synchronous orbit at an altitude of 822 km with an orbital repeat every 26 days. A rotary mirror will permit an earth scene to be acquired up to 400 km to the left or right of vertical, allowing more frequent looks at high priority scenes and providing the capability for stereoscopic pairs of images for a given area. Typically, SPOT will view a swath width of 117 km.

Data transmitted from SPOT-1 will initially be received and processed at the Aussaquel-Issus Station in Toulous, France. The imagery will be sold through the SPOT Image Corporation which recently opened an office in Washington, D.C. Their primary product will be a 60 x 60 km image in the black and white or multi-spectral mode on computer compatible tape (CCT) for about $1,000.

The French plan to launch a second satellite (SPOT-2) in late 1986, which should provide data into the early or mid 1990s.

* * *

AUSTRALIAN MAP CIRCLE

AMC Newsletter 28 (June 1983) reports that the association has changed its name from Australian Map Curators Circle to Australian Map Circle. The change was prompted by the extensive cross-disciplinary nature of the membership and the feeling that the retention of the word "curators" in the name was inhibiting membership growth.

The newsletter also reports that the association's mailing address is to be set out as follows:

Australian Map Circle
P.O. Box E133
Queen Victoria Terrace, A.C.T. 2600
Australia

The annual AMC conference will be held at the University of Tasmania in Hobart, 24-27 January 1984. Note that this is the height of the tourist season! Queries may be addressed to the convenor, Judy Goede: P.O. Box 338, Sandy Bay, Tasmania 7005.

* * *

NEW MAP LIBRARIAN AT BARTHOLOMEWS

The following is taken from the August 1983 issue of Cartographiti, the newsletter of the Map Curators' Group of the British Cartographic Society:

Congratulations to Kenneth L. Winch who became the newly appointed map librarian at John Bartholomew and Son Ltd. in July. Ken began his professional life at Edward Stanford Ltd., working in various departments including Purchasing and Educational Sales, and organising the preparation of the Stanford Reference Catalogue, a two-volume sales catalogue of maps and atlases. In 1974, he edited International Maps and Atlases in Print published by Bowker Publishing Company. In the same year he transferred to George Philip and Son Ltd., working in the Library as an information editor, and in 1977 moved to the Cambridge University Library where he was Deputy Map Librarian.

We wish Ken well in his new post in Edinburgh; he should feel very much at home in such a thriving map library community with both the National Library of Scotland and University collections on his doorstep.

* * *

ACSM SEMI-ANNUAL MEETINGS

At a joint board meeting of the American Congress on Surveying and Mapping and the American Society of Photogrammetry on 21 September, the president of the American Cartographic Association, Professor Mark Monmonier of Syracuse University, resigned and was replaced by Mr. R. Anthony Novotny, Jr. of the USGS National Mapping Division, Denver.

The next meeting of the ACSM is scheduled for Washington, D.C., on March 12-16, 1984. On March 13 there will be a session dealing with map design; the Library of Congress' Geography and Map Division plans to mount a map exhibit on the history of cartographic design.

Alberta Auringer Wood

* * *

ACSM-ASP CONSOLIDATION VOTE

The membership vote on the consolidation of American Society of Photogrammetry and American Congress on Surveying and Mapping, taken in Salt Lake City on September 21, 1983, failed to produce the necessary two-thirds majority for approval in either society. A large majority of members did, however, approve the plan--64% in ACSM and 61% in ASP.

The name that both societies preferred by far was American Institute of Mapping Sciences (AIMS), with COMPASS second, and American Institute of Geometronics (AIG)--AIMS-51%, COMPASS-30%, AIG-11%, and write-ins-8%.

W.A. Radlinski
Executive Manager of COMPASS

* * *

PUBLIC ARCHIVES OF CANADA
NATIONAL MAP COLLECTION
1982/83 ACTIVITY REPORT

[The following report was made by Betty Kidd (Director) on June 7, 1983 at the annual conference of the Association of Canadian Map Libraries in Vancouver.]

The ten months since the 1982 report was presented to A.C.M.L. members in Ottawa have been busy ones in the National Map Collection in terms of acquisition, custody, public service, outreach, and administrative functions. In this report, only major activities in these areas can be described.

Acquisition

In the past fiscal year, more than 52,000 items were added to the holdings of the National Map Collection--more than 80 percent of these to the Government Cartographical and Architectural Records Section. This section is responsible for the federal government cartographic and architectural record, as well as the private architectural record, the latter through the National Architectural Archives program which the section administers. Government departments from which records have been acquired include Statistics Canada (maps pertaining to the 1976 census), Canada Post (accommodation and equipment plans), Indian and Northern Affairs (plans from the Saskatchewan and Sudbury District Offices) and Energy, Mines and Resources (notebooks for early Indian Reserves from Legal Surveys Division). In recent months, arrangements have also been made for the physical transfer of the dormant cartographic records of the Geological Survey of Canada and the "Expo 67" drawings from Industry, Trade and Commerce.

In the Early Canadian Cartography Section, highlights included: two plans of proposals for a citadel at Quebec (ca. 1771 and 1773) by John Marr, acquired with the assistance of the Cultural Property Import and Export Review Board; a large manuscript chart of the N.W. coast of America, ca. 1789; an apparently unique copy of a printed map of the northwestern part of Hudson Bay, engraved ca. 1745; and Munster's Geographica, 1545.

The Modern Cartography Section continued to receive Canadian maps in current production (concentrating efforts on provincial series) and foreign maps mainly through existing exchange agreements.

Custody

Custodial functions--both physical and intellectual--continued at a much slower pace than we would like. Although certain advances were made, we are always aware of the increasing backlogs to be conserved, microfilmed, listed, and catalogued.

In the last fiscal year, slightly under 10,000 maps were microfilmed and approximately 1700 maps were fully conserved. Special map cabinets were purchased for storage of the larger fire insurance plans and of the township plans of the West. In addition, twelve other large horizontal cabinets and 5,000 large-size, acid-free folders were acquired.

Much of the control work in the collection continues to be done using

contracts. These included contracts for the organization of the Power, Wallace and Floyd architectural collections and the Lloyd cartographic collection, for a finding aid of certain plans from the Department of Public Works, and for a shelflist of holdings of foreign maps. The three-year contract with Cartographic Research Services for first-level series research continued.

Other major control projects included the preparation of sixty finding aids by the GCAR Section, the cataloguing of the early atlases, the rearranging and verification of The Atlantic Neptune, and cataloguing of the items in the "Treasures" exhibition.

Late in 1982, the National Map Collection signed a contract with the University of Toronto Library Automation Systems (UTLAS)--a bibliographic utility--thereby reversing our earlier decision to use MINISIS. At the moment, we are close to making the system fully operational. The formation of a users' group will be a logical development.

Public Service and Outreach

The major development in public service has been the purchase of a reader-printer which is providing immediate, inexpensive copies from our 105 mm negatives for research purposes. These copies are not intended to replace the higher quality photographic reproductions available from the Public Archives.

The number of reference enquiries remains relatively constant from year to year--3,500 to 4,000. In the recent past, increases have been noted in requests for material from government record groups, for foreign maps, and for architectural records.

In addition, the co-operation with the Department of External Affairs on a research project relating to the determination of the international boundary in the Gulf of Maine area continued throughout the year.

The demand for loans of original maps and plans for exhibitions in other institutions is rapidly accelerating and is taking considerable time for co-ordination effort. Recent exhibitions, featuring material from the National Map Collection, include those at the Glenbow-Alberta Institute, the Musée du Québec, Dalhousie Art Gallery, City of Toronto Archives and the Center for Great Plains Studies in Lincoln, Nebraska. Institutions to which material will be loaned within the next months include the Royal Ontario Museum, the Canadian War Museum, and the Winnipeg Art Gallery.

This summer, you will see the 1984 edition of the Antique Map Calendar in the bookstores--the actual printing is to happen at any moment.

For those of you who did not acquire a copy of Volume II (Prairie Provinces and Territories) of Maps of Indian Reserves and Settlements in the National Map Collection, published in 1981, which was out-of-print almost immediately, we have reprinted the volume, and copies are now available. Three forthcoming publications are the "Treasures" catalogue, the "Union List of Series," and a guide to the holdings of the National Map Collection.

Although not our publication, we have been extremely pleased with the excellent sales of Cartographic Materials : A Manual of Interpretation for

AACR 2. Because of the contribution of our staff to this manual, we actually held a book launching for the book in December 1982.

Some of you may have heard that the National Map Collection was the subject of a parliamentary question in January 1983. The issue was the selection of the Delisle map of New France on the cover of the National Capital Government telephone directory (in celebration of our 75th anniversary in 1982). The question was why the map appeared only in French.

In February, the Association of Canadian Map Libraries and the National Map Collection jointly sponsored the Library of Congress Classification (Class G) National Conference. This conference considered the proposed expansion of the LC-G classification for Canada in consultation with Canadian users of the classification and the Library of Congress. The meeting can only be termed as very successful.

The National Map Collection had a feasibility study on reclassification of its holdings to LC carried out by a consultant in the past year. We have decided to act upon her recommendations for change, although the ways and means have yet to be fully determined.

The collection sponsored the Third Cartographic Archivists' Seminar from March 7-11, 1983, and welcomed the "new" archivists responsible for cartographic records from the provincial and territorial archives of Newfoundland, Alberta, Manitoba, British Columbia, the Yukon, and the Northwest Territories, as well as a representative from the Hudson's Bay Company Archives.

Several forthcoming meetings may be of interest to A.C.M.L. members. The Society for the History of Discoveries will be meeting at the P.A.C. from September 29-October 1, 1983. The Canadian Council on Surveying and Mapping and the Canadian Permanent Committee on Geographical Names (both federal-provincial boards) will be meeting at the P.A.C. the week of October 17-21. That same week, Auto-Carto VI will be held in Hull--we will have several staff members in attendance and we will have a small exhibition there. In 1984, we will be co-hosting with the Canadian Architectural Archive of the University of Calgary an architectural seminar and in mid-July 1985, the XIth International Conference on the History of Cartography.

As part of the departmental outreach program, the collection administered two contracts with other archival institutions--the Yukon Archives and the Canadian Centre for Architecture.

Administration

The National Map Collection is one of eight divisions of the Archives Branch. The Archives Branch is one of four branches in the department, the Public Archives. The Public Archives reports to the Minster of Communications, one of the many government departments and crown agencies. The decisions and policies of the central government agencies--Treasury Board, Public Service Commission, Public Works--also have a substantial influence on what we can and can not do.

The National Map Collection has an authorized person-year allotment of 24. At the moment, 23 of these are encumbered positions--although one person is on a one-year secondment to the departmental senior management committee as

executive secretary and a second is on maternity leave. The collection lost, in the past year, one full-time staff member, Linda Camponi, who won a competition in the Department of Indian and Northern Affairs. Recently, there has been a competition for two full-time cataloguers (closing date, end of May), advertised in the last issue of the A.C.M.L. Bulletin. Interviews will be held later this month and when these two persons are added to the staff, the automated cataloguing program will be accelerated.

Mention was made earlier of contract personnel. In addition, the collection has been fortunate to acquire other help. This summer, for the second year, a student from the Master of Archival Studies programme, University of British Columbia, is doing his practicum in the collection. Two volunteers have recently worked for the collection--one from Carleton University's internship program for students of Art History. This summer, six students are employed under the COSEP portion of the Summer Canada program. We have also received approval for two NEED (New Employment Expansion and Development) projects--one from mid-June to mid-December will employ four persons in our microfilming program; a second from mid-September to mid-March 1984 will employ six persons in the organization of the Geological Survey records referred to earlier.

The collection's management committee prepared last autumn a 23-page work plan for the year 1983/84. Over 90 percent of the work identified is to answer the requirements of the senior management's document Strategic Approaches of the Public Archives of Canada 1983-1988 (December 1982) and the Archives Branch Management's Planning Session's Draft Action Plans (December 1982). In the coming months, more and more emphasis must be placed on the government records holdings in the collection. The Access to Information and Privacy Legislation, as well as revised Chapter 460 on Records Management in the Treasury Board Administrative Manual are focussing attention on the public record.

Another area of attention is computer cartography. At the present time, a joint study is being carried out by the collection and the Machine Readable Archives on the implications of acquiring and caring for computerized cartographic data. The project includes the task of an inventory of computerized cartographic institutions in government institutions (using the Machine Readable Files Inventory form) and the analysis/assessment of the various archival functions as applied to computerized cartographic data.

In the next few months, some administrative re-organization plans will be introduced in the collection in order to facilitate work-flows and to allow us to meet objectives.

We are awaiting word on a slightly larger storage area which would allow us to consolidate storage from two inadequate warehouse locations and to move some materials from the main building to allow both a rationalization of storage in that location and some much needed growth space.

While the last ten months have been active, I hope that in Fredericton next year, I can report significant progress having been made in many on-going programs and special projects.

* * *

RAPPORT DE LA COLLECTION NATIONALE DE CARTES ET PLANS 1982/83

[Présenté à l'Association des cartothèques canadiennes, le 7 juin 1983, Vancouver, C.-B.]

Depuis la présentation du rapport de 1982 à Ottawa il y a dix mois, la Collection nationale de cartes et plans a été très active dans les domaines de l'acquisition, de la conservation, des services au public, de l'administration et des relations publiques. Ce rapport décrit seulement les principales activités dans ces secteurs.

Acquisition

Durant la dernière année financière, a Collection nationale de cartes et plans s'est enrichie de plus de 52,000 articles, dont plus de 80% ont été versés à la Section des documents cartographiques et architecturaux du gouvernement. Cette section, comme l'indique son nom, est responsable des documents cartographiques et architecturaux du gouvernement fédéral; elle s'occupe aussi des documents architecturaux du secteur privé par l'entremise du programme des Archives nationales de l'architecture qu'elle administre. Les documents acquis proviennent de divers ministères, dont Statistique Canada (cartes et plans relatifs au recensement de 1976), Postes Canada (plans de locaux et de matériel), Affaires indiennes et du Nord (plans des bureaux de district de la Saskatchewan et de Sudbury) et Energie, Mines et Ressources (carnets de la Division des levés officiels concernant les premières réserves indiennes). Au cours des derniers mois, des ententes ont été conclues en vue du transfert matériel des documents cartographiques inactifs de la Commission géologique du Canada, et des dessins de l'Expo 67 conservés au ministère de l'Industrie et du Commerce.

Parmi les principales acquisitions de la Section de la cartographie canadienne ancienne, signalons deux plans de John Marr représentant des modèles proposés pour la citadelle de Québec (vers 1771 et 1773), qu'elle a pu se procurer avec l'aide de la Commission d'examen des importations et des exportations de biens culturels, une vaste carte marine manuscrite de la côte nord-ouest américaine tracée vers 1789, une copie apparemment unique d'une carte imprimée de la partie nord-ouest de la baie d'Hudson gravée vers 1745, et Geographica de Munster, 1545.

La Section de la cartographie moderne a continué de recevoir des cartes canadiennes en cours de production (surtout des cartes de collections provinciales) et des cartes étrangères en vertu surtout d'ententes existantes.

Conservation

Le programme de conservation, tant matérielle qu'intellectuelle, n'avance pas aussi vite que que nous le voudrions. Certes, des progrès ont été réalisés mais le nombre d'ouvrages à conserver, à microfilmer, à répertorier et à cataloguer ne cesse néanmoins d'augmenter.

Au cours de la dernire année financière, un peu moins de 10,000 cartes et plans ont été microfilmés et environ 1,700 ont subi le processus complet de conservation. Des classeurs spéciaux ont été achetés pour ranger de vastes plans d'assurance-incendie et des plans des villes de l'ouest. Douze autres gros classeurs horizontaux et 5,000 grandes enveloppes sans résidu

acide ont aussi été acquis.

La majeure partie des tâches de contrôle se fait encore à contrat: par exemple, classement des collections architecturales Power, Wallace et Floyd et de la collection cartographique Lloyd, instrument de recherche pour certains plans du ministère des Travaux publics, et inventaire topographique des fonds de cartes etrangères. Le contrat de trois ans conclu avec Cartographic Research Services pour des recherches de premier niveau sur les collections se poursuit.

Parmi les autres projets de contrôle importants, mentionnons la préparation de 60 instruments de recherche par la Section des documents cartographiques et architecturaux du gouvernement, le catalogage des premiers atlas, le reclassement et la vérification de la collection The Atlantic Neptune et le catalogage des pièces de l'exposition sur les trésors de la Collection nationale.

A la fin de 1982, la Collection nationale de cartes et plans a decidé de signer un contrat avec le service bibliographique UTLAS (University of Toronto Library Automation Systems) plutôt que d'avoir recours au MINISIS comme prévu. Le système est presque entièrement opérationnel à l'heure actuelle, et il sera logique de former un groupe d'utilisateurs.

Services au public et relations publiques

Le principal fait à signaler dans le domaine des services au public est l'achat d'un lecteur-reproducteur qui permet de produire sur-le-champ et à bon marché des copies de nos négatifs 105 mm. Ces copies ne sont aucunement destinées à remplacer les reproductions photographiques de meilleure qualité des Archives publiques.

Pour ce qui est des demandes de renseignements, leur nombre demeure relativement constant d'une année à l'autre, variant entre 3,500 et 4,000. Récemment, on a constaté une hausse des demandes de documents classés dans les groupes d'archives gouvernementales, de cartes et plans étrangers et de documents architecturaux.

En outre, le projet de recherche que nous menons conjointement avec le ministère des Affaires extérieures concernant la délimitation de la frontière internationale du golfe du Maine s'est poursuivi cette année.

De plus en plus d'établissements nous demandent de leur prêter des cartes et des plans originaux pour leurs expositions, ce qui exige beaucoup de coordination. Parmi les récentes expositions présentant des documents de la Collection nationale, signalons celles qui ont eu lieu à l'institut Glenbow-Alberta, au Musée du Québec, à la galerie d'art Dalhousie, au dépôt d'archives de la ville de Toronto, et au Center for Great Plains Studies à Lincoln (Nebraska). Dans les prochains mois, des documents seront prêtés entre autres au Musée royal de l'Ontario, au Musée canadien de la guerre et à la Winnipeg Art Gallery.

Cet été, l'edition de 1984 du Calendrier de cartes anciennes sera en vente dans les librairies; on achève actuellement de l'imprimer.

Signalons la parution du volume II (provinces des Prairies et Territoires) des Cartes des réserves et agglomérations indiennes de la Collection nationale de cartes et plans, que nous avons fait réimprimer pour ceux qui

n'avaient pu se procurer un exemplaire de la première série, épuisée peu de temps après sa parution en 1981. Trois autres publications paraîtront sous peu: le catalogue de l'exposition sur les trésors de la Collection, la liste collective des collections, et un guide des fonds de la Collection.

Nous sommes très heureux du succès remporté par l'ouvrage intitulé Cartographic Materials: A Manual of Interpretation for AACR 2, bien que nous n'en soyons pas les producteurs. Comme notre personnel a participé à la rédaction de ce manuel, nous avions organisé un lancement officiel en décembre dernier.

Comme certains d'entre vous le savent peut-être, la Collection nationale de cartes et plans a fait l'objet d'une question parlementaire en janvier dernier. Cette question portait sur le choix de la carte de la Nouvelle-France tracée par Delisle pour la couverture de l'annuaire téléphonique gouvernemental de la région de la capitale nationale (à l'occasion de notre 75e anniversaire en 1982). Un député a demandé pourquoi la carte paraissait seulement en français.

En février, l'Association des cartothèques canadiennes et la Collection nationale de cartes et plans ont organisé conjointement la conférence nationale sur la classification (classe G) de la Library of Congress. Cette conférence portait sur la possibilité d'étendre la classification LC-G au Canada en consultation avec des utilisateurs canadiens de la classification de la Library of Congress. Cette réunion a été sans contredit un énorme succès.

L'an dernier, la Collection nationale de cartes et plans a fait faire par une expert-conseil une étude de faisabilité sur la reclassification de ses fonds suivant le système de la LC. Nous avons décidé de modifier notre classification suivant ses recommandations, mais nous n'avons pas encore tout à fait déterminé la façon de procéder.

La Collection a organisé le troisième séminaire des archivistes cartographiques qui a eu lieu du 7 au 11 mars derniers, et a accueilli "les nouveaux archivistes" responsables des documents cartographiques dans les dépôts d'archives provinciaux et territoriaux de Terre-Neuve, de l'Alberta, du Manitoba, de la Colombie-Britannique, du Yukon et des Territoires du Nord-Quest, ainsi qu'un représentant du dépôt d'archives de la compagnie de la baie d'Hudson.

Il y aura dans les prochains mois plusieurs réunions susceptibles d'intéresser les membres de l'A.C.C. Ainsi, la Society for the History of Discoveries se réunira à l'immeuble des APC du 29 septembre au 1er octobre prochains. Le Conseil canadien des levés et de la cartographie et le Comité permanent canadien des noms géographiques (tous deux des organismes fédéraux-provinciaux) se réuniront aux APC dans la semaine du 17 au 21 octobre. Cette même semaine, Auto-Carto VI aura lieu à Hull; plusieurs de nos employés y participeront et nous y présenterons une petite exposition. En 1984, nous serons les hôtes, conjointement avec le dépôt d'archives architecturales canadiennes de l'université de Calgary, d'un séminaire sur l'architecture et, à la mi-juillet de 1985, de la XIe conférence internationale sur l'histoire de la cartographie.

Dans le cadre du programme de relations publiques du Départmement, la Collection a administré deux contrats passés avec d'autres établissements d'archives, soit le dépôt d'archives du Yukon et le Centre canadien

d'architecture.

Administration

La Collection nationale de cartes et plans est l'une des huit divisions de la Direction des archives, qui est elle-même l'une des quatre directions des Archives publiques. Ces dernières relèvent du ministère des Communications, l'un des nombreux ministères fédéraux et organismes de la Couronne. Il est assujetti dans une large mesure aux décisions et aux politiques des organismes fédéraux centraux (Conseil du Trésor, Commission de la Fonction publique et Travaux publics).

La Collection nationale de cartes et plans est autorisée à utiliser 24 années-personnes. A l'heure actuelle, 23 des postes sont occupés; toutefois, une personne a été détachée pour un an auprès du comité de la haute direction du Département dont elle est secrétaire de direction, et une autre est en congé de maternité. La Collection a perdu l'an dernier une employée à temps plein, Linda Camponi, qui a remporté un concours au ministère des Affaires indiennes et du Nord. Récemment, nous avons tenu un concours pour recruter deux catalogueurs à temps plein (l'inscription se terminait à la fin de mai); il a été annoncé dans le dernier numéro du Bulletin de l'A.C.C. Les entrevues auront lieu à la fin du mois; l'addition de ces deux personnes à notre effectif accélérera le programme de catalogage automatisé.

Le personnel à contrat, dont nous avons parlé plus haut, n'est pas la seule aide supplémentaire dont nous bénéficions. Cet été, pour la deuxième année consécutive, un étudiant du programme de maîtrise en archivistique de l'Université de la Colombie-Britannique fait son stage chez nous. En outre, deux bénévoles ont travaillé pour nous récemment; l'un suivait le programme de stage en histoire de l'art de l'université Carleton. Cet été, nous employons six étudiants dans le cadre du PEEAC du programme Eté Canada. En outre, deux projets RELAIS (Relance de l'aide à l'emploi) ont été approuvés; l'un emploiera quatre personnes à notre programme de microfilmage de la mi-juin à la mi-décembre, tandis que l'autre, qui se déroulera de la mi-septembre à la mi-mars 1984, fera travailler six personnes au classement des documents de la Commission géologique.

L'automne dernier, le comité de direction de la Collection a préparé un plan de travail de 23 pages pour l'année 1983-1984. Plus de 90% des tâches décrites dans ce plan font suite au document du comité de la haute direction intitulé Orientations stratégiques des Archives publiques du Canada 1983-1988 (décembre 1982) et aux plans d'action ébauchés pour la séance de planification des cadres de la Direction des archives (décembre 1982). Dans les prochains mois, nous mettrons de plus en plus l'accent sur nos fonds de documents gouvernementaux. Les documents publics retiennent particulièrement l'attention en raison de la Loi sur l'accès à l'information et de la Loi sur la protection des renseignements personnels, ainsi qui de la nouvelle version du chapitre 460 sur la gestion des documents du Guide de la politique administrative du Conseil du Trésor.

Un autre sujet qui retient l'attention est la cartographie informatique. A l'heure actuelle, la Collection et les Archives ordinolingues mènent ensemble une étude sur les répercussions de l'acquisition et de la conservation de données cartographiques automatisées. Ce projet comprend la création d'un inventaire des établissements cartographiques gouvernementaux qui ont des systèmes automatisés (à l'aide de la formule

Inventaire des données ordinolingues), ainsi qui l'analyse et l'évaluation des diverses fonctions archivistiques appliquées aux données cartographique automatisées.

Dans les prochains mois, la Collection commencera à appliquer des plans de réorganisation administrative afin de faciliter le déroulement du travail et de favoriser la réalisation des objectifs.

Nous attendons une réponse à notre demande concernant un entrepôt légèrement plus grand qui nous permettrait de remplacer deux entrepôts inappropriés et de retirer des documents de l'immeuble principal, ce qui libérerait de l'espace précieux et faciliterait la rationalisation de l'entreposage.

Les dix derniers mois ont certes été productifs, mais j'espère néanmoins pouvoir vous annoncer l'an prochain à Fredericton la réalisation de progrès sensibles dans de nombreux programmes en cours et des projets spéciaux.

Betty Kidd
Directeur

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MINUTES OF A.C.M.L. ANNUAL BUSINESS MEETING

Karen Young, secretary of A.C.M.L., advises that the following committee should be added to the list of those A.C.M.L. committees which were dissolved at the A.C.M.L. Business Meeting on 7 June 1983 [see A.C.M.L. Bulletin 47, page 98]:

Map Sources Committee

* * *

A.C.M.L EXECUTIVE BOARD (PAST AND PRESENT)

1982/83 (left to right): Tara Naraynsingh, Kirk MacDonald, Elizabeth Hamilton, Tom Nagy (president), Lorraine Dubreuil, Bill MacKinnon.

1983/84 (left to right): Tim Ross, Karen Young, Tom Nagy, Ronald Whistance-Smith, Bill MacKinnon (president). Missing from picture is Velma Parker.

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Serge A. Sauer
Chairman, Historical Maps Committee
Map Library, Department of Geography
University of Western Ontario
London, Ontario N6A 5C2

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