ISSN 0318-2851

ASSOCIATION OF CANADIAN MAP LIBRARIES ASSOCIATION DES CARTOTHEQUES CANADIENNES

BULLETIN

NUMBER 32 / OCTOBER 1979 - NUMERO 32 / OCTOBRE 1979

ASSOCIATION OF CANADIAN MAP LIBRARIES

MEMBERSHIP in the Association of Canadian Map Libraries is open to both individuals and institutions having an interest in maps and the aims and objectives of the Association. Membership dues are for the calendar year and are as follows:

Full (Canadian map field)	$15.00
Associate (anyone interested)	$15.00
Institutional	$25.00

Members receive quarterly the ACML Bulletin, the official journal of the Association.

ARTICLES may be sent to the contributing editors or to the business address.

OFFICERS of the Association for 1979-1980 are:

President	Thomas Nagy	Public Archives of Canada
1st Vice President	Lorraine Dubreuil	McGill University
2nd Vice President	Geoff Castle	Provincial Archives of British Columbia
Paat President	Richard Malinski	Simon Fraser Univ.
Secretary	Margaret Chang	Provincial Archives of Newfoundland
Treasurer	Grace Welch	Carleton University

BUSINESS ADDRESS:

Association of Canadian Map Libraries
c/o National Map Collection
Public Archives of Canada
395 Wellington Street
Ottawa, Ontario
CANADA K1A ON3

Views expressed in the Bulletin are those of the contributors and do not necessarily reflect the views of the Association.

ASSOCIATION DES CARTOTHEQUES CANADIENNES

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

Membres actifs (cartothécaires canadiens à plein temps)	$15.00
Membres associés (tous les intéressées)	$15.00
Institutions	$25.00

Le Bulletin, journal officiel de l'Association, est publié trimestriellement.

Les CONTRIBUTIONS peuvent être envoyées aux redacteurs occasionnels ou à l'adresse d'affaires.

Les MEMBRES DU BUREAU de l'Association pour l'année 1979-1980 sont:

Prēsident	Thomas Nagy	Archives publiques du Canada
1er Vice-président	Lorraine Dubreuil	McGill University
2e Vice-président	Geoff Castle	Provincial Archives of British Columbia
Président sortant	Richard Malinski	Simon Fraser Univ.
Secrétaire	Margaret Chang	Provincial Archives of Newfoundland
Trésorier	Grace Welch	Carleton University

ADRESSE D'AFFAIRES:

Association des cartothèques canadiennes
a/s Collection nationale de cartes et plans
Archives publiques du Canada
395, rue Wellington
Ottawa, Ontario
CANADA K1A ON3

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

CONTENTS/MATIERES

COVER/COUVERTURE: Italian map of North America (1566) by Zaltieri of Bologna. / Carte italienne de l'Amérique du Nord (1566) par Zaltieri de Bologne.

EDITORIAL COMMENTS

The papers and reports from the recent conference are now all published except for the paper by Alex Ormston, The development of the four Welland Canals, as illustrated by surveys, maps, and plans, which is currently unavailable. The thorough assistance of Alun Hughes ensured that I received very good copies of all conference materials and enabled the ease of publication of the conference papers.

Regional editors are being appointed for all areas and there are only two vacancies which have yet to be filled: Ontario and Quebec. Positions can be created should you have an idea for a section which is not yet in existence or which could be expanded. We could have a current awareness section indexing articles which appear in other journals which cover the range of materials in which we are interested: maps, atlases, gazetteers, aerial photography, remote sensing, etc.

Notice to Contributers

Submissions which fall within the aims of the ACML are welcomed. All material submitted must be typed double-spaced and sent to the Editor in Chief. (The use of first class or registered mail is recommended.)

Aims of the ACML

The purpose of the Bulletin is to help fulfil the purposes of the ACML:
1. To promote interest in and knowledge of maps and map-related material.
2. To further the professional knowledge of its members.
3. To encourage high standards in every phase of the organization, administration and development of map libraries by: (a) providing for discussion of mutual problems; (b) exchanging information on experiences, ideas and methods; and (c) establishing and improving standards of professional services in this field.

Bob Batchelder
Editor in Chief
ACML Bulletin

REPORT OF THE TASK FORCE ON NATIONAL SURVEYING AND MAPPING

This report was prepared as a result of a study conducted for the Surveys and Mapping Branch of the Department of Energy, Mines and Resources. The Foreword, Executive Summary and List of Recommendations are reproduced below. This report is being reprinted from the Canadian Surveyor, Vol. 33, March 1979, with permission. A French version is available in that volume.

FOREWORD

The value of fundamental land mass information to a country as vast as Canada is immense. Knowledge of the physical and cultural features of our nation, surveyed and portrayed through the media of maps and tables, is critical to the discovery of new wealth and to the efficient management of the economy. The Task Force thus recognized the importance of its work, and we realized that the conclusions and recommendations will be a major factor in setting the pace and direction of surveying and mapping in Canada over the next decade and beyond.

Attesting to the importance of the study was the widespread interest exhibited by users as well as the surveying and mapping community at large. It was indeed a challenging task to assemble the massive amount of evidence from across Canada and six other countries, sort and sift it, develop our findings, draw conclusions and generate a total of 52 recommendations. As evidence mounted, it became apparent that over the next decade or so, major Canadian surveying and mapping activities will develop in the provinces calling for a stronger regional presence on the part of the federal Surveys and Mapping Branch. A total of 20 recommendations relate in some way to the provinces, territories or regions of Canada.

The opportunities and potential offered by new technologies, particularly digital electronics, make it essential that all agencies concerned with fundamental land mass information be informed and active in applying such technology as it becomes economically available. Federal leadership in surveying and mapping techniques implies a responsibility to impart this knowledge and know-how wherever it is needed within the country in order to serve a ubiquitous user community.

The Task Force was privileged in being cast the challenge to undertake such an important fundamental study. It is our hope that we have responded adequately, and that the study does chart a practicable course into the future.

Philip A. Lapp
Hamilton, Ontario

EXECUTIVE SUMMARY

The Task Force on National Surveying and Mapping was established during May 1977 to review surveying and mapping (S and M) activities within the Department of Energy, Mines and Resources. The study investigates the present and future needs of Canada in order to establish federal government responsibilities and analyze the relevance of current S and M objectives, practices and resources. Recommendations are developed after examining alternatives for the conduct of federal S and M activities in future.

Reporting to an inderdepartmental Steering Committee, the Task Force conducted hearings across Canada, and invited briefs from all persons and organizations wishing to be heard. A total of 226 briefs were received in 16 major cities. In addition, the Task Force visited a total of 12 agencies in 10 foreign cities in 6 different countries: United Kingdom, Sweden, France, Germany, United States and Mexico.

The report deals in turn with each of the five major activity groups within the S and M Branch: Geodetic and Topographic Surveys, Geographical Services, Reproduction and Distribution, Legal Surveys including International Boundary Commission. A final section covers matters affecting the Branch as a whole.

Geodetic Survey

The Geodetic Survey represents about one fifth of the Branch's activities and includes the completion and maintenance of primary horizontal and vertical control networks, supplementary control for mapping and other government requirements, the establishment and updating of a National Control Data File, research on geodesy and the provision of technical advice. Issues centre on the pace of the program toward objectives, but include the division of federal/provincial responsibilities for geodetic control, the densification of horizontal and vertical control points, introduction of a new North American datum and contracting out to industry.

We found that the federal government must carry the responsibility for the primary geodetic framework which forms the link between regional, provincial and local surveys, and ties into the international network. Uneven development of survey capability in the provinces necessitates separate arrangements with each province - a recurring theme throughout the report.

We recommend the establishment of separate activity plans with each province, including cost sharing. High priority is placed on the need to complete and update the primary levelling program. Further densification of horizontal control and of supplementary elevations will be paced by available resources, but should respond first to federal, then to local needs.

We recommend that Geodetic Survey assist users in readjusting to the 1983 North American Datum, and that the National Positional Control Data file be accelerated to completion with the datum readjustment. We would expect more geodetic projects to be contracted out to industry.

We found no significant technological relief yet in sight for the pacing item of the geodetic program - precise levelling, and so the only way of accelerating it is to raise the budget level. The Task Force endorses the present method of cost sharing to speed up and direct the program toward true user needs. Finally, we believe that self-sufficiency in performing supplementary control surveys should be achieved by other federal departments, the provinces and the territories, and recommend a full cost recovery formula be introduced to Geodetic Survey for this work.

Topographical Survey

Topo Survey accounts for approximately one third of the Branch's resources, and includes new and revision topographical mapping at medium and small scales, the

establishment of an aerial survey data base which includes photography, ground control and aerotriangulation, and a digital mapping data base, the provision of mapping support to other agencies and the secretariat to the Interdepartmental Committee on Aerial Surveys. Topographic mapping conforms to the standards and conventions of the National Topographic System (NTS). While Canada is completely covered with 1:250 000 scale maps, the primary resource series at 1:50 000 scale is only about one-half complete. Work on the largest scale maps at 1:25 000 covering the heavily populated regions was suspended three years ago due to resource cutbacks and new provincial mapping programs at nearby scales.

Major attention is focussed on the 1:50 000 scale series, which is divided into northern and southern portions by an arbitrary wilderness line. Mapping south of the line is virtually complete, and now is in various stages of cyclical revision. North of the line, only 37% of the maps have been published, and at the current rate of new mapping, completion cannot occur before the year 1995. The concept of assembling and storing an aerial survey data base (ASDB) in large blocks for later compilation and drafting has been applied to northern mapping; but because of their age, no ASDB exists for southern maps. In fact approximately two thirds of them need recompilation because they are below geometric accuracy standards; and while all new maps are compiled in the metric system, practically all southern maps need to be recompiled with metric contours. Issues focus on the rate of completion and upgrading of NTS maps, relationships between federal and provincial mapping programs, relationships with other federal departments and agencies, and with industry, and the impact of new technology on topographic mapping.

We recommend that Topo Survey establish a running five-year baseline program of new mapping in the north at the current rate of 350 sheets per year, and look to acceleration only through cost recovery from users for mapping in addition to the baseline schedule. Greater importance is placed on southern mapping and the need to catch up on revision cycles even on maps that need recompiling, using purple overprint wherever practical. We recommend that the southern ASDB be obtained through cost sharing with the provinces, and the recompilation (with metric contours) be done in large economic-size blocks using digital mapping methods forming the beginning of the digital mapping data base (DMDB). We see the DMDB being developed with the provinces as a common system, with the provinces providing future revision imput under cost sharing arrangements with Topo Survey. Standards for digital mapping are dealt with by calling upon Topo Survey to take a leadership role in bringing all interested parties together.

We recommend that the 1:250 000 scale revision and recompilation program be derived from the 1:50 000 series, and that the 1:25 000 scale maps be re-instituted. We advise against the replacement of 1:50 000 scale maps with 1:100 000 scale maps. We are concerned that the NTS mapping program not be interfered with by requests for mapping expertise and support from other agencies, and recommend a mechanism to minimize the impact of such requests. Problems associated with DREE funding of independent mapping programs in some provinces are addressed. We also are concerned about current relationships with industry, particularly the CAAS, and made recommendations to ease some of the tensions.

Geographical Services

Geographical Services consume about 14% of S and M Branch resources, and comprise activities in national geographic mapping, toponymy, aeronautical charting and cartographic support.

(a) National Geographic Mapping - Included under this heading is special purpose mapping: small-scale base maps and special projects, and the National Atlas. Small-scale base maps are used for thematic mapping at scales of 1:500 000 and smaller, and reflect the Canadian position on boundaries, offshore limits, language, geographical names, etc. The issues relate to the need for a clearly defined policy for the responsibility of funding, content revision and distribution of such maps. We recommend that a base map program be approved, and special project mapping only be done through full cost recovery.

The National Atlas created particular concern because of the difficulty in finding users, and the impingement of new digital technology on the traditional cartographic approach in preparing atlases. While we recognize the cabinet directive obliges S and M Branch to produce a fifth edition and an Atlas every census decade, we recommend that after the fifth, the direction be shifted to a totally new program using digital technology. We see the traditional cartographic approach fading away.

(b) Toponymy - Activities in Toponymy involve the compilation and publication of a comprehensive file of up-to-date geographical names of Canada, and the functions of secretariat for the Canadian Permanent Committee on Geographical Names. We recommend that the Branch computerize the geographical names data base and encourage the provinces to become more active.

(c) Aeronautical Charting - On behalf of Transport Canada and the Department of National Defense, the Branch produces a wide variety of aeronautical charts and flight information publications. The issues centre on policy procedures and the structure of the Inter-departmental Committee on Aeronautical Charting (ICAC). We suggest that the Branch should await results of a current Transport Canada study, but recommend closer liaison between ICAC and Canada's major airlines.

(d) Cartographic Support - Cartographic support comprises a wide variety of mapping services to other federal departments and agencies including advice, development of specifications, quality control and project monitoring, production of maps and inspection services. Issues relate to the amount of use of the Branch by other departments and associated costs. We recommend that other departments be urged to consult with the Branch before starting on major new mapping projects, and that recovered costs be made available for contracting out equivalent work.

Reproduction and Distribution

The operation includes provision of aerial photographic services through the National Air Photo Library (NAPL) and the NAPL Reproduction Centre (NAPL/RC), map distribution services and map reproduction services. They account for approximately 20% of the Branch's resources. NAPL accounted for over $1.5 million sales in 1976/77 involving some 900 000 photographic items produced by NAPL/RC. Distribution services are provided by the Canada Map Office (CMO) responsible for bulk storage, mail-order sales and distribution of maps, aeronautical charts and flight information publications. Over 3.5 million items were distributed by CMO in 1976/77 totalling about $1.9 million. Map reproduction services involving photomechanical and lithographic plants printed over 5 million copies in 1976/77. Issues focus on the responsibilities for distribution and reproduction, the purchase of new 65-inch press and vote netting.

We recommend that distribution responsibility remain with the Branch, but

attention be paid to efficiency and publicity, together with the appointment of local distributors coupled with the provincial needs for map distribution, so that CMO becomes a wholesale distribution operation. We further the argument for purchasing the new press, and put in a plea for a return to vote netting.

Legal Surveys and International Boundary Commission

Included in this activity is the Land Boundary Service and Support to Other Agencies. They involve administration of the Canada Lands Surveys Act which covers surveys of Crown lands in the territories, National Parks and in Indian reserves under the responsibility of the Surveyor General of Canada Lands, International Boundary Commission, Territorial and Provincial Boundary Commissions and support services to other agencies for Canada lands legal surveys. About 15% of Branch resources are involved. Legal Surveys regional offices are located in Amherst, N.S., Quebec, Que., Toronto, Ont., Winnipeg, Man., Regina, Sask., Edmonton, Alta., Vancouver, B.C., Yellowknife, N.W.T., and Whitehorse, Y.T. Basic operations cover the regulation and inspection of Canada lands surveys including the preparation of survey instructions and the examination of plans resulting from such surveys, the provision of advice and support, data management, establishment of coordinate control monumentation and property surveys. The International Boundary Commission maintains the boundary line demarcation between the U.S. and Canada. The Canadian and U.S. Commissioners, by treaty, share costs equally.

The principal pressure at this time is the ability to respond to the increasing pace of survey requests resulting from native land claim settlements. We recommend the further decentralization of Legal Surveys by transferring the responsibility for preparing survey instructions and plans examination to the regional offices. Regional office staff should prepare for a larger role as Branch representatives, particularly in the territories. Recommendations also are made on the need for Legal Survey to play a leadership role in the use of new technology. Criteria are addressed for the establishment of Coordinated Survey Areas in future, and the requirements to initiate discussions with DINA on the large-scale mapping needs of the territories. Offshore Canada lands surveying also is considered.

General Issues

Matters affecting the Branch as a whole include the role and place of S and M Branch, research and development, a national S and M Centre and the need for a regional presence. It was concluded that while the Branch must be responsible for fundamental[1] surveying and mapping, it should not be responsible for all surveying and mapping in the federal government. Also, it should remain with the Department of Energy, Mines and Resources. An important role is technological leadership federally and nationally.

We recommend a minimum of 5% of Branch budget be devoted to R and D, divided equally between in-house, university and industry. Regional centres of excellence related to the university regime should be encouraged by the Branch, and attention also should be paid to the creation of an indigenous capability for innovation in the Canadian surveying and mapping industry. We recommend the

1. Fundamental surveying and mapping comprises establishment of the geodetic reference system and topographical mapping, including such activities as are carried out by S and M Branch under statute.

establishment of closer ties to the National Research Council.

A need is seen to identify a national S and M Centre responsible for research and development, specifications and standards, data systems and program coordination, and recommend that the Branch become the Canada Centre for Surveys and Mapping to convey more of a national rather than a federal flavour. Also a need is identified for the Centre to communicate more effectively with users of S and M data, and recommend that a plan be implemented to do so. We recommend that discussions begin with each of the provinces toward the development of joint surveying and mapping plans which should include mechanisms for establishing appropriate expertise for each province to become self-sufficient. A final recommendation is for the Branch to develop and implement plans to strengthen its presence in regions across Canada.

Throughout its wide-ranging visits and hearings, the Task Force found remarkably few internal problems or management deficiencies within S and M Branch. Users generally complimented the overall technical performance of the Branch. The widespread goodwill and comradeship found among members of the Canadian S and M community can be attributed in no small way to the leadership displayed by Branch serior personnel over the past few decades.

LIST OF RECOMMENDATIONS

The Task Force recommends that:

Geodetic Survey

2.1 Geodetic Survey develop a three to five year geodetic activity plan with each province, updated at regular intervals, coordinated with provincial and municipal programs and exploiting the mechanism of cost sharing where practical. Local cooperation should be encouraged to optimize the use of resources, and to establish priorities and plans meeting local as well as national needs.

2.2 Within Geodetic Survey, high priority be given to accelerating the primary levelling program in order to: (a) complete the basic system needed for uniform accuracy, and for support of supplementary vertical survey projects, and (b) eliminate the backlog of obsolete level lines and provide for the adequate maintenance of all lines.

2.3 Further densification of the horizontal control system, and of supplementary elevations should respond to national and regional needs with the following order of priority: (1) Surveys and Mapping Branch programs, such as topographical mapping; (2) other federal government programs; (3) provinces and municipalities; (4) economic projects performed by the private sector.

2.4 In conjunction with the first-order geodetic framework readjustment on the 1983 North American Datum, Geodetic Survey make assistance available to those responsible for lower-order control networks who wish to have them readjusted to the new datum.

2.5 Information on all lower-order geodetic control points tied to the primary framework be incorporated into the national positional control data file, that automation of the file be accelerated and timed to be completed with the 83 NAD readjustment, and that the file be made available to users across Canada through regional distribution points.

2.6 Geodetic projects be contracted out to industry in accordance with Geodetic Survey's priorities, its abilities to manage a contract program and the capability of industry to perform geodetic work.

2.7 Geodetic Survey work toward the long-term goal of full cost recovery for the generation and maintenance of supplementary control in order to encourage self-sufficiency on the part of other federal departments, the provinces and the territories.

Topographical Survey

3.1 The Topographical Survey Directorate establish a five-year mandated baseline program of northern monochrome 1:50 000 scale maps at the rate of a nominal 350 map sheets per year, the schedule of specific maps to be determined from the needs of primary users; the selection criteria and schedule to be made known to the user community.

3.2 Requests for unscheduled 1:50 000 scale maps be filled only through the payment of compilation and drafting costs in industry by the requesting agency.

3.3 EMR explore with major user agencies the possibility of assembling resources for accelerating the northern mapping program at 1:50 000 scale beyond its baseline level through joint action, as a potentially more efficient mechanism than individual initiatives.

3.4 Topographical Survey expedite its map revision program using standard revision practices, including overprint techniques, decoupled from the recompilation program in order to bring all existing 1:50 000 scale maps into their normal revision cycles, irrespective of their recompilation status.

3.5 Topographical Survey develop a joint activity plan with each province for the establishment of an aerial survey data base suitable for mapping at each level of jurisdiction, and seek approval for the resources needed to implement the plans on a cost-sharing basis.

3.6 As early as possible, Topographical Survey create mechanisms for the formulation of standards for digital mapping, including the storage and retrieval of digital map data, involving federal, provincial and municipal government, the universities and the private sector.

3.7 Recompilation of southern 1:50 000 scale NTS maps be accomplished digitally, and be planned in economic-size blocks.

3.8 The revision and recompilation of 1:250 000 scale NTS maps be accomplished by derivation from up-to-date 1:50 000 scale map data; but where such data is not available, the best available aircraft and satellite imagery or other information be used for revision purposes in order to maintain revision cycles on schedule.

3.9 Revision of 1:25 000 scale maps be reinstated until such time as the provincial mapping programs overtake the areas covered.

3.10 When requested by other government agencies to provide expert assistance, Topographical Survey be authorized to charge equivalent private sector rates and

be permitted to contract out equivalent work using such funds so as to maintain its man year allotment on planned programs.

3.11 In provinces where federal agencies such as DREE are active and interested in mapping programs, Topographical Survey take the initiative to involve them in developing the joint mapping activity plans referred to in Recommendation 3.5.

3.12 Topographical Survey encourage an appropriate body to sponsor the preparation of performance standards for mapping, making use of expertise drawn from industry and government.

3.13 Surveys and Mapping Branch weigh the merits with industry of jointly participating in the Executive Interchange Program.

3.14 In awarding contracts, Topographical Survey introduce the procedure of calling for proposals from the air survey industry, and base its decision on the merits of both proposal and price.

Geographical Services

4.1 By the year 1983, Geographical Services Directorate shift to a new program based on new concepts, ideas and formats, using digital technology to treat data and produce thematic maps that could be delivered at user's request, or be assembled in folio or book form.

4.2 Geographical Services Directorate explore and implement a suitable mechanism for communicating with the thematic map user community, particularly educators and authors of school texts, for the purpose of assisting in the planning of a thematic map program that most closely meets user needs.

4.3 The Geographical Services Directorate in consultation with user departments, prepare and obtain approval for a base map program that: (a) defines the minimum number of base maps required to meet federal government needs, (b) establishes specifications and defines standards for Geographical Services Directorate produced base maps, (c) establishes suitable revision cycles for such maps, (d) lays down a time scale and resource profile and sets out a distribution and pricing policy.

4.4 Special project mapping performed by Geographical Services Directorate for other departments and agencies be undertaken only on a cost reimbursement basis including maps currently being produced and revised for the National Capital Commission and Parks Canada.

4.5 The federal government actively encourage the provinces that have not already done so to create their own Geographical Names Boards, and conduct field work and research in geographical names for their respective provinces.

4.6 Geographical Services Directorate computerize the geographical names data base.

4.7 A formal liaison channel be established between the ICAC working group and Air Canada and CP Air to monitor their specific operational needs relating to Canadian products.

4.8 Treasury Board be urged to advise other federal departments and agencies

embarking on significant mapping projects to seek the support or expertise of the Surveys and Mapping Branch at the planning stage if it is possible that such assistance will be required in the project.

4.9 The present in-house policy on limiting cartographic support to other departments be approved, and that the costs recovered by Geographical Services Directorate be those required to contract out the work, and that Geographical Services Directorate be permitted flexibility in the distribution of such funds among its cost recovery projects so as to optimize the use of internal and external resources.

Reproduction and Distribution

5.1 The Canada Map Office overhaul its present dealer network through the establishment of a formal dealer agreement, and improve its public information program by: (a) producing and widely distributing an improved catalogue of Canada Map Office products; (b) producing an improved catalogue of National Air Photo Library Reproduction Centre products for selective distribution to dealers and major users; (c) establishing an institutional advertising and educational program on maps, and providing for an advertising allowance in the dealership agreement, and (d) servicing the dealer network through improved communications, personal visits and automated inventory control.

5.2 With the exception of mail order sales, Canada Map Office evolve into a wholesale distribution operation through the appointment of local distributors with consignment inventory coupled, where practical, with provincial map products.

5.3 Reproduction and distribution services be credited with the revenue from Surveys and Mapping Branch product sales, so that appropriate resources are available to meet demands of the market.

5.4 Within capital budget limitations, the Map Reproduction Centre be permitted to purchase the equipment it requires to establish the most efficient configuration to meet its printing obligations.

Legal Surveys and International Boundary Commission

6.1 Legal Surveys Division implement a plan for transferring to the regional offices the responsibility for preparing survey instructions, including the necessary resources.

6.2 The plans examination function of Legal Surveys Division be gradually decentralized to the regional offices, including the necessary resources, subject to the development of suitable control procedures for safeguarding standards.

6.3 Mechanisms be sought for accelerating the contracting process for property surveys, and for expediting the processing of accounts, while maintaining adequate financial control over such contracts.

6.4 Regional office staff be briefed and oriented on surveys and mapping in general in order to be able to respond to inquiries, and that regional offices be provided with appropriate sections of the national positional control data file when convenient and practical.

6.5 Legal Surveys Division recognize the broader role in responding to inquiries being forced onto the regional offices in the territories and adjust resources accordingly.

6.6 Legal Surveys Division play a leadership role in the application of new technology and methods to the traditional practices of surveying, and encourage their use within and among the cadastral surveying community through its program of contracting for property surveys.

6.7 An adequate density be set for Coordinate Control Monumentation before designating a Coordinated Survey Area in future, and that a plan be implemented for subsidizing excessive tie-in costs for surveys in existing CSAs with lower CCM densities.

6.8 EMR initiate discussions with INA on large-scale territorial mapping, to develop and implement a program plan that leads to the transfer of such activity to the territories in the shortest possible period of time.

6.9 Future workshops on surveying offshore Canada lands be held at intervals of approximately five years, that the results of such workshops be published and made available internationally and that the next workshop be planned for 1980.

General Issues

7.1 A minimum of 5% of the Surveys and Mapping Branch annual budget be devoted to mission-oriented R and D and a plan be implemented dividing it equally between in-house, university and industry to be achieved within a period of three to five years.

7.2 Using R and D resources destined for work in universities, Surveys and Mapping Branch encourage the formation of regional centres of excellence through liaison and planning with federal granting agencies, the universities, the provincial governments and the related professional organizations.

7.3 Using R and D resources destined for work in industry, Surveys and Mapping Branch implement strategies developed with the Department of Industry, Trade and Commerce, and with industry, to establish an indigenous capability for innovation in the Canadian surveying and mapping industry.

7.4 Surveys and Mapping Branch establish closer ties with the National Research Council, and set out on a deliberate program to expose NRC staff to Canadian S and M problems through participation on relevant committees, boards and panels.

7.5 In addition to its fiduciary responsibilities for Geodetic Systems and NTS Mapping and the mandated activities of Land Boundary and Geographical Services, the Surveys and Mapping Branch should become the Canada Centre for Surveys and Mapping structured along present lines, assuming central responsibility for research and development, specifications and standards, and national S and M data systems, and to take the initiatives for program coordination with other government agencies.

7.6 Better mechanisms be selected for communicating with a wider range of users of Branch products and data, preferably through personal contact, in order to determine user requirements and to receive suggestions as to how such products and data can be improved to more readily serve user needs.

7.7 Surveys and Mapping initiate discussions with each of the provinces to delineate issues and establish a schedule for developing the joint surveying and mapping plans recommended by the Task Force.

7.8 Each federal/provincial surveying and mapping activity plan include a program for establishing the necessary skills needed by the provinces for contracting out, so as to minimize future direct involvement of Surveys and Mapping Branch personnel in provincial relations with contractors.

7.9 Surveys and Mapping Branch develop and implement plans to strengthen its presence in regions across Canada, with a structure that reflects the needs of each region.

-oOo-

MAPS FOR THE BLIND

Dr. Dayton M. Forman
45 Glengowan Road
Toronto, Ont. M4N 1G1

In the literary and library world of "the blind," the tactile coded six-dot publishing format called braille has been around for 150 years. Its production and reduplication have only recently become an automated rapid process that is readily available to all braille readers. Similarly, with the development of magnetic sound recording, the oral, aural route of information has rapidly expanded over the past 35 years into the talking book format. These advances in technology and production skills have given those who work for the blind the time to examine other areas of information on the printed page such as charts, diagrams, pictures, maps and other demographic displays. It is only in the past decade that, in several centres of the English speaking world, small separate groups have begun to address themselves to making and using these tactile displays, and in the initial stages great strides have been made. It is only recently that these groups have come together to share experiences and develop standards of symbols, materials and production.

At this time let us reflect on the actual meaning of "blindness" and the population who might benefit from these demographic displays. In Canada, there are approximately 32 000 individuals registered with the CNIB as being significantly visually impaired who can thus avail themselves of what rehabilitation, recreation and education facilities are offered by this 60-year-old Institute. There may well be an equivalent number of equally visually impaired individuals who are not registered with the Institute. Outside of the restricted area of "legal definition," there may well be another 100 to 150 thousand individuals with significant visual handicap.

What is "the legal definition" of blindness? The information distributed by the CNIB is as follows: "A person is considered 'blind' if the visual acuity in both eyes with proper refractive lenses is 20/200 (6/60) or less with Snellen Chart or equivalent, or if the greatest diameter of the field of vision in both eyes is less than twenty degrees. The diameter of the field of vision is to be determined by the use of (a) a tangent screen at a distance of one meter using a ten millimeter white test object; or (b) a perimeter at a distance of one-third of a meter using a three millimeter white test object." What this basically means is that what a normal person sees at 200 feet, the visually impaired person has to be at 20 feet to see as clearly (or at 6 meters as opposed to 60).

Who are "the blind"? All age groups suffer from this affliction, but with improved health care delivery and prevention programs the populations of those born blind and of those suffering the blinding disorders of early childhood have been significantly reduced; thus at the present time, using rough figures, 65% of the legally blind in Canada are over 50 years of age and became blind in later life. The significance of this in relationship to the use of maps by the blind will become apparent in a moment. Of the 2518 newly blinded Canadians who registered with the CNIB during 1978, only 150 or 6% were under the age of 5, 70% were over 50, and 55% were over 64. The numbers of children are small, but

use of the tactile format of maps by this group may be very important for learning concept formation of space, position and orientation. How does one teach a sightless young schoolchild what a room is, what is in the room, where the windows are and the distance between furniture? Also in its infancy is the use of such tactile formats for helping the congenitally blind to understand the geography of the buildings where they reside in relationship to the world outside those buildings. It is much too early to comment on the effectiveness of these varied programs. It becomes apparent then that most of the blind are adventitiously blind, having had some useful sight in their early growth and development and perhaps were sighted through their entire education and work experience. They thus have a concept of what maps and demographic displays contain before they became blind, although, as with all of us, their interest and understanding may be as varied as their own personal individualities.

What do the blind see? The simple definition in the dictionary implies that blindness is equivalent to sightlessness. Perhaps at one time this was so. However, in Canada, those totally blind are but a small percentage and the 1978 statistics of the 2500 newly registered with CNIB show that less than 10% were "total." It is apparent that the remaining "blind" have some degree of useful vision and although this may be limited to large objects, it can be effectively used in navigation and orientation. An even larger percentage may have sufficient vision remaining to read large print with or even without a magnifying device. These are mostly older individuals with macular degeneration. Total blindness is what you see when the projector is turned off - nothing. It is important for all to understand this spectrum of visual impairment and not to lump "the blind" in a single group of those with no vision. This fact also underscores how individualized the production of the various maps and demographic display formats must be. To assist you in this overview, may we review a series of slides that portray a garden as seen by individuals with varying degrees of visual impairment, all legally blind. As you can see, there is a great variation.

In this small group of individuals variously handicapped by visual impairment and of varying ages and education, how can maps be of use? It is important for all of us to realize that we must not inflict new techniques that are unwanted and will not be used. It is quite obvious that I believe that maps do have a small limited area of usefulness for the blind population of this land. The newest area may well be in helping those born blind in their concepts of space, distance and general orientation in the world. It is far easier to demonstrate in a demographic display a mountain than it is to expose the individual to the tactile presence of a mountain; however, on the other hand, it is better to have an oak leaf in one's hand than in a tactile format on a page. A second and increasingly used area for maps is in orientation and mobility. Routes from home to job, areas surrounding home or building can be recorded to refresh the memory of the visually handicapped person and assist him in moving about. Since most of the blind once had sight and so are aware of maps in print form, they can make use of maps in tactile or large print form for educational and recreational purposes.

I believe that it is easiest to put the different types of map displays that are being used at the present time into four groups - tactile, braille, large print and sound. I will discuss and comment a bit on each format hoping that I do not infringe on what others on this panel will present.

Tactile maps make use of raised symbols on the page to outline and identify the various features that one sees orthographically displayed in the conventional map.

Color, shading and fine detail cannot be presented in this kind of format. As a result, the number of bits of information that can be presented to the blind viewer of such a map is not nearly as great as that presented to the sighted. It is said that perhaps only four units of significant information can be displayed on one page of a tactile map. In using such a map, there must be an accompanying code to identify what the different bumps and squiggles represent and this legend has to be identified by braille, thus some knowledge of braille is necessary. As can be seen from the Canadian Atlas I have brought with me, such a format is quite bulky. In using maps of this type for bus routes and walking routes, the format does become less bulky and several designs have been developed such that one can be carried much like a strip map from the Ontario Motor League. However, I would like to caution that with all this innovation many people are proceeding along different lines and as a result the time has come for an agreed-upon standardization of legends, formats and specific symbols, so that maps are prepared in an identical fashion no matter in what town or what country.

The second form - the braille map - is not very widely used. It is perhaps only of effective use to the highly mobile visually impaired individual who is a competent braille user. In saying this, I limit it to a small number of Canadians. This type of map is a simple braille listing of the various pertinent points at which orientation is identified and a change in route is supposed to occur. As an example, I have with me a simple route map of the 3½ block journey from the front door of my house to the local drug store. Not only is this format of use to a small number of individuals, it also has a limited use at the time of a person's adjustment to blindness, acting initially for reassurance, and then, when confidence is obtained, the map is no longer needed.

Large print atlases and photo enlargements are exciting and we will certainly hear more about our own Canadian large print atlas. Once again, enlargement of the print interferes with the fine detail and, as with the tactile map, the large print limits the amount of information presented. When maps are designed specifically for large print, more detail can be added, but if such maps are the result of photo enlargement, it is found that certain font styles do not clearly magnify and are not readable. There are, however, two methods whereby the visually impaired individual can have access to all the maps in your collection. The first is by use of optical magnification in the form of large desk magnifiers, special prescription glasses, telescopic lenses and the magnification of the image projected on a screen. More versatile is electronic magnification. By use of a miniature TV camera with its wide angle lenses and varying magnifications, a trained individual has access to the world of printed matter. This equipment is now available in a portable form about the size of a briefcase.

The fourth type of map that I wish to acquaint you with is the audio map. You perhaps have come across something similar to it in art galleries and museums where, with a small portable radio receiver, you can hear a verbal description of the room you are in and the material being exhibited. This is prepared on a close-looped tape that is broadcast within the confines of the room. In some national parks in the United States, you can similarly hear a verbal description of the view from your car over your car radio when tuned to a low-powered radio transmitter, as you look out across the valley or the mountains. Although not widely in use at the present time, this type of map is increasing as a method of outlining what is in large building complexes, assisting the visually impaired person in navigation throughout such a complex. On a small standard cassette or on the vest pocket miniature cassette, such a map can be useful for the traveller in new territory if

it has been carefully prepared. Its preparation involves a brief summary of what is to be outlined, a detailed description of the geography with specific reference to points of orientation such as escalator noise or waterfall noise, and distinct smells such as the local pub, bakeshop or fish store. After this detail has been slowly and carefully presented, a succint summary of what has been outlined, repeating the specific reference points, is then given, and this, of course, can be played in through an earplug during the first few visits to the area. As with the others, it does require the blind person's capacity to orient sounds and a concept of space, position and distance.

I will not go into any of the details of the methods of production of such maps as it is not germane to this panel. The production of maps for the blind is a slow process and accuracy is essential if a useful, meaningful, uncluttered end product is to be achieved. To date, maps are as individualized as their maker and as varied in purpose and use as the person who utilizes them. As a consequence, it is most important that those involved in their manufacture and use share experiences and ideas and move towards standardization of legends, formats and production materials. The other panelists will share with us their ideas and experiences. As a user of the product, I like maps! But then, I always have.

-oOo-

TACTUAL MAPPING - THE STATE OF THE ART

Roger L. Barnes
Department of Geography
Queen's University
Kingston, Ont.

Raised point, line and area symbols, as well as large print and colour, make tactual maps available to a broad range of individuals - the totally blind, the partially sighted and the sighted individual who acts as an information aide to the blind.

Tactual maps vary in function, as reflected in three map formats: mobility, orientation and geographic. Weidel and Groves (1969) make the distinction between a mobility map and an orientation map. An orientation map represents a system of street patterns, a possible neighbourhood or an area of which one wishes to gain an appreciation of the overall spatial layout. Such maps are of intermediate scales about 1:5000 to 1:50 000, providing information about the major streets and not about every street. The mobility maps need to be larger in scale to include more useful detail. Negative environmental (obstacle) information as well as feature information would be included on the mobility map to permit independent travel by the blind pedestrian.

Mobility information may exist on two levels, depending upon the purpose of the map. A mobility map may be the sequential layout of personal routes through the larger area of an orientation map and would contain, as previously stated, adequate feature and obstacle information. The second level of map information may give mobility details for a small area but with no sequential route information. Users would interpret the features and develop their own routes to different objectives.

The working relationship, on this second level, between an orientation and a

mobility map, can be described as follows: "A general orientation map would display the position of a railway station within the context of major streets and buildings in the vicinity, whilst a more detailed map would show the actual station building" (James 1979, p. 1). Bentzen (1979) has shown that mobility maps may include these larger areas, as well as sequential route information; both would encompass an area smaller than that of an orientation map.

Weidel and Groves (1969) describe mobility and orientation maps as "functional" maps; they use the term "geographical" to describe maps of the world, continents, countries and regional areas (e.g., physical features, cultural information, vegetation, climate, political units). Ogrosky (1973) also includes thematic maps of all scales under the term "geographical" (e.g., maps that interrelate the physical and cultural geographical information and bring in statistical data to show relationships).

One can also consider the three formats of tactual maps within the frameworks of map design, map reading and interpretation, and map production and reproduction. Map design looks at questions concerning tactually discriminable symbology, levels of information and the limits of each, functions of specific tasks in map formats - all within the context of the probable map use. Elements of map design will be further expanded upon by Susan Lederman. Map reading and interpretation considers all stages of the reading process from the initial extraction of information at the sensory level through high-level interpretative stages. As yet, we do not know how to efficiently read a map. What we learn of the map reading process should be incorporated into the education of efficient reading skills. Map production and reproduction refer to two related processes. Map production focuses upon the techniques and costs of creating one-copy tactual maps or masters of tactual maps. In the reproduction processes, some areas of concern are copy precision, reproduction process availability and cost.

While these three frameworks are closely interrelated, I will emphasize the areas of map production and reproduction. As one follows the historical development of these processes, we note an evolution of techniques and knowledge. Initially, people may have been satisfied with beads sewn on linen, or crudely embossed paper. With the development of the map makers' concepts of what the partially sighted or blind map user requires, we see an improvement of production techniques and materials. As this evolution continued, we see an increase in map functions; clearly design was keeping up with the advances of production. Reproduction techniques altered the tactual map's scope of influence by potentially offering multi-copy maps to more people.

This leads us to some important observations. Too often, in the practical sense, the potential of these improved production and reproduction processes to produce an improved tactual map is not realized. Low market demand for tactual maps often means low priority for funding to utilize the new production and reproduction techniques. While the older manual technologies fit certain situations and budgets (with volunteer aide to reach a small group of tactual map users), other situations that require the precision technology (with the need of quality maps for more people) find the newer technology not as readily accessible nor economically feasible, due to cost and the low market demand. One must continue with earlier technology to supply tactual map needs. The map makers' concepts of what the tactual map user requires may not be as fully met as they might have been had the new production and reproduction techniques been used.

Succintly expressed, the quality of the tactual map has room for improvement; it

does not yet reflect fully the existing potential of the production and reproduction processes.

Before attempting to understand the relationship between production and reproduction, it may be beneficial to briefly look at the development of the single-copy tactual map and the tactual map master. There are a wide range of production techniques for the single-copy map and tactual map master. Some are uniquely suited for the creation of a single-copy map; others are equally versatile in preparation of the masters for use in the major reproduction processes.

Single-copy maps come into historical record during the 18th century, with beads and threads sewn on linen by Weissembourg, or with wires, threads, wax and pins, by the de Salignac family of Paris. Weissembourg, blinded at age five, continued on and produced the first known multiple copies of tangible graphic displays - embossed paper maps.

In 1784 or 1785, Valentin Haüy continued with Weissembourg's ideas and produced the first successfully embossed raised images in paper. He also produced single-copy maps "by laying wires along the borders of a print map, carefully pasting an identical map over the first, marking towns and islands with nails having different heads, and finally shellacking the maps" (Bentzen 1979, p. 4). Haüy founded the world's first school for blind children at this time.

Other European developments included systems of drawing into wax, pricking lines into soft paper, special pincushions using pins, wires, string and rubber bands, fountain pens with ink that would congeal into a raised line and improved techniques in embossed paper maps, notably by Kunz of Illzach, in the Alsace-Lorraine.

The United States saw developments in the same areas through the efforts of Dr. Samuel Gridley Howe, who founded the Perkins School for the Blind and the Howe Memorial Press of the Perkins School for the Blind. They produced diagrams, books and maps, by pressing sheets of manilla paper between male and female zinc plate moulds. These maps were less expensive and included more information than any other available graphics at that time. The Howe press is still a major supplier of braille maps in the United States today (Bentzen 1979; Osier 1979).

Another major producer of tangible graphic displays is the American Printing House for the Blind. Concerned with the tangible reproduction of graphic displays in textbooks, they published their first book in 1866.

The single-copy paper map quickly evolved into the multi-copy map, embossed and reproduced by a conventional metal plate press. We have said that some single-copy map production techniques can be used to form tactual map masters, but the medium of paper does not allow this. As such the paper map evolved somewhat apart from other production processes and saw development in the area of the masters for the presses with: (1) photolathes, where a lathe is controlled from a photoelectric scanner to produce male and female masters; and (2) drum embossers, where the cutting tool is a solenoid producing punctate form diagrams. Development in the area of the printers and hardware to produce the maps came with: (1) relief printers using flat-bed embossers with punches for embossing manilla paper, producing output, punctate in form, that can be changed in scale and stored on stereo tape (Saab-Scania: Sweden) (Gill 1979); and (2) line embossers that use computer line printers with no ribbon, increased hammer pressure and rubber behind the paper, to produce tactual diagrams. Textures depend upon the

characters used. While quality of output is poor, the operator can be a blind user. Software does exist for graphs and diagrams from computer programs with direct teletype instructions.

While paper maps were being produced in single copies, or reproduced in quantity, many different types of materials were being used to produce other single-copy tactual maps. Such maps are considered by some to be superior in tactual discrimination qualities to reproduction copies in paper or other media. Such was the opinion expressed when vacuum formed sheets of plastic (utilized in the Thermoform reproduction process) were utilized as well as paper as the media of reproduction. This line of production reasoning offers the advantage that although the single-copy maps may appear homemade or crude, they "may also be more perceptible to the haptic system than their vacuum formed counterparts because they take advantage of minute differences in density, thermal conductivity and texture which can only be provided through the use of different materials" (Bentzen 1979, p. 8).

When the volume of needed tactual maps increased, many of the production processes of the single-copy tactual map were used to form masters for reproduction processes. Any production method in paper usually could not be used to form the reproduction master, as the reproduction method usually involved heat. The remaining production processes can be listed either as single-copy map methods of production or in conjunction with the preparation of tactual map masters for the Thermoform reproduction process. The Thermoform process, using vacuum formed plastic sheets, significantly replaced paper as the medium of map reproduction, by offering better durability, symbol definition and varied embossing heights, as well as the lowest cost in reproduction terms of a limited number of copies. Since typewritten or mimeographed letters can also be used, thermoform products become available to large-type readers and sighted aides.

These production methods are listed as follows: (1) Metal foil - A map is drawn in mirror image on the back of aluminum foil, then placed on a rubber back where the lines are embossed with a spur wheel. Gluing sandpaper to the front surface produces textured surfaces. (2) Wire/string master - Varying thicknesses and lengths of string or wire are used for line symbols on transparent cellulose. Texture is achieved with the use of sandpaper, linoleum and fabrics. (3) Sewing machine - Thick thread is sewn onto a fibrous material and area and point symbols are glued to the top surface. (4) Sintered bronze - Manually engraved sheets of sintered bronze produce female masters for thermoform reproduction of plastic tactual maps. (5) Metal and epoxy - Metal blocks for regular shapes and epoxy resin for the rest produce male masters. (6) Photoetching - A photographic copy of a map is placed on a sheet of photosensitive plastic, exposed to ultraviolet light and then chemically etched to the required depth, with the process being repeated for each different elevation. Male and female masters thus produced can be used for the vacuum forming of plastic sheets or the press embossing of paper. (7) Manual engraver - Sheets of laminated plastic are manually engraved with a machine developed by Gill (1973) and use a stencil for precise symbol dimensions. An epoxy resin male copy then provides the master for vacuum forming.

Numerically-controlled machine tool - The machine tool engraves a mirror-imaged female copy of a map on laminated plastic; a male epoxy-resin master is then used on a vacuum form machine. The engraving machine can be computer controlled; a coordinate system allows topographical information to form a visual display. The operator can then edit lines, symbols - height and position - change scale

and use alphanumeric text or Grade 1 braille. Output can then be stored on a digital plotter, magnetic tape, punched paper tape or used to operate the engraving machine. (9) The British Royal National Institute for the Blind has produced a kit with embossing tools for thin metal plates, cellophane, Mylar or Melinex. (10) James (1975) has produced a kit that involves affixing symbols on transparent cellulose, over a printed map. The rest of the master map's surface is then covered with glass powder (ballotini) and plastic copies may then be vacuum formed.

As previously mentioned, choice of production or reproduction method will depend on financial considerations (Gill 1979). Along with the production methods and the two reproduction processes just mentioned, there are two other reproduction processes that try to meet tactual map requirements, and may be alternatives in meeting budget or market constraints. (1) Nippon Lighthouse in Japan uses a "solid dot" process for silk screen printing of embossed maps. Such images offer colour on a variety of media but maintain only short continuous readability, as the sharp image edge powders off, affecting tactual discriminability. (2) Deposition techniques are found with Virkotype, which involves dusting wet inkprint with fine resinous powder that appears as a raised plastic symbol when heated but symbol elevation is low. An alternative is use of the Polyvinyl Chloride Base technique where resinous powders are heated into a core of 0.38 mm thickness. "During the actual heating process, a master surface mould prepared from a photo-engraved plate applies a raised layer of pigmented vinyl that permanently affixes to the base. The map can be embossed on both sides, providing an alternative to overlays" (Gill 1974, p. 64).

While this paper has shown some of the production methods to use in the creation of single-copy maps and master copies and some of the major reproduction methods, the development, use and continued existence of any method depends upon market demand, operating costs vs. budget, and time constraints with availability and efficiency considerations. Some of the more technologically advanced production and reproduction techniques are not widely available or may be shelved due to low budgets or low demand, and importance focuses on the volunteer with his use of manual labour intensive techniques. When we try to reach as many map users as possible with tactual maps, this use of 19th century technique to meet 20th century needs, makes one feel grossly inefficient.

Technique is but one area. Little is still known about the implementation of principles of haptic perception with tactual map formats. Continuing research may give us improved ideas as to the scope of these principles. Such knowledge must then be reflected in the attempts of standardization of the information elements in tactual maps. At the moment, everyone seems to be "doing their own thing." Successful "research and result" correlation could give us the increased understanding that we require in applying haptic perception principles to the standardization of symbol/map format. Such information would then be valuable to the map designers, in improving tactual map formats, and to the teachers, who instruct the tactual map users in the skills of map reading and interpretation, orientation and mobility.

References and Bibliography

Bentzen, B.L. 1979. Tangible graphic displays in the education of blind persons. Paper presented at a symposium on Tactual Perception, Louisville, Kentucky, March 1979.

Gill, J.M. 1979. Production of tangible graphic displays. Paper presented at a symposium on Tactual Perception, Louisville, Kentucky, March 1979.

Gill, J.M. 1974. Tactual mapping. American Foundation for the Blind, Research Bulletin, 28, 57-80.

Gill, J.M., and Clark, L.L. 1978. Research notes: resources for creating tactual graphics. Journal of Visual Impairment and Blindness, 72(1), 32-33.

Heath, W.R. 1958. Maps and graphics for the blind; some aspects of the discriminability of textural surfaces for use in areal differentiation. Ph.D. thesis, University of Washington.

James, G.A. 1979. Mobility maps. Paper presented at a symposium on Tactual Perception, Louisville, Kentucky, March 1979.

Ogrosky, C.E. 1973. New approaches to the preparation and reproduction of tactual and enhanced image graphics for the visually handicapped. M.A. thesis, University of Washington.

Ogrosky, C.E. 1978. The ordinal scaling of point and linear symbols for tactual maps. Ph.D. thesis, University of Washington.

Osier, D.V. 1979. Personal communication.

Sherman, J.C. 1978. Maps the visually handicapped can "see": research and experimental progress. Proceedings: Canadian Cartographic Association, June 1978.

Wiedel, J.W., and Groves, P.A. 1969. Tactual mapping: design, reproduction, reading and interpretation. Department of Geography, University of Maryland, Department of Health, Education, and Welfare, Final Report.

-oOo-

SUPPLIERS OF GRAPHIC PRODUCTS FOR THE BLIND AND PARTIALLY SIGHTED USER
(Compiled by Roger L. Barnes)

Canada

1. The Canadian National Institute For the Blind, 1929 Bayview Avenue, Toronto, Ont. M4G 3E8. Products of interest: Bold Print Atlas of Canada - English version, September 1978; French version, September 1979.

United States

1. American Printing House For the Blind, 1839 Frankfort Avenue, P.O. Box 6085, Louisville, Kentucky 40206. Products of interest: relief gloves, geographical maps, continental relief maps (dissected and non-dissected), braille atlases with braille and ink-print keys, map study kits.

2. Howe Press, Perkins School For the Blind, 175 North Beacon Street, Watertown, Massachusetts 02172. Products of interest: geographical maps.

3. Recording For the Blind, 215 East 58th Street, New York City, New York 10022. Products of interest: talking books (cassettes) may be requested from their catalogue. They also record any book or catalogue, not in their catalogue, and supply the accompanying graphics upon request. Such services are free to legally blind individuals.

4. American Foundation For the Blind, 15 West 16th Street, New York City, New York 10011. Products of interest: embossed maps.

England

1. The Royal National Institute For the Blind, 224 Great Portland Street, London W1, England. Products of interest: physical, political and geographical maps, orientation maps, relief globes.

2. Blind Mobility Research Unit, c/o Nottingham University, Nottingham, England. Products of interest: a map-making kit, designed at and available through the Nottingham Blind Mobility Research Unit.

Catalogues of current products and current prices may be requested by writing to the particular supplier, in the three countries listed above.

-oOo-

TACTUAL MAPPING FROM A PSYCHOLOGIST'S PERSPECTIVE

Susan J. Lederman
Queen's University,
Kingston, Ont.

Tactual maps as they currently exist have not proven overly effective, at least not in any general sense. However, as others before me have said, look at the situation. The relatively few maps now in use are usually of poor quality. The methods available for production are mainly manual and very limited. As well, the maps are used by individuals who have rarely if ever encountered such aids before; it's not surprising, then, that they don't know how to explore them effectively. Moreover, the blind user often possesses limited understanding of the geographical, or more generally, the spatial concepts that the maps are intended to represent. We can thus see serious problems occurring simultaneously in all three areas Roger Barnes has mentioned: map design, production and reproduction, and the map reading process.

For example, in the RNIB physical map of North America altitude differences are specified visually in brilliant colours for the benefit of those users with residual vision; tactually, altitude is represented by differences in surface texture. The map looks very good; however, from a tactual point of view, it fails. There is far too much clutter; the tactual symbols are not discriminable, at least certainly not in the plastic medium in which the map is reproduced. In addition, the map is probably too large to work with comfortably by touch - it's too easy to forget what one felt just a short time before.

I believe that psychology can play a crucial role in the attempt to handle some of the problems just mentioned. My own field is perceptual psychology, an area in which we consider, among other things, how we come to know the physical world through our eyes, ears, skin and so forth. Over the last several decades, there has gradually developed a very productive relationship between perceptual psychology and engineering. This relatively new joint discipline is known as "human engineering" or "human factors;" it emphasizes that equipment should be designed to "fit" the people who must use it. Let me give you a couple of examples. A dog whistle works well for dogs but not for humans because it uses sounds of much higher frequencies than the human ear is sensitive to. A less obvious example perhaps involves early attempts by researchers to make the skin "hear" speech. Initially, investigators tried to develop a means of teaching the deaf to "hear" by bypassing the defective auditory channel, and presenting sounds through the normally functioning tactile channel. The idea attempted to capitalize on two facts: (1) sounds are mechanical vibrations and (2) both the ear and the skin respond to mechanical vibration. The earliest systematic attempt was by Gault (1922). Initially, he simply spoke into one end of a long hollow tube. The other end was pressed against the palm of an observer whose hearing was masked. Although the observer had some initial success in recognizing a number of sentences and words in isolation, he was not nearly as successful as Gault had originally hoped.

One obvious (although certainly not the only) reason for this early failure is that speech sounds span a range of about 300 to 3000 Hz, whereas the skin is maximally sensitive to vibratory frequencies much lower than this. What is fine for the ear is not necessarily appropriate for the skin of the human observer. If we wish to develop successful techniques for teaching the deaf to hear through the skin, we must begin by carefully comparing how our tactual and auditory systems each normally work.

A similar human engineering approach can be used in the development of tactual maps, only here the comparison is between the tactual and visual systems. What is the most effective way(s) of presenting spatial information tactually? Can we simply translate a visual map into its raised tactual equivalent? (This is certainly the procedure which has been most commonly followed to date.) I don't think so. The reasoning is similar to what I just used previously to explain the early failure to make the skin "hear". Let me also provide an example which is more directly concerned with tactual maps. Many times now I have asked people to tactually examine a typical raised outline map (30 x 30 cm) of North America. Not one person has ever been able to recognize it, but when allowed to look at it, they have had almost instantaneous recognition. We cannot assume that touch works like vision; therefore, we should not assume unquestioningly that designs which work well for vision will likewise work for touch. We must understand how touch works, how we process information presented through the skin. We need to know much more about what touch can do well (i.e., its capabilities) and what it does poorly (i.e., its limitations), so as to design our tactual maps most effectively for tactual examination. In addition, we must consider the nature of tactual processing by the visually impaired, since their visual handicaps may alter the information they can obtain from a tactual map compared to the sighted.

Let's look briefly now at several aspects of tactual mapping which are relevant to the field of perceptual psychology. Because of the brevity of this talk, I will restrict my discussion to the area of map design.

One important aspect of map design is the choice of a legible symbology, i.e.,

a set of discriminable areal, line and point symbols. Unfortunately, tactual map producers and researchers have chosen symbols primarily and unsystematically on the basis of commercially available visual symbols. But what is discriminable visually, of course, may not be so tactually. Researchers (e.g., Nolan and Morris 1971; James and Gill 1975) have tried to determine sets of highly discriminable tactual symbols. Unfortunately, the total number of acceptable symbols has proven to be somewhat limited, especially for the areal symbols. Is this a particular limitation of the tactual system? Or, if now we were to determine systematically the dimensions along which symbols were judged to resemble or differ from each other, could we enlarge the number of usable symbols?

Another issue which must be considered when choosing a set of symbols is the effect of context on discriminability. There is much research in perceptual psychology which indicates that the context in which a stimulus pattern (e.g., visual, auditory or tactual) occurs can strongly influence a person's perception of that pattern. It can emphasize the presence and features of a pattern, and it can sometimes camouflage them. Unfortunately, none of the research to date has directly attempted the difficult task of assessing symbol discriminability within the context of the map itself. A study by Berlá and Murr (1975), however, relates to the effect of context. They found that the presence of irrelevant areal (texture) symbols on a tactual pseudomap interfered with the detection and location of line and point symbols. Further careful research is vitally needed in this area.

It is best if we can choose tactual symbols which are not only discriminable from each other, but which also inherently convey the concepts the symbols are chosen to represent. Consider the concept of direction. Although the arrow works well for vision, its raised counterpart is not particularly effective. Schiff, Kaufer and Mosak (1966) have designed instead a symbol they call a "directional line" (Fig. 1). It is a saw-toothed pattern which feels smooth when the hand is moved in the direction readily perceived by the user as the intended one: when the hand is moved in the opposite direction, it feels rough. These researchers have ingeniously capitalized on the inherent meaning contained in the physical structure of the symbol to produce a more effective tactual symbol for direction. This approach could prove very useful in the search for other meaningful symbols.

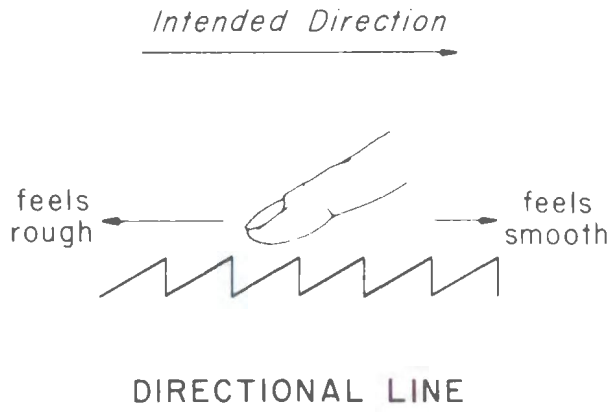


Fig. 1. A tactual symbol for direction developed by Schiff, Kaufer and Mosak (1966). For description, see text.

A fourth question concerning map design relates to the choice of an appropriate map size. In many cases, the map must be small enough to be portable, as with route maps. If the map is too small, the detail will be finer than the tactual system can resolve. Furthermore, the map will be far too cluttered to be easily interpreted. On the other hand, if the map is too large, the user will have a difficult time for other reasons, which mainly have to do with the way in which things are examined tactually. We usually explore an item over time, that is, successively, when touch is used; visual exploration of course is more often simultaneous. Successive exploration places a heavy memory load on the observer - it is often difficult to remember all that one was feeling previously. Moreover, it is very difficult to then synthesize information which has been gathered in such piecemeal fashion. Thus size is a particularly crucial consideration when designing tactual maps.

In such a brief talk, I have limited myself to only a few of the critical issues concerning tactual-map design. I'd like to point out though the perceptual psychologist must also deal with the other two areas of tactual mapping Roger Barnes discussed. First, production and reproduction - the precision of map production and reproduction techniques will substantially alter symbol discriminability; and of course symbols reproduced in paper do not have the height or therefore the clarity that those reproduced in (say) plastic do. Second, it is important to examine the map reading process. As yet we know very little about the tactual reading skills required to examine a map effectively. And we must also consider whom we are designing the displays for - the visually handicapped are a heterogeneous group, varying considerably in degree, duration, and age of onset of the handicap. Such factors may substantially interfere with the development of proper spatial concepts in these individuals, and therefore with their interpretation of the spatial information the map is intended to represent.

Summary

In summary, I would like to emphasize once again that to design effective tactual maps, we must understand how touch works - we must recognize that touch is not simply an inferior form of vision, but a system which functions with its own capabilities and its own limitations. We must further understand how visual impairments influence tactual perception, since the maps are designed specifically for the visually impaired. Such information should lead us to better approaches to tactual mapping, and should help us recognize certain possible limitations inherent in tactual graphics displays for the visually impaired.

References

Berlá, E., and Murr, M. 1975. The effects of noise on the location of point symbols and tracking a line on a tactile pseudomap. The Journal of Special Education, 9(2), 183-190.

Gault, R.H. 1923. An unusual case of olfactory and tactile sensitivity. Journal of Abnormal and Social Psychology, 17, 395-401.

James, G., and Gill, J.M. 1975. A pilot study on the discriminability of tactile areal and line symbols for the blind. American Foundation for the Blind Research Bulletin, 29, 23-31.

Nolan, C.Y., and Morris, J.E. 1971. Improvement of tactual symbols for blind

children. Final report. Project #5-0421, Grant #OEC-32-27-0060-1012. Department of Health Education and Welfare, U.S. Office of Education, Bureau of Education for the Handicapped.

Schiff, W., Kaufer, L., and Mosak, S. 1966. Informative tactile stimuli in the perception of direction. Perceptual & Motor Skills, 23, 1315-1335.

-oOo-

AN ATLAS FOR THE VISUALLY HANDICAPPED

Geoffrey Matthews
Department of Geography
University of Toronto
Toronto, Ont.

The Atlas of Canada in Bold Print was published in October 1978 by the Canadian National Institute for the Blind. Already the sales and general response from the public and teachers have justified its publication as an important aid in teaching Canadian geography to visually handicapped students.

The need for such an atlas, however modest, has been a desperate one for years. To my knowledge there have been only two large type black and white atlases published and one in colour, which is now out of print. The black and white publications were generally of poor quality and of very dubious help to a partially sighted student. All were printed in the United States. Canada is featured in two maps only. One map shows political boundaries and the other combines boundaries with population density and transportation routes. This deficiency in large type atlases is hard to understand when one considers that in North America, about 5% of the population, close to 12 million people of all age groups are visually handicapped to some degree. With such a market it is surprising that only a handful of the 15 000 publishers in the United States and Canada have printed large type books.

The limited potential of the Canadian market has undoubtedly been the major factor in the reluctance of publishers here to enter the large print field. High promotional and printing costs rarely balance the receipts when the volume of sales is limited. Fortunately the impetus for this atlas came from an organization that is not influenced by the profit motive.

Geography in our grade schools is a heavily map oriented programme. Much of the text and related questions in the school books revolve around specific maps and references to atlases. The inability of visually handicapped students to distinguish subtle colour gradations, small lettering and complicated symbols against the usually busy background of a map makes geography a difficult subject to teach to them.

In many ways the totally blind student is supplied with more "reading aids" than the partially blind. The talking book or tape programme is being rapidly expanded and an increasing number and variety of tactual and braille maps are available. The subject of geography, however, with its specialized map needs is virtually impossible to transcribe completely into talking books. At some point the reader on the tape is faced with describing a map which is technically

very difficult and generally no attempt is made.

In 1976 a small grant was obtained from the Ontario Department of Education to finance production of a black and white atlas. After a troubled start I was consulted to design and produce this new atlas. My proposal for an enlarged atlas in four colours at a greatly expanded cost was eventually accepted by the Institute.

An outline of the contents was compiled, the format was established and layouts were designed, then the project came to a halt. What weight of line should the shorelines be scribed? What style, size and weight of type is easier to read than another? Can partially sighted students distinguish subtle colour screen values? All these questions had to be answered before the first line was drawn.

I quickly discovered that research into this specialized subject is very limited. A scattering of researchers in the United States and Europe have contributed to the design and creation of maps for the blind, but only three or four have made significant studies directed towards maps for the partially blind.

Joseph Wiedel of the University of Maryland has researched the design of tactual maps for the totally blind, but a study by Gerald Greenberg and a joint paper by Greenberg and John Sherman at the University of Washington, Seattle, are the only relevant published studies that dealt directly with some of the problems I was facing. I understand research presently underway by Charlette Hiatt, also of the University of Washington, is focusing on the value of colour on maps for partially seeing children.

Some of Greenberg and Sherman's research was helpful with regard to the weight of linear symbols, but very little material was available on shape or colour of symbols and I could find no relevant work on the problems associated with the use of dot or line screens in colours or varying shades of black.

Fortunately there is a wide field of research into type styles and sizes for the partially sighted and this knowledge was applied to the atlas design. Generalization was an important factor. To the visually handicapped, complex linework is difficult to decipher. Symbols would be necessarily large, simple in structure, the number and variety on each map would be limited and printed in bold solid colours.

At this early point in the project neither the Institute for the Blind nor myself knew what age group would be the prime users of the atlas. If it was to be a junior school atlas the level of complexity would be simplified. After much discussion it was decided that the atlas should be designed for a mid-elementary to high school level where the need of the student in geography is greater. Thus the contents were arranged to present an analysis of Canada and include maps on population, transportation, climate, geology, soils, vegetation and agricultural land use. A series of eight regional maps follow in greater detail illustrating major economic activities such as mining, fishing, oil and gas production and the forest industry.

In order to fill in the gaps in the published research it was decided to construct a "visual questionnaire" (Fig. 1) and conduct our own experiments on visually handicapped students. The questionnaire was in the form of a mock-up map consisting of a lake system and several rivers draining into it. Seventeen symbols

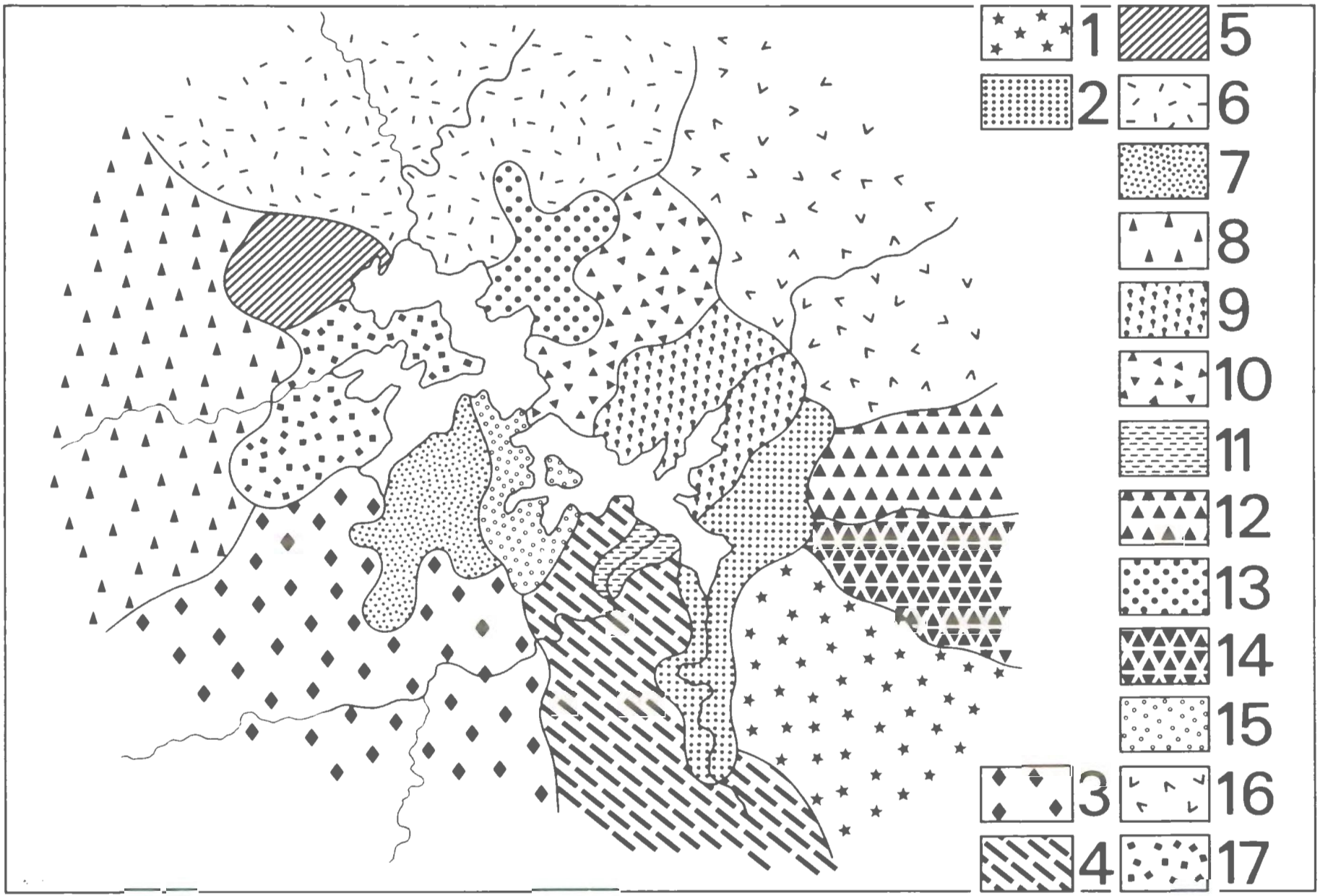


Fig. 1. Questionnaire used for testing symbol recognition by visually handicapped students.

that had been tentatively selected for use in the atlas were dispersed over the area, each group of symbols being segregated by a fairly heavy (0.018 in.) key-line. Numbered legend boxes to the right of the map contained a sampling of each symbol and space was allowed for the students comments. Good quality black and white prints were duplicated.

In addition to the questionnaire, a thematic map of Canada at the proposed publication size was drafted and a selection of type styles and sizes were placed on the map including a title and legend. Colours were added by Letrafilm.

Under the supervision of a large print specialist from the CNIB, a series of tests were conducted with students of low-vision classes in Metropolitan Toronto schools. The students were asked to assess the readability of each symbol and to indicate those which they liked, and those which they considered to be difficult to differentiate. They did this by grouping numbers which identified the legend boxes. Any other comments they volunteered were noted by the supervisor. The students ranged in age from 8 to 15 years. A second group, the vocational and rehabilitation class at the Institute was also tested. These students were young adults in the range of 18 to 30 years. In addition to these students many visually handicapped staff members of the Institute expressed interest and devoted much time and patience to our testing; this group were mature adults with varied academic standing from staff in the workshop to executives of the Institute.

The results of the survey were not as definitive as we had hoped. The very nature of vision disabilities is extremely complex. About 20 common eye disorders exist, each with its own peculiar problem. Many of these disorders are congenital, some are hereditary, and others are side effects generated by the development of other conditions throughout the body such as diabetes, tumors or cancer. Astigmatism, cataracts, tunnel vision, glaucoma, peripheral vision, retinitis and acute colour blindness were some of the conditions afflicting our test sample.

No particular series of symbols gained popular acceptance over any other. Some students had no difficulty in seeing tiny symbols very clearly, but had difficulty in visualizing an entire page. Another student could not concentrate on regular patterns because his "eyes went razzly-dazzly," a phenomenon of a rare condition called photophobia. Some students could not discern any difference between random dots, triangles, squares or stars. Their difficulty was not in seeing them, but in focusing on the shapes. Some did express a desire to see lighter symbols in juxtaposition with heavier bolder symbols and others felt that the use of a second strong colour would make their reading ability easier. It must be noted that the majority of our test sample had to hold the test map from about 6 in. (15 cm) to as close as 1 in. (2.5 cm) from one eye to be able to read the symbols. Some students' noses touched the paper as they read. A problem unique to atlases for the partially sighted student is the map legend. The reader, with eyes literally glued to the map, must identify a symbol then move across the page to find its meaning in the legend. This is a difficult problem to overcome. Possibly a loose legend on clear film that could be held closer to the field of vision may be the answer.

Whatever the solution, map reading is a challenge for the visually handicapped, and also a challenge for the cartographer to design maps that will not present further handicaps.

Type selection was the next consideration. Contrary to the old theory that it was injurious for one to read with text held close to the eyes, modern research has proven that reading at close range does no harm, and low vision students are encouraged to use their eyes as much as possible. Magnification is created by either using large type or by holding smaller type closer to the eyes. Large type publications are becoming more available for an older reading audience, 60 years and older. However, for young children there is a disadvantage - that the constant reading of large type does not prepare a low vision child for a future in a world of standard size type. The height of lower case letters in 12 point type measures about 2 mm. The same letters in 18 point type measure 3.3 mm. The large type is 1.7 times greater, which means that 12 point type is read as clearly at 12 cm (4.8 in.) as 18 point type is at 20 cm (8 in.) from the eye. Since about 70% of partially sighted students under 18 years have congenital defects, they are accustomed to limited vision and to holding things very close to their eyes. We presumed the atlas would be no exception.

Helvetica, a sans-serif type face, was chosen because of its simplicity. The lower case "a" is quite distinct from the lower case "o" eliminating a perception problem that occasionally arises with low vision students. The letters are well rounded, cleanly cut and are available in light, medium, bold and extra-bold weights as well as the full range of italic. The smallest type used was 9 point Helvetica capitals for the scale legend and the largest was 30 point bold for the map titles. Legend text was 14 point. No light faces were considered because our test sample found medium weight to be more legible.

The atlas was negatively scribed on rust scribecoat at publication size. Shorelines are scribed at 0.022 in. and rivers vary in width from 0.022 to 0.010 in. Keylines on thematic maps are 0.018 in. A common base of rivers and lakes was used for the Canada maps and individual symbols were scribed on overlays to avoid clashing with the drainage. The symbols were drafted to reflect a contrast in shape or colour between adjoining regions. Where it was possible symbols were designed to associate with component parts of the map without creating extreme or complicated shapes, e.g., ▲ = commercial forest and ▲ = non-commercial forest.

A variation of the four process colours are used throughout. Magenta was warmed to produce a cherry red. Cyan was darkened slightly by the addition of a touch of red, but yellow is normal process yellow. Subtleties in screen values were avoided. Densities are heavy compared to normal cartographic procedures. Water areas are printed in a heavy 50% blue. Surrounding peripheral areas not under study, such as portions of the United States are printed in an 80% yellow screen. The lightest density screen is 30% red for populated areas. A linescreen red overprinting 50% blue defines commercial fishing areas.

The size of the atlas is 23.75 cm (9.5 in.) wide by 31.25 cm (12.5 in.) high. Each Canadian and regional map is presented as a double page format. There is a four page glossary of geographical terms of population and physical statistics. The atlas is printed on Renaissance dull white 80 lb stock and sells for $8.95.

As of this writing the response to the atlas has been exceptional from both a financial and a critical point of view. A French edition is currently being produced. The most important acknowledgement, however, will be from the users of this atlas - visually handicapped students. This small attempt should really be just the beginning. Much more research is obviously needed, but until the results of this research are available we should proceed along similar paths as this atlas in simplifying maps for the visually handicapped.

-oOo-

ONTARIO BASIC MAPPING

J.A. Haddon
General Manager, Mapping Services
Ontario Ministry of Natural Resources

One of my very happy memories in recent years was a kind invitation to speak to you map librarians at McGill. Many of you will have also heard me, and on the same subject, at U. of T. - and here I am again at Brock. With any luck - before I retire, and following the same general direction - perhaps you could arrange for me to take in Simon Fraser and U.B.C.

In order to let you down lightly, my paper will really present an update on the Ontario Basic Mapping program rather than a full statement; however, I will have to touch on the fundamentals of the program, in case any of you are not familiar with them.

As you may know, the Ontario Task Force on Geographical Referencing, when it was considering the ways in which geographic position might be used in government data systems, thought that it would be prudent to see if it was possible to obtain consistent geographic position throughout the Province. Because most people use maps to obtain position, the Task Force looked at the available mapping and found that large areas of Ontario were not covered by maps at suitable scales. In other areas there were very serious discrepancies both in horizontal and vertical values between map series. To permit geographic referencing to get under way, in 1977 the Ontario Government selected one common referencing grid for the Province and approved the following mapping program (Fig. 1).

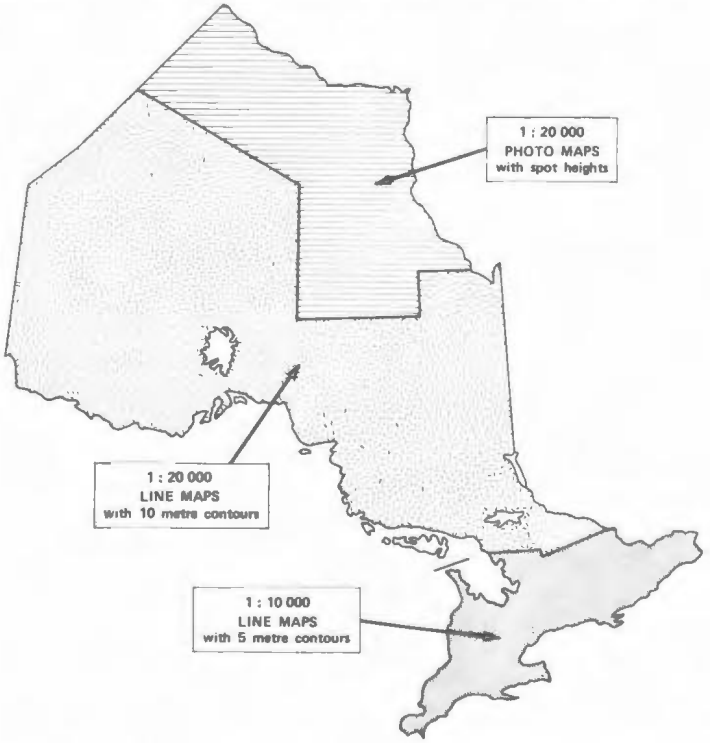


Fig. 1. 1:10 000 and 1: 20 000 mapping coverage.

In the north the Province is to be covered at 1:20 000 and in the south at 1:10 000. The Hudson and James Bay Lowlands coverage will be by ortho photographs with spot heights. The remainder will be by line maps with contour intervals as shown in Fig. 1. The U.T.M. grid system will appear on these maps and their neatlines will be rectangles 50 cm by 50 cm, coinciding with the grid itself. These maps are simple accurate skeletal maps, designed for use by other, probably thematic, users.

The mapping will be carried out by private industry with a very small Government monitoring bureaucracy. Priorities will be established by inter-Ministry committee.

The third scale approved by the Government is the large scale mapping at 1:2000 with 1 metre contours. It is intended that all urban areas be covered at this scale. At 1:2000 we have been experimenting with accurate property overlays. Selected surveyed property corners are tied to the mapping control and the balance of the properties are computed to fit. We find that this appears to be not too difficult to do, working in close cooperation with Ontario Land Surveyors. The property overlay is not nearly so costly as was originally predicted and its computed accuracy is probably better than can be plotted - conservatively say to within 1 metre but in practice probably very much higher.

The single greatest difference between these and most other maps is that the control is first carefully analyzed. That which is used in the mapping must be installed to pre-determined accuracies suitable for multi-purpose use and simultaneously adjusted. All control is monumented, both horizontal and vertical. Thus the field surveyor will have many coordinated field reference points from which to make ground ties.

So where do we stand with the Ontario Basic Mapping program at 26 May 1979 or, as we metrified people say, at 1979 05 26? The program will cover the Province in 13 years. Despite delays caused by every possible bureaucratic entanglement we appear to be running slightly ahead of schedule. The original idea was to spend $2 million a year during a 3 year start-up period, then to increase to about $7 million a year for 10 years, when coverage will be complete. On-going revision will cost about $4 million a year. If we consider ourselves as in the first year, we are fairly sure of $2.75 million or more this year, so we have a little more money than we expected.

The Priorities Committee in an interim decision recommended some priorities for start-up, to give us something to work with. These will be reviewed later in the year, but as best we can presently determine, the general priorities will be as is shown in Fig. 2. You will note that some work has already been completed, largely courtesy of our good friends the Ministry of Northern Affairs, who put up $2 million to bulk test the system.

As to results in the immediate future, our area mapping programs at 1:10 000 and 1:20 000 should proceed as in Fig. 3 for the next year or so.

Urban mapping priorities, that is the mapping at 1:2000, are more difficult to predict for a number of administrative and technical reasons. First of all, nearly every municipality that hears of the program wants a piece of the action, and we have neither the funds nor the capacity in industry to handle such a load quickly.

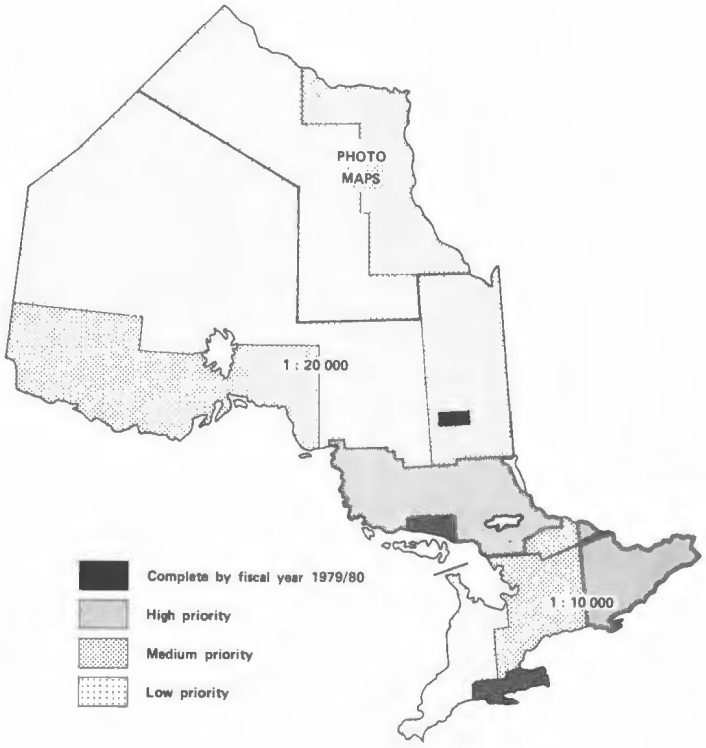


Fig. 2. Area mapping - probable priorities.

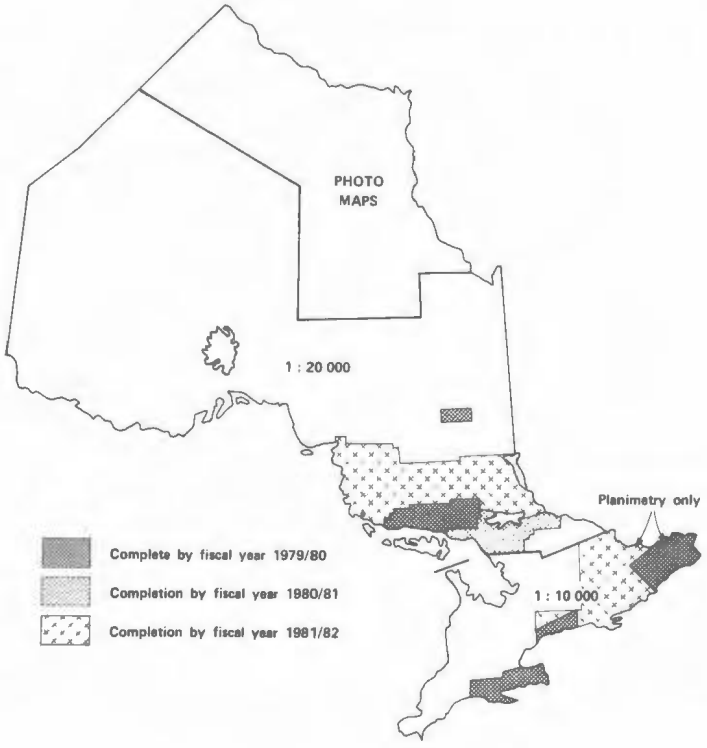


Fig. 3. Area mapping - production in hand.

In part the financial support is coming from funds solely assigned to northern development therefore the North will probably gennerally get the priority. Northern communities have very urgent needs because their populations are comparatively so small that they cannot do the work for themselves. There are also some technical control problems in the South that have to be resolved before we can undertake mapping at this scale. It is technically and financially more difficult to deal with large southern urban areas at the start of the program than when we have gained more experience and I believe that in the next year or so we will have more to show for our work at this scale in the North than in the South. The general location of the communities we have been experimenting with are shown in Fig. 4.

We are pleased with our contractors, our product and the excellent cooperation between the various sub-disciplines of surveying and mapping. Our specifications appear to work - no one has yet threatened to sue us - and even our somewhat unorthodox procurement procedures have withstood the usual onslaughts of furious purchasing officers.

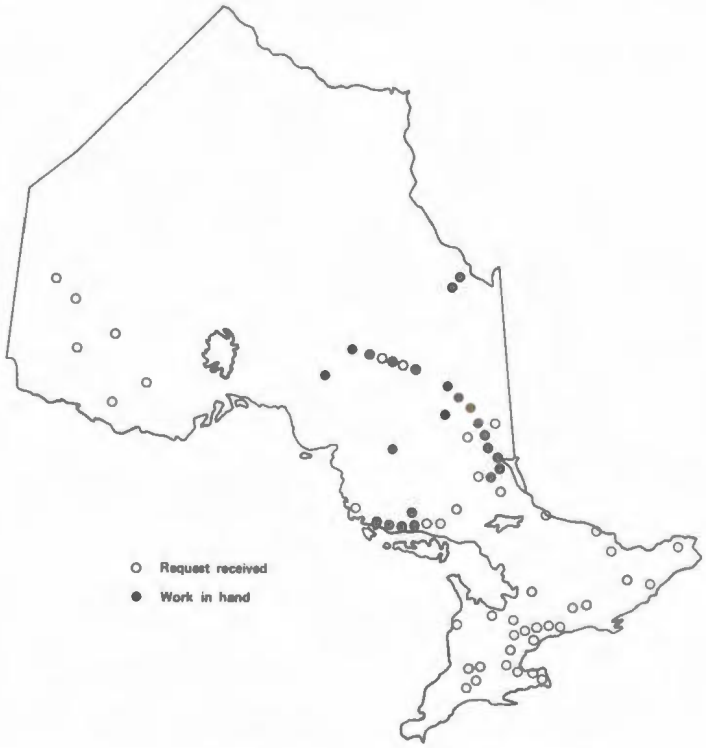


Fig. 4. Urban mapping at 1:2000.

-o0o-

REPORT ON MAP SECTION, ARCHIVES OF ONTARIO

William Ormsby, Archivist of Ontario
Toronto, Ont.

When I took up my appointment as Archivist of Ontario last July, I was greatly surprised to discover that the Map Section of the Archives was less than a one-man operation. Actually, the Map Archivist devotes approximately 70% of his time

to servicing the Map Collection and 30% to Record Groups, for which he is also responsible. Although he usually has the assistance of a student for four months during the summer, the situation must be improved. I have given a high priority to obtaining additional positions in our Map and Picture Sections as soon as the current freeze on new positions is lifted. Despite the shortage of staff, we have endeavoured to cope with the growth of the Map Collection and to make some improvements in servicing it.

During the past decade, our most substantial improvement occurred in the spring of 1972 when we moved into our present building at 77 Grenville street. At that time, the Map and Picture Sections were given a joint reading room separate from the main one. This was a great improvement for both the public and the staff. Members of the public can obtain guidance from the map archivist instead of having to fill out numerous request slips some of which might be unproductive and, since the map archivist can interview people before they begin their work, he is saved needless retrievals. Moreover, since 1972, we have had adequate room for staff and public to pursue their activities in the Map Section. We are only now having to examine the possibilities of obtaining additional space for more map cabinets as the size of the collection increases.

Among other improvements during the past several years are the organization of maps that required it, on a chronological or alphabetical/chronological basis; the use of Permalife outer folders and the placing of many of the maps within them in acid-free folders; and the improvement of cataloguing methods.

We adopted the catalogue card ACML sponsored several years ago and continue to find it a satisfactory means of map description from the point of view of our collection. The adjustment of our methods to current ideas concerning international standards of cataloguing may have to wait until additional funds are obtained in our budget. Our system is somewhat unusual in that it provides public access to two sets of catalogue cards, one in the main reading room and one in the map area. Mr. Robert W. Karrow, Curator of Maps at the Newberry Library, was impressed with the old ACML card as a means of expediting cataloguing. In his bibliography of cartobibliographies, he rated our level of map description in the second highest category. While many of our earliest accessions could be re-catalogued and many other improvements could be made in all aspects of our map operation if additional staff were available, there has been, nevertheless, some solid progress during the past several years.

We have found it necessary to resort to the listing of homogeneous groups of maps and plans transferred from government ministries or agencies when single items in the group do not have exceptional archival or historical value. If an individual item has exceptional value, we catalogue it in addition to listing. As long as public access is provided through a catalogue card and the list, we do not consider this to be a departure from proper practice, since most of this type of material would not merit individual cataloguing under any circumstances.

Lack of a large vacuum frame has hampered copying of large maps except by photostat, but this problem should be overcome during the present calendar year. Despite the difficulties, our photographer made an excellent copy of the David Thompson map which appeared last year in the Special Publication Division of the National Geographic Society's Into the Wilderness.

Four years ago, we obtained a well qualified conservator from England and, although

it is difficult for one man to make much of an impression on the entire holdings of an institution, he has done skilful work on a number of our maps and is particularly useful in preparing maps for displays. He also counsels persons outside our institution on conservation matters. The use of photostats whenever possible is our major means of avoiding wear and tear on the maps.

Our collection consists of about 21 000 maps and 170 atlases. Architectural plans and aerial photographs are stored with, and considered to be, part of the picture collection. We also have approximately 2000 maps and plans which, though housed with the map collection, are still considered to be part of a Government Record Group.

The backbone of our collection is made up of maps and plans derived from the Office of the Surveyor General, either through direct transfer or by some indirect means. As an example of the latter, most of the more important maps in the Simcoe and Talbot Collections are really S.G.O. plans and many of the printed maps of the 19th century are based on S.G.O. surveys.

Although we have some earlier printed European maps and atlases, our collection really begins with manuscript maps and plans, c.1784 based on surveys which were required to cope with the Loyalist and post-Loyalist migrations. While some of these early maps and plans are of districts, most of them are of townships. The latter are shared by three agencies: the Archives, the Survey Records and Information Office and the Patent Records Office of the Ministry of Natural Resources. We have also received, from the Ministry of Natural Resources, town plans, exploratory surveys, road, railway and timber limit maps and plans, most of which date from the middle of the 19th century.

The Simcoe maps, on permanent loan to the Archives from the University of Toronto, constitute an important series of information on the early days of Upper Canada. There are over 100 of them of which many are manuscript and date from c.1790. While they include many parts of Upper Canada, the main emphasis is on Lake Erie, Detroit River and Lake St. Clair Region in maps by Patrick McNiff. Some of these maps also show parts of the United States and Lower Canada. There is also a 1797 map of Santo Domingo, where Simcoe served as a governor.

We have three volumes consisting of 45 plans in all for the Talbot settlement to the north of Lake Erie. These are manuscript plans, done mainly by Talbot's surveyor Mahlon Burwell, and most of them show lot ownership during the period 1802-1832 in the Talbot townships.

We have a very important collection of Canada Company maps dating from 1826-1946. The collection is made up of approximately 300 individual maps and several more bound volumes. They are mainly township plans dealing with land sales, and names of lot owners do not usually appear. The exception is a bound volume containing late 1830's plans by the Canada Company's surveyor, John McDonald, showing the individual lot ownership that existed at that time. The land business required some variety in map types and there are some general maps and some town plans as well.

The map most identified with the Archives of Ontario is David Thompson's 1813 map of the Northwest Territory of the Province of Canada, which shows the results of 20 years of exploration for the Northwest Company. Extensive restoration work has just been completed on this map. We also have four volumes of boundary maps

for the 1820's boundary survey under the Treaty of Ghent, on which Thompson served as a commissioner. In addition, there is a manuscript plan in four sections of Thompson's exploratory survey from Lake Huron to the Ottawa River, c.1837.

The rest of the collection is comprised mainly of printed sheets on areas within the Province of Ontario, of which fire insurance plans and topographic maps are most numerous. Our holdings also include: hydrographic charts, geological sheets, railway maps, road maps, land ownership maps and atlases, and timber limit plans.

During the past year, our accessions totalled 985 and we had 1736 visits and requests for information. Of the accessions, the most important was one of 306 maps and plans dating from 1845 to 1938 from the Survey Records and Information office of the Ontario Ministry of Natural Resources. Most of these are manuscript plans showing timber limits with others of railway lines and exploratory surveys. We have also purchased 68 reprint maps of portions of Canada and North America taken from the British Parliamentary Papers.

-oOo-

REPORT OF THE NATIONAL MAP COLLECTION, PUBLIC ARCHIVES OF CANADA

Betty Kidd
Director, National Map Collection
Public Archives of Canada
Ottawa, Ont.

To summarize a year's activities in a short period of time is, for me, an extremely difficult task. Thus, there will be many items of interest for which there will not be sufficient time for discussion. As in previous years, I refer you to the published annual reports of the Public Archives of Canada - to the offprints for the National Map Collection, which are usually distributed to ACMI members. Only the highlights of the past year will be noted in this report.

Acquisition

As in other years, numerous significant and valuable items and collections were acquired by the National Map Collection, through purchase, donation and transfer. Some 17 281 items were acquired in 1978-1979. This number does not include a large backlog of current series sheets which awaited accessioning at the end of March 1979.

The Modern Cartography Section acquired 10 356 items. The section continued to receive the Canadian current cartographical record through voluntary deposit and through purchase, and foreign series through exchange agreements and through purchase. A new series was added to the collection this year: Israel 1:100 000 (Survey of Israel, 1975-). This series covers the territories gained during the 6-Day War. Municipalities across Canada were sent form letters requesting available current plans. Seventy per cent of the 450 municipalities responded and 635 maps were received from this source. A concentrated effort was made to collect late 19th and early 20th century maps, in particular of the Arctic and Northwest Territories. Seventy-one sketch maps by Robert Bell, former director

of the Geological Survey of Canada, were purchased at three different sales of The Montreal Book Auctions - regretfully, we did not acquire the Indian sketch maps from this collection. Since the National Map Collection is part of an institution in which material is divided by "media," transfers from other divisions are a regular occurrence. Of note are maps relating to the world wars and to northern exploration.

The Government Cartographical and Architectural Records Section acquired 6766 items.

Significant acquisitions include the cartographical materials from the Commission re: Indian Lands and Indian Affairs Generally in the Province of British Columbia (1916), a large collection of maps from the records of the Department of Indian Affairs (Black Series dealing with Western Canada), the cartographic record compiled by the Mackenzie Valley Pipeline Inquiry (headed by Mr. Justice Thomas R. Berger, Commissioner), a collection of maps and plans relating to the Department of Agriculture's activity at Brandon Research Station and other locales in western Canada, and plans of Canadian exhibits at international exhibitions from the Canadian Government Exhibition Commission.

Architectural materials include a magnificent coloured drawing of Bonaventure Station, dated 1889, from Canadian National Railways; a small collection of plans for stained-glass windows acquired from the family of artist Frank Ramsdale; and drawings by Thomas Dunlop Rankin relating to the Parliament Buildings, including three different proposals for the Peace Tower.

The Early Canadian Cartography Section acquired 159 items in the pre-1850 period. The most important acquisition in this area is a manuscript map, measuring about 2 feet by 5 feet, entitled "Plan of Louisbourg, the Harbour, part of the coast, with the French retrenchments along the same..." by Samuel Holland. A 1695 terrestrial globe by Dominico di Rossi was purchased; this is the earliest by 100 years of the globes in our collection. Two states of the famous and influential Del'Isle map, Carte du Canada ou de la Nouvelle France..., were acquired. One was the very rare first state with the "Rue des Canettes" imprint. A large ($2\frac{1}{2}$ feet by 3 feet) Dutch navigational chart by Pieter Goos titled West-Indische Paskaert printed on vellum at Amsterdam ca. 1680-1690 and centered on the Atlantic Ocean was purchased. A separate sheet of Septentrionalium Partium Nova Tabula from the 1574 Venice edition of Ptolemy's Geographia was purchased. This map, known as the "Zeno map," holds a special place in the early cartography of Canada. Another important item is a manuscript map of Parry's discoveries in the Canadian Arctic, ca. 1820. The Public Archives Library transferred to the National Map Collection for conservation and horizontal storage three large maps which had been folded into books. These were Samuel de Champlain's Carte de la nouvelle france (1632), Samuel Hearne's A Map Exhibiting Mr. Hearne's Tracks in His Two Journeys for the Discovery of the Copper Mine River... 1770, 1771 and 1772 (1795), and the Jesuit Claude Dablon's Lac Superieur et autres lieux, published in 1673 with his Relation of 1671-1672.

For the first time, the Public Archives was offered as an original item a forgery of an early map. The National Map Collection had been alerted that forgeries of the 1587 Ortelius map of North and South America were available. Thus, the map offered for sale was immediately carefully analyzed. The map was photographed using ultraviolet light by the Picture Conservation Section. The map appears to have been printed from a photographically prepared plate and the paper then

pressed onto a metal plate to give it a plate mark and thus appear to be an engraved map. This plate mark provides the evidence of the map being a forgery since the plate used in the forgery is one-half inch wider than that used for the original. The paper used is from early church documents from which the ink has been bleached out. This ink is apparent in the photographs taken under ultraviolet light. The publicity given to this forgery includes an article in the Toronto Star, which demonstrates the role an archives can play in helping detect forgeries.

Custody

(a) Documentation/Description - In the past year, 785 cataloguing records were prepared and edited, a 250% increase from 310 in 1977-1978. In addition, the Government Cartographical and Architectural Records Section has prepared "first level" entries from the inventories of the holdings in that section. The new catalogue now includes 45 of these entries. Preliminary research has commenced on the Canadian map series and a few of the smaller series are being catalogued using the multilevel technique. Also, approximately 100 finding aids or listings of materials were prepared, mainly for government records.

The National Map Collection has been established as a separate unit, "Library 5" in the automated authorities subsystem of the National Library. The output produced for the Collection from the subsystem is a computer-printed list which is updated every two months. In 1978-1979, 199 authorities were established by the Collection, and 446 authorities established by the National Library have been coded to indicate usage by the National Map Collection.

In late 1978, the second edition of the Anglo-American cataloguing rules was published. The National Map Collection started using these rules for cataloguing in early 1979. During the last quarter of the year a co-operative project to write a manual on the interpretation of these rules for cartographic material was initiated. The Geography and Map Division, Library of Congress and the British Library have agreed to co-operate with the Canadians in this venture. A meeting will be held in October 1979 to compile a collective interpretation of the rules for cartographic materials.

The National Map Collection learned early in 1979 that the Bibliographie cartographique internationale would no longer be published. Although there have been financial, staff and documentation problems for some time, the demise of this publication is unfortunate because there is no other international annual cartobibliography of current mapping. The National Map Collection had contributed the Canadian entries since 1967.

As part of the National Architectural Archives program, a subject index is being prepared for all maps and architectural drawings held by the Collection. The index allows access to these materials by building type; 21 major categories are subdivided into specific building types. Within each building type, the index cards are arranged alphabetically by municipality.

(b) Conservation - One of the highlights in the conservation area in 1978-1979 was the construction of a vault for some of the rarer materials held by the National Map Collection. A number of larger size horizontal cabinets were acquired, which allowed needed expansion room for this size grouping of maps.

The Records Conservation Section treated some 2603 items in the past year. In

addition to the regular work, 13 charts from the Atlantic Neptune were encapsulated on an experimental basis, a 17th century marine chart on vellum was restored and a special storage unit for the 10-foot long Cook chart was constructed.

The Picture Conservation Section researched the subject of restoration of globes and has restored the pair of Wilson globes, dated in the 1830's.

(c) Microfilming - The 105 mm microfilm program continued in 1978-1979, concentrating on completing the filming of the small size maps in the H3 and H12 categories, and filming the fire insurance plans and the large size maps in the H1(R) category. In addition, a small group of plans owned by the E.B. Eddy Company were loaned to the Public Archives for copying. This year 18 263 items have been microfilmed - 36 526 fiche have been produced - as compared to 11 864 in 1977-1978, an increase of 35%.

(d) Security - Security was improved both at 395 Wellington Street (construction of a vault) and at 151 Bentley Avenue (the map area has been securely fenced). In 1979-1980, the National Map Collection hopes to have its stack area at 395 Wellington Street made more secure, by partitioning the map area from the rest of the stack room, which is utilized by the National Library. It is ironic that in 1978-1979, when security was being improved, that several thefts were discovered. In one case, the Head of the Early Canadian Cartography Section identified in court a book which had earlier been stolen from the National Map Collection. The judge accepted the identification and ordered the book returned to the Public Archives. The suspect was not found guilty since there was not sufficient proof for a conviction. In the second case, maps were removed from the 1540 edition of the Ptolemy atlas.

(e) Possible Move - As one of the divisions of the Public Archives scheduled for a possible move to Phase IV of Place du Portage in Hull, within several years, the National Map Collection has been active in planning and identifying its requirements. The problems of moving and ensuring proper environmental and security conditions make those of us involved hesitant about the wisdom of a move. However, our areas at 395 Wellington and 151 Bentley are being strained with each new addition. Some divisions must move, or more warehouse-type storage will have to be acquired very soon.

Public Service

(a) Requests from Public - There has been a 9% increase in persons visiting the Collection and an 8% increase in the number of written enquiries received. In 1978-1979, the National Map Collection responded to 2027 oral, 820 telephone and 974 written enquiries.

A divisional reference co-ordinator was appointed in the past year - Thomas Nagy.

There has been a gradual shifting in the type of photocopies provided to researchers. Photographic enlargements from microfiche are now being provided for researchers, instead of photostats, for those groups of maps which have been microfilmed. Many researchers have commented on the excellent quality of these copies. There has also been an increase in the price of photoduplications; copies of the price list are available.

The enquiries received by the National Map Collection in 1978-1979 concerned a wide range of topics. Some of the most noteworthy include the toponymy of

Manitoba and of New France, the trails taken by David Thompson and J.W. Trutch, the maps available to W.J.S. Pullen in his search for Franklin in 1849-1851, the number of copies of Champlain's 1613 Voyages containing the first state of a specified map and the number containing the second state, copper plate engraving, numerous urban studies utilizing insurance plans and atlases, maps visually portraying the history of Saskatchewan, the lumbering activity in Ontario and Quebec, the wharves in Quebec, and a cartobibliography of Thunder Bay. In addition, Robert Karrow, map curator at the Newberry Library, spent nearly 2 weeks in the Collection, cataloguing materials for his bibliography of cartobibliographies of pre-1900 maps of Canada and the United States. The present Lord and Lady Dufferin, who visited the Collection in October, were shown maps and plans relating to the earlier Dufferin's activities in Canada while he was Governor-General.

Now that more and more people and institutions are buying maps as works of art or for investment, an increasing number of requests are being received from individuals and institutions for help in identifying maps and for general information about the significance of the map.

(b) Publications - The publication An inventory of architectural records: description of a project carried out by Heritage Ottawa, 1976 = Inventaire des archives de l'architecture: description d'un projet mené en 1976 par Heritage Ottawa became available during this fiscal year. For further information on the project, please refer to the 1976-1977 annual report.

The brochure on the National Architectural Archives program is also available.

The three-volume publication on Indian Reserve maps progressed well. Volume One, dealing with British Columbia, and Volume Two, the Prairie Provinces and the Yukon are nearing completion and will be published in the fiscal year 1979 1980. Work is underway on Volume Three, comprising Ontario, Quebec and the Atlantic Provinces.

Progress was also made on the co-publication with University of Toronto Press, The Riel Rebellions: a cartographic history = Le récit cartographique des affaires Riel, by William Oppen, due for publication in the summer of 1979.

To complete the compilation of the updated union list of series, the Collection hired a student for the summer. It should be available this autumn.

The planning and writing of a guide to the Collection's holdings commenced; the planned publication date is 1979-1980.

The divisional finding aid of the Inuit occupancy and land use maps was distributed by Environment Canada to various researchers interested in the North and the divisional finding aid for the fire insurance plans donated by the Waterloo Mutual Life Insurance Company is available, as announced in the most recent ACML Bulletin (No. 30, March 1979).

(c) Exhibitions - The National Map Collection contributed to several departmental exhibitions, including Keeping the Record.

The Department of National Defence travelling exhibition, celebrating the 75th anniversary of mapping by that department, was shown in the Public Archives from December 18, 1978 to January 21, 1979. Some 20 origina items from this

from this Collection were featured.

In the spring, the travelling exhibition, The Architectural Heritage of the Pontiac, was being shown at the Public Archives, sponsored by the Collection's National Architectural Archives program.

(d) Redistribution - An agreement was made with the Records Management Branch to use the regional records centres for regionalization of the redistribution of surplus materials. In May 1979, the Halifax centre was utilized to distribute more than 5000 items to map custodians in Atlantic Canada. It appears to have been a successful experiment. Several students sorted surplus materials, in preparation for the next redistribution session, tentatively planned for this autumn in either Ontario or Quebec (or both). Last summer, in addition to sorting maps, approximately 20 000 topographic sheets and a small number of duplicate boundary and electoral atlases were prepared for shipment.

A lengthy list of foreign maps for redistribution has been circulated to university map collections; requests have been received and will be processed in the near future.

Other Activities

Staff members of the National Map Collection are active in a number of work-related national and international associations, committees, task forces and working groups; several also contribute to and/or sit on the editorial boards of various publications. These, it should be noted, are in addition to the task forces and committees within the Public Archives.

A glance at the Collection's conference attendance schedule for this year is indicative of the wide-ranging activity of its staff members - the conferences at which the National Map Collection will be represented in active roles include, in addition to the ACML and the Canadian Cartographic Association: the Association des archivistes du Québec, the Society for the Study of Architecture in Canada, Association of Canadian Archivists, Special Libraries Association's Worldwide Conference on Special Libraries in Hawaii, International Map Seminar in South Africa, International Federation of Library Associations in Copenhagen, International Seminar on Historical Cartography and Cartographic Archives in Helsinki, International Conference on the History of Cartography in Berlin, the Society of American Archivists in Chicago, and the Canadian Permanent Committee on Geographical Names.

The close co-operation between the cartographic archivist community, fostered by the Cartographic Archivists Seminar in April 1978, continues through a regular informal "newsletter" on a quarterly basis. Plans are underway for a second seminar in 1980.

Conclusion

The National Map Collection has extended to the Association of Canadian Map Libraries an invitation to hold your 1982 conference in Ottawa. 1982 will be the 75th anniversary of the "Map Room" of the Public Archives of Canada. We hope you will be able to join us in our celebrations.

-oOo-

LANDS DIRECTORATE, ENVIRONMENT CANADA

Jennifer Moore, Information Officer
Lands Directorate, Environment Canada
Ottawa, Ont.

Lands Directorate of Environment Canada has been involved in land use mapping activities since its inception in 1971. The maps and the text-oriented publications are all designed to enhance the Directorate's mandate of promoting "effective and environmentally sound use of Canada's land resource." I would also like to mention that in addition to Lands Directorate, there are other areas within Environment Canada having on-going mapping projects which may be of interest to you. Included are the Canadian Forestry Service, the Canadian Wildlife Service, the Environmental Protection Service, Inland Waters Directorate, and the Atmospheric Environment Service. Because of time and my own knowledge constraints, I will not describe the mapping outputs of these agencies, but I suggest that you contact the Departmental Information Officers in Ottawa for more information.

Although Lands has been challenged by re-organization and ever increasing budget cuts, as have many other federal departments, we are still managing to produce maps. Today I would like to highlight some of our map, map-text and graphic-oriented publications. The Canada Land Inventory (CLI), the Northern Land Use Information Series, the map-folio series, and the more recent Ecological Land Classification Series, all with different formats, scales and styles, are the major publications which I would like to discuss.

The Canada Land Inventory Mapping Program, which is now 14 years old, has printed more than 11 000 maps at scales of 1:125 000, 1:250 000 and 1:1 000 000. These maps are available in flat or folded copies. In addition, most of the coverage information for agriculture, forestry, wildlife (ungulates and waterfowl) and recreation has been input into the Canadian Geographic Information System, our computer, thus enabling data summaries of the amount and size of high, medium and low capability areas for each of the land uses. To date two of these sector reports for agriculture and recreation have been prepared and, by the end of this year, two more reports for ungulates and waterfowl should be published. Also manipulations of CLI data with other data bases have resulted in publications such as CLI Report No. 15, Canada's Cities and their Surrounding Land Resource. This report is the result of an exercise where the computer drew concentric circles for up to a distance of 100 miles from the area extending from 23 of Canada's largest cities, and then superimposed this grid on the agricultural capability for the area.

The Northern Land Use Information Series, which operates under a joint Department of Indian and Northern Affairs and Department of the Environment program agreement, is allocated an annual budget of almost $\$\frac{1}{2}$ million. Since 1971, 192 map sheets have been published and 26 more will be available later this year. Initially the project was designed to investigate the Mackenzie River Valley and publish a type of regional atlas. However, since then, the urgent need to acquire baseline environmental data in the North has assisted the series in developing into a major systematic environmental-social research and information program for northern Canada. To date more than 880 278 mi^2 of Canada's north have been surveyed at a scale of 1:250 000. The map-text format has been standardized and is divided into information topics such as wildlife, fish resources, native land use (hunting and trapping), recreation-terrain evaluation and socio-economic and

cultural data including community information, climatic characteristics, ice break-up and freeze-up, archaeological sites, historical sites, campsites, etc. This year we will be researching Study Area 8, around Baker Lake, and this will complete the mainland portion of the Northwest Territories.

Number 4 in the map-folio series was published this year. The book was completely researched and produced in-house, and has been our largest undertaking to date. The combination map-text design, a characteristic of the series, was chosen as the best format for the theme of Canada's Special Resource Lands. From a national perspective, some of Canada's critical, special and unique resource lands have been identified by using a variety of criteria, including physical, social, economic and cultural factors. Various land uses were discussed and comprise the chapters in the book: agriculture, wildlife, forestry, urban development and energy development. The majority of the 88 maps in the book are at scales of 1:6 000 000, 1:15 000 000 and 1:20 000 000. Some map bases were borrowed from the Department of Energy, Mines and Resources and then the thematic material was overlaid on them. In addition, there are 142 tables and figures and 153 photographs which assisted in interpreting the 500 pages of manuscript.

The next map-folio publication will monitor the conversion from rural to urban lands around 71 of Canada's major urban centres, having populations of greater than 25 000. CLI data were used as a data base and were updated by using air photo interpretation to indicate areas of land use change. This publication should be available for distribution by late fall. For more information please contact Dave Gierman, Lands Directorate, Environment Canada, Ottawa, Ont. K1A 0E7.

Finally, I would like to talk about the Ecological Land Classification series, which is now represented by 11 reports. Although not all of the reports are map-oriented, I would like to discuss briefly report No. 4, The Ecological Land Classification of Labrador, which was published by the Atlantic regional office of Lands Directorate. Because of increased exploratory activity to determine the extent of Labrador's natural resources and its sensitive northern environment, it was perceived that there was a need to obtain pertinent baseline data for all of Labrador, to assist in the management of the land base. Hence, in 1976, a reconnaissance survey was conducted to assess the physical and biological characteristics of Labrador. A map, with accompanying descriptive text, is the result and has combined the information available from: interpretation of available LANDSAT imagery and aerial photography, a literature review and verification by spot field-checking. This map is available free of charge from Lands Directorate, Atlantic Region, P.O. Box 365, Halifax, N.S. B3J 2P8.

There are other publication series in which Lands is involved that are not primarily map-oriented but that do rely on visual graphs, tables, figures and small indicator maps to describe their respective subject matters. A publication list may be ordered from Ottawa. Thank you for giving me the opportunity to identify some of Lands Directorate publications to you; I hope that some of these publications will find homes in your respective libraries.

-oOo-

REPORT ON THE SURVEYING WORKSHOP AND FIELD TRIP

Alun Hughes
Department of Geography
Brock University
St. Catharines, Ont.

On a cool drizzly day, we headed out to experience the problems of early surveyors and mappers. Lou Sebert and his assistants gave us an understanding of how technology has greatly eased map making while increasing its accuracy. We spent the morning trying to make the following work: astrolabe, chronometer, survey compass, Gunter's chain, level, transit, plane table, tellurometer and theodolite. A short film followed, showing how a statellite beaping a small receiver station will allow a small computer to let you know where you are, and how another computer system can be moved about and let you know where it is located when stopped.

All of the above was much better explained than this short text has indicated. Also, the accuracy achieved by the earlier explorers, surveyors and map makers stands up fairly well when the quality of their instruments, with the varying inherent accuracies, is considered. This workshop was felt to be very worthwhile by all participants.

Another conference activity judged worthwhile was the field trip. A very extensive guide book was produced by Dr. N.J. Jackson of the Geography Department at Brock University. Some of the stops are indicated by the map shown on the next page.

Short reports can never do full justice to the two sessions described above. For further information, please contact the author.

-oOo-

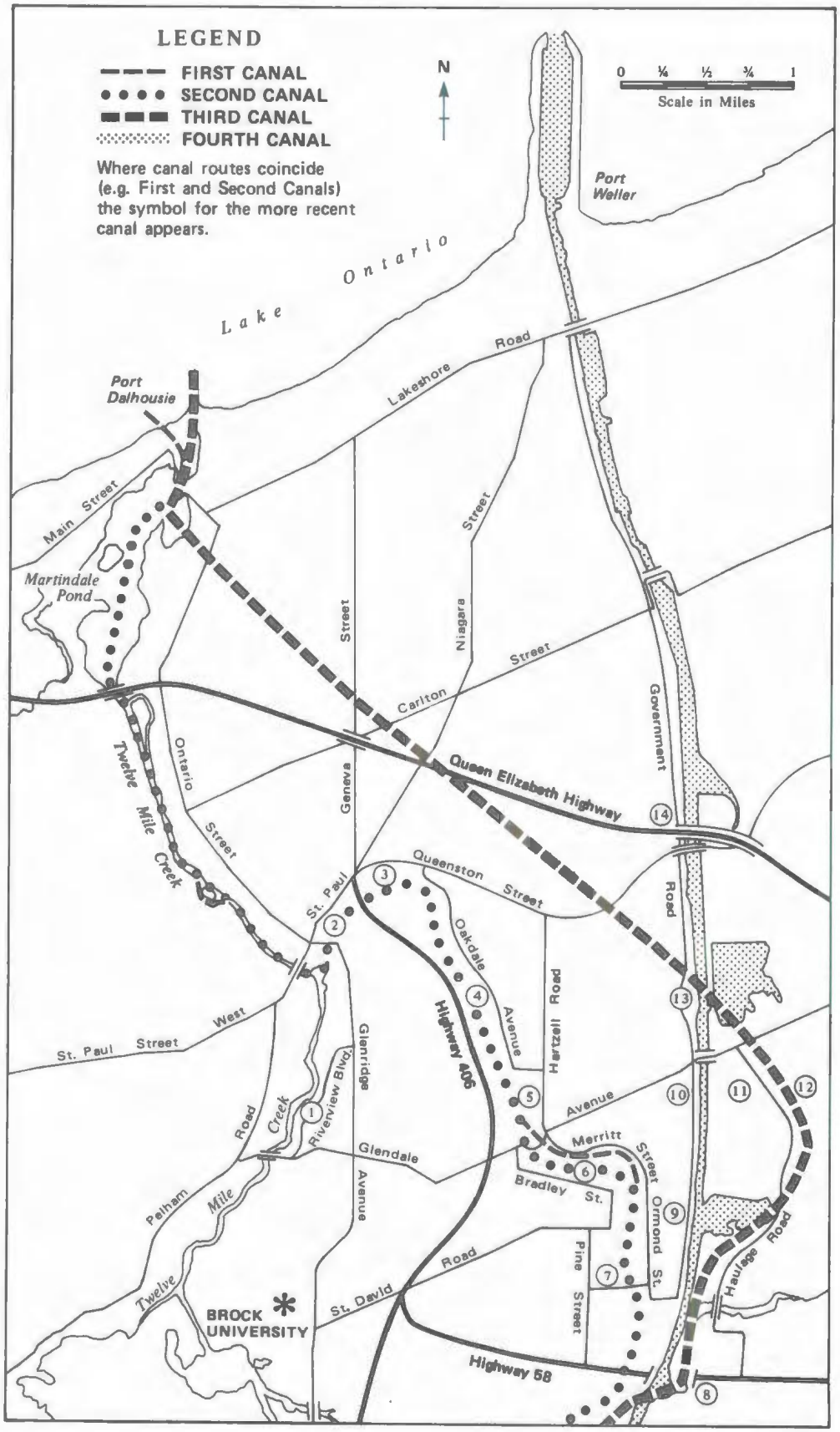
ACML/ACC 1979

WELLAND CANALS FIELD TRIP

VIEWPOINTS

1. Twelve Mile Creek: route originally proposed for First Canal
2. Downtown St.Catharines: canal-related urban and industrial development
3. Centennial Park: remains of wooden lock of First Canal
4. Locks of Second Canal
5. Merritton: industrial development at canal/ railway intersection
6. "Mountain locks" of Second Canal and associated industry
7. Thorold: a canal-orientated community
8. Thorold Tunnel beneath Fourth Canal
9. Twin flight locks of Fourth Canal
10. St.Lawrence Seaway Authority: regional offices and control centre
11. General Motors plant, using water from Fourth Canal
12. Escarpment locks of Third Canal
13. Lock 3, Fourth Canal: tourist viewing area
14. Garden City Skyway and Homer lift bridge over Fourth Canal

Tour Guide:
Dr. J. N. Jackson,
Department of Geography,
Brock University



Conference field trip map.

A MANUSCRIPT CARTOGRAPHIC JOURNAL COVERING CANADA (NOVA SCOTIA - NEW BRUNSWICK) 1684

Dr. Gayle Garlock
Collections Librarian, Dalhousie University
Halifax, N.S.

A manuscript French cartographer's journal (34 pp rectos and versos; folio, cont. vellum; n.p. (Nova Scotia), July 19th - Sept. 14th, 1684) detailing an expedition along the Atlantic Coast of Nova Scotia and parts of New Brunswick situated on the Bay of Fundy is described in this report. It contains daily manuscript entries, and 25 cartographical diagrams and topographical illustrations showing coastlines, elevations, distances (in leagues), water depths, capes, bays, rivers, inlets, islands and other geographical features. The ship's inventory is appended.

This is an extraordinary historical document, probably the first systematic cartographical representation of this portion of the Canadian coastline. Occasional references are made to new, unchartered discoveries. The ship was the Marianne, accompanied at first by another ship, the St. Louis. The owner of the boats, who also organized the expedition for certain purposes "that concerned him", was a M. Bergier. The crew consisted of Abraham Boudrot (or Goudrot) (captain), Guillaume Guertin (pilot), Jean de Callais, Jean Lestidou, Jacque Petitpas Matelot, Julien Carson, and a M. Challe, who may have authored this journal, although this remains uncertain.

Also uncertain is the jump-off point, although from the accounts of the first few days of the voyage it must have been near Lunenburg on the Mahone Bay on the southern coast of Nova Scotia. Few observations are recorded during the first week; the aim seems to have been to reach an initial destination of the Grand Manan Island. At this point, beginning on the 25th of July, detailed observations are made of all islands, rocks and other geographical objects, along with more specific information concerning water depths (given in braces), type of currents, prevailing winds, distances between landmarks (given in leagues), places of secure anchorage, danger zones and so forth. Most of the observed areas are accompanied by topographical illustrations which depict not only the contours of the coastline but also elevations from sea level and topographical contours.

The expedition proceeded from the Grand Manan Island down into the Passamaquoddy Bay (this is not named, but the Croix River is), then northeast along the coast of New Brunswick to the entrance of the St. John River. At this point the expedition encountered at least two British war vessels, equipped with cannons. An envoy from the expedition was sent to the British ships, apparently commanded by John Nelson, the nephew of the first proprietor of New Brunswick; assurances were exchanged, the envoy was returned and the expedition again proceeded on its way. Much of this portion of the exploration was obscured by a dense and persistent fog which made the task of the cartographer at times impossible, as he frequently notes.

From the St. John River the expedition turned back again across the Bay of Fundy, along Long Island, down along the western coast of Nova Scotia to Cape Sable. This destination is reached by July 31st, and here some days are passed waiting out a violent storm. Another British ship is also mentioned, although no contact

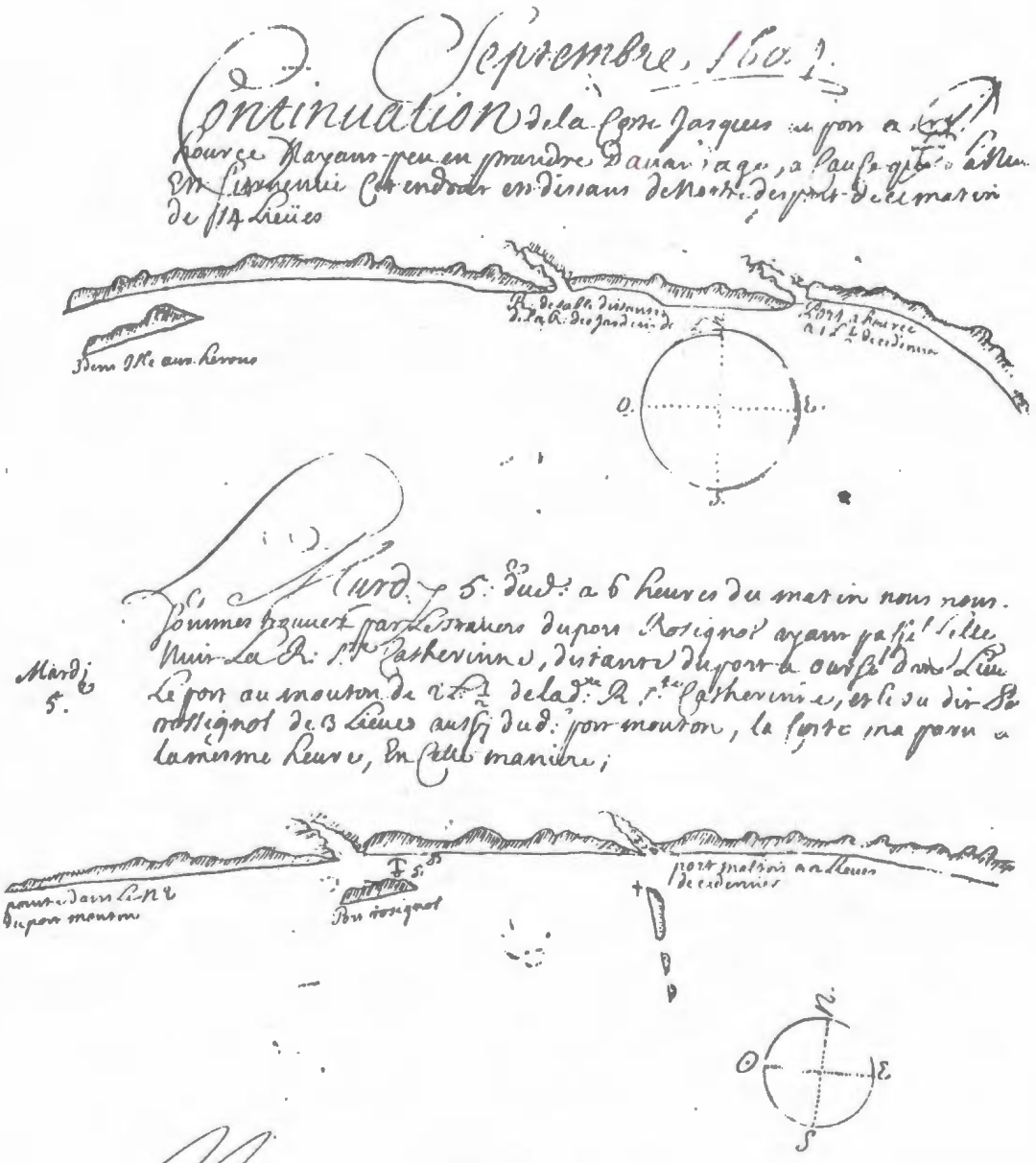


Figure 1.

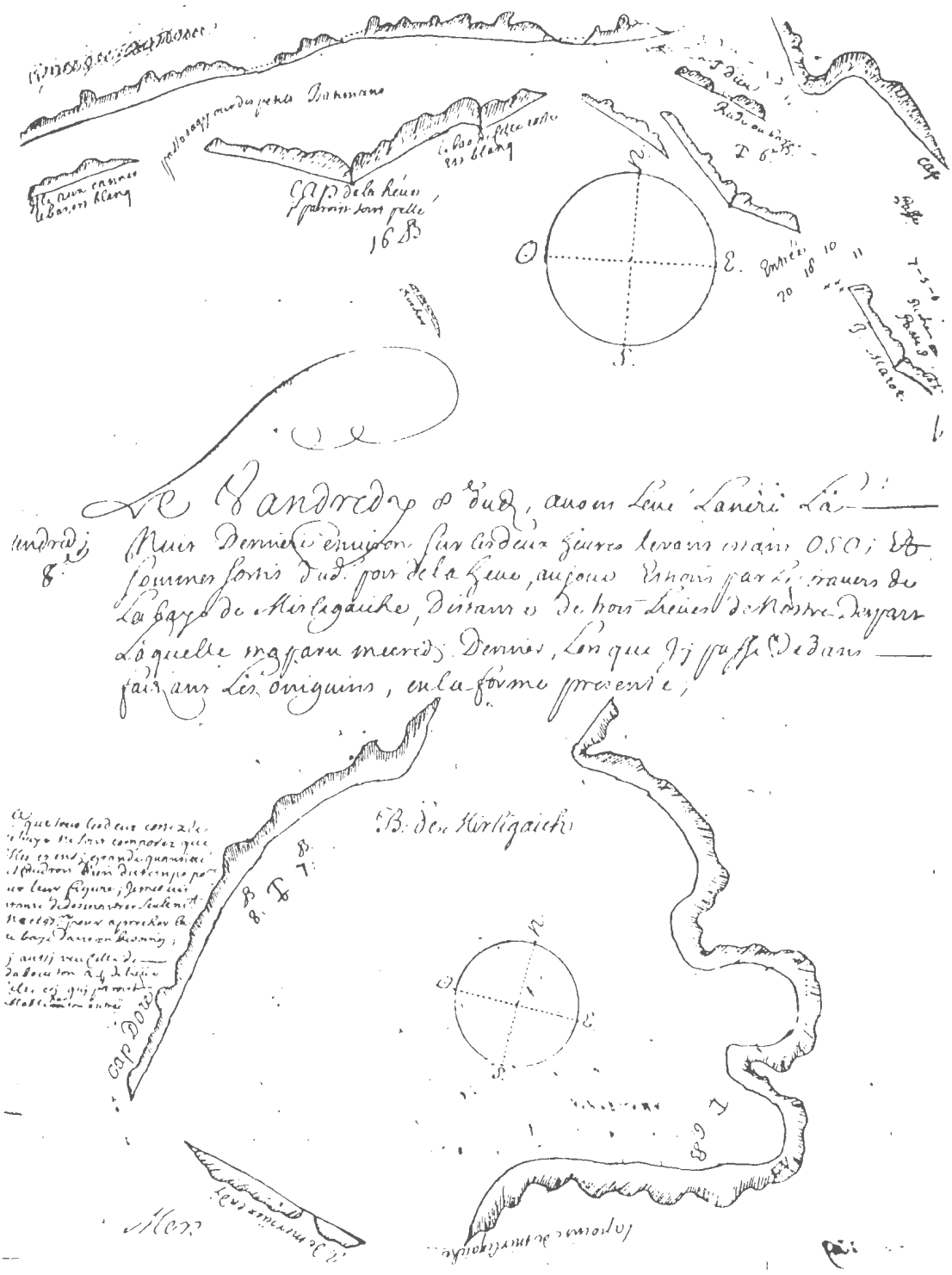


Figure 2.

was made. The coastline from Cape Sable all the way up to Margaret's Bay is represented by numerous illustrations. The weather seems to have been more favorable, and much of this area was apparently unchartered. This portion of the journey includes descriptions and illustrations of Cape Negro, Baye du Port Razor, Riv. des Jardins, Port Rosignol, Sable River, La Have Harbor, Mahone Bay (called here Mirligaich), Margaret's Bay, etc. The expedition continues from Margaret's Bay to the northeast, with observations of Cape Sambro, Riv. Chibouetou, Riv. Maganchis, Cape Thiodor, and it ends rather abruptly at St. Mary's River, on Sept. 14th, 1684.

Appended is a 12 page "Inventaire pour servir a l'armament et consommation du nav(igation)" etc., in which a very detailed list of hundreds of items is presented. The two categories that receive the most attention are boat fixtures (e.g., sails, bowsprits, halyards, stays, topsails, masts, anchors, rope and rigging), and armaments (cannons, ammunitions, guns and other weapons). Surgical equipment is briefly mentioned. Extraneous observations are also included from time to time: an abundance of fish off of Cape Fourcheu; arborage and foliage on shore; disembarkments, during one of which one of the crew apparently attempted to desert; etc.

Examples of the diagrams contained within the manuscript were supplied by Kurt MacDonald, Map Librarian, Dalhousie University Library. The first illustration (see Fig. 1) shows the section of the trip from an area around the present location of Liverpool by the Mersey River and the coast south of this point. The second illustration (Fig. 2) is the next page of the text and continues along the coast to an area called Baye de Mirligaich, which is most likely the area now known as Mahone Bay.

-oOo-

ACML MEMBERSHIP LIST: CORRECTIONS TO BE MADE TO THE LIST INCLUDED IN THE PREVIOUS ISSUE

Please note that in preparing a list of ACML members by location, published in the last issue, Honory Members and Exchange Copies were not distinguished.

Mr. T.E. Laying is the only Honory Member of ACML and the following are institutions with which we exchange copies:

Legal Deposit
National Library
395 Wellington Street
Ottawa, Ont. K1A ON4

Neil Grant
Editor, Chronicle
Department of Geography
Carleton University
Ottawa, Ont. K1S 5B6

Mr. B. Gutsell
The Canadian Cartographer
c/o Department of Geography
York University
4700 Keele Street
Downsview, Ont. M3J 1P3

Exchange and Gift Division
Library of Congress
Washington, D.C. 20540, U.S.A.

Special Libraries Association
Geography and Map Division
c/o Miss Mary Galneder, Chairman
Map Library, Science Hall
University of Wisconsin
Madison, WI 53706, U.S.A.

Western Association of Map Libraries
c/o Stanley D. Stevens
Treasurer
University Library, UCSC
Santa Cruz, CA 95060, U.S.A.

Indicies de Revistas de
Biblitecologia
Biblioteca Central
Univ. Nac. del Sur
Arda Alem 1253
Bahia Blanca, Argentina

Business Manager
Australian Map Curator's Circle
Map Curator
National Library of Australia
Canberra A.C.T. 2600, Australia

Map Curators Group
The British Cartographic Society
c/o Department of Geography
Birbeck College
7-15 Gresse Street
London, England W1P 1PA
(Att: Miss Merle Abbott)

Keeper of the Map Room
Royal Geographical Society
1 Kensington Gore
London SW7 2AR
England

Staatsbibliothek
Preussischer Kultubesitz
Kartenabteilung
1 Berlin 30
Postfach 1407
Germany
(Att: Dr. L. Zögner)

-oOo-

REPORT ON CHANGES PLANNED FOR THE GAZETTEER OF CANADA

The Gazetteer of Canada Series is presently undergoing some significant changes in the manner in which the volumes are produced. The information for each volume is being entered into a computer data base, and, with recent innovations in printing and microduplication technology, it is now possible to produce paper or microfiche copies from computer tapes. This allows for greater efficiences in both time and money, as well as allowing the Surveys and Mapping Branch of Energy, Mines and Resources to provide more accurate and timely dissemination of this information. In addition, the automation of these records will allow for a rapid accession of material for other specific purposes.

Of the estimated 350 000 records to be entered into the data base, approximately 18 000 have been input. These are all records of the Northwest Territories and approximately 12 000 of these are officially approved names and will appear as entries in the first edition of the Gazetteer of Canada: Northwest Territories. This gazetteer will be published in the fall of 1979 and will be the first to be printed from the automated data base. The only notable differences between this gazetteer and those produced in the past will be in the segregation of populated place names from geographical feature names, and the replacement of leader dots by shading. One of these changes results in part from response to a questionnaire distributed earlier this year, in which users indicated a need for a separate alphabetical listing of populated places. The other change that will be obvious is the use of grey shading for each alternate group of three entries, eliminating the need for leader dots.

Loading of the automated data base is expected to be completed by the end of 1981, which will permit many other features to be added to the gazetteers, and this will also permit regular updates and the accession of specific subject material. One of the proposed additions is a generic code which would assign a number to each

generic, to correspond to a definition in the glossary of that gazetteer.

It also means that anyone wishing specific listings of names (e.g., all the lakes in Yarmouth County) could order this type of service, probably in the form of a computer printout, with the charges levied on a cost-recovery basis. In the past, the revision cycle for gazetteers has been on an average of 10 years per volume; this will be drastically reduced. The scheduling of gazetteer production will result in a much enhanced program where hard-copy volumes can be produced on a 3 or 5 year basis, and updated microfiche will be made available yearly.

For more information, contact:

J.J.S. Thompson
A/Chief, Toponymy Division
Surveys and Mapping Branch
615 Booth Street
Ottawa, Ont. K1A 0E9

-o0o-

REPORT ON THE ACML EXECUTIVE MEETING, AUGUST 8, 1979

The following items have been extracted from the minutes:

The resolution concerning the Department of Energy, Mines and Resources' Departmental Library made at the recent business meeting has been prepared and will be included in a letter as directed by the resolution.

The Directory Committee is considering a revision of the Directory of Canadian Map Libraries and will bring it up for discussion at the next business meeting in Edmonton (June 1980).

The Handbook Committee is preparing for publication of the handbook.

A committee to look into union lists of atlases was not created but was set aside for further consideration.

In response to the revised fee structure, a new leaflet will be made up describing the Association, its plans and the benefits derived from being a member.

Hugo Stibbe reported on preparations for an upcoming meeting with the U.S. Library of Congress and the British Museum. Joan Winearls, Yves Tessier, Velma Parker, Vivien Cartmell and Kate Donkin will join with Hugo in October in order to finally solve the dilemna of the main entry concept versus another alternative entry system. A report based on the results of all these meetings will probably be published by the National Map Collection. Hugo is also preparing a manual of cataloguing rules.

The idea of increasing bilingualism in ACML publications was discussed and a consideration will be given to the following items being in both languages: title page, introduction, foreword, contents and the text where possible or suitable.

The conference for 1981 has been scheduled for Halifax in response to a letter received from Hugh Taylor, Provincial Archivist of Nova Scotia. The next meeting of the Executive is scheduled just before the next annual conference in Edmonton, June 1980.

-o0o-

Inuit Land Use and Occupancy Project. A report prepared by Milton Freeman Research Limited under contract with the Department of Indian and Northern Affairs. Ottawa, Minister of Supply and Services Canada, 1976. 3 vols. (R2-46-1976-1,2,3). Vol. 1: Land Use and Occupancy, $11.00; Vol. 2: Supporting Studies, $12.00; Vol. 3: Land Use Atlas, $14.00.

The Inuit Land Use and Occupancy Project was initiated by the Inuit Tapirisat in 1972 and was published by the Department of Indian and Northern Affairs in 1976. Its purpose was to produce a comprehensive record of Inuit land use and occupancy in the Northwest Territories of Canada based upon perceptions of the man-land relationship among the Inuit currently resident in the region. The research for the project was undertaken by Milton Freeman Research Limited, a firm incorporated for this purpose, and was largely conducted in the field at Inuit communities throughout the Northwest Territories. Because of the dominantly geographical objectives of the project, much of the information elicited in the field and published in the three volume report is depicted in map form.

The greater part of Volume One of the report is devoted to a series of regional land use reports, which focus upon the seasonal patterns of exploitation of land and marine fauna throughout the Inuit areas of the Northwest Territories. The remainder of the volume attempts to elucidate the nature of the Inuit occupancy, a term that is narrowly employed in this study to indicate the manner in which the Inuit view their relationship to the land. Volume Two, in contrast, provides a miscellany of background studies that afford different perspectives from which to assess the occupancy and land use findings of the project. Thus, Part I of Volume Two provides a discussion of research methodologies and an overview of the marine and terrestial ecosystems of the Canadian Arctic. Part II is devoted to background information on Inuit history and pre-history, and Part III considers select cultural characteristics of Inuit society. What will undoubtedly prove to be one of the most popular and captivating sections of the report is Part IV of Volume Two, which is a photo-essay on the Inuit and the land by Terry Pearce. The photos by Pearce have been supplemented by carefully chosen selections from archives, which, together with the Inuit prose and poetry in the captions, provide a strikingly vivid portrait of the changing lifeways and attitudes toward the land of the Canadian Inuit.

Although maps have been liberally used to illustrate the textual information in both Volumes One and Two, it is in Volume Three, or in the Land Use Atlas, that the results of the field studies have been presented cartographically. The introduction to this volume contains an index to the atlas maps as well as textual and cartographic illustrations that demonstrate the manner in which the land use maps were compiled. The latter are contained in Part II of the volume and comprise a total of 145 maps that depict the geographical extent of hunting, fishing and trapping of different faunal species by all Inuit groups in the Northwest Territories.

The land use maps were compiled from sketches of hunting and fishing areas for different species drawn by Inuit hunters on standard 1:500 000 topographic sheets. The individual "map biographies" so obtained were then combined to produce species by species maps of the areas hunted by all individuals questioned at the different Inuit settlements. The outer boundaries were taken to represent the areal extent

of exploitation of each species by the groups interviewed. Land use areas so derived were then overlaid to show the extent of exploitation of different faunal resources using a total of 22 land use categories.

For reproduction in the atlas, these data were superimposed upon base maps that show only the hydrographic features of the 1:500 000 map sheets upon which the Inuit sketched the boundaries of their hunting and fishing areas. To accommodate atlas format, the base maps were photographically reduced to a scale of 1:2 000 000. Thus, the relations of hunting and fishing areas to lakes, streams and coastlines in the atlas maps are identical to those on the 1:500 000 maps originally used in the interviews. The net effect in these atlas maps is both aesthetically pleasing and geographically accurate. The base map is not cluttered, while the choice of symbolization and colour is such that the different land use types can be read from the maps easily. In the final section of the atlas volume, the information on the land use maps is presented in generalized form on seven maps at a scale of 1:7 000 000. These provide summaries of the extent of undifferentiated Inuit land use regionally. Finally, this same information is further generalized in a single map showing the extent of Inuit exploitation of the land and sea throughout the Northwest Territories.

There can be little doubt that this massive investigation into the contemporary Inuit occupancy and use of roughly 1.5 million square miles of northern Canada has succeeded in providing the comprehensive record of Inuit attitudes and activities that it sought. Not only have these objectives been achieved, but the handsome three volumes of text, maps and photos that comprise the report afford such a wealth of supplementary information that this publication will also serve as a rich, general reference for laymen and scholars alike with an interest in Inuit life in the Canadian Arcic.

D.W. Moodie
Department of Geography
University of Manitoba
Winnipeg, Man.

-oOo-

Morrow, E. Joyce. Calgary, Many Years Hence. Calgary, City of Calgary and University of Calgary, 1979. [48] p. (Limited edition of 1000 copies.) Available from Fort Calgary Interpretive Centre, 750 - 9th Ave. SE, Calgary, Alta. $4.95.

This slim, but attractive, little volume was published by the City and University of Calgary as a companion to an exhibition of the original sketches and drawings accompanying Calgary's first comprehensive urban plan. The story behind the exhibition and the appearance of this volume is an interesting one.

Thomas Mawson, an English landscape architect and urban planner, who made his mark in Canada as the planner of Vancouver's Stanley Park and several other projects, was commissioned by the City of Calgary in 1912 to prepare a comprehensive plan for the city. Calgary was then in the throes of a frantic population and building boom comparable to, and in many respects more dramatic than the current oil-generated boom. The population had mushroomed from 4000 in 1900 to 44 000 by 1911. Land speculation was rampant and land prices had reached dizzying heights. Civic leaders and businessmen realized that a comprehensive urban plan was essential if Calgary was not to become a completely unplanned shambles.

Mawson presented his plan to the City in 1914. Accompanying the presentation were 30 sketches and drawings and 100 bound copies of a book, Calgary, Past, Present and Future. It was a grandiose plan, one reflecting many aspects of European Renaissance city planning and the utopian mid-19th century city planning exemplified by Baron Haussmann's beautification schemes for Paris, as well as the "Garden City" and City Beautiful" movements of England and the United States.

Mawson's plan envisaged a well defined tightly planned city core, focussed around a civic centre which was to include a museum and major facilities for the arts. Befitting his background as a landscape architect, Mawson stressed the necessity for green belts around the city and open spaces and parks throughout the city core in order to afford the panoramic vistas necessary to highlight particularly impressive structures and monuments.

For a variety of reasons the plan was never adopted. It would have been an extremely costly plan to implement, requiring, in fact, complete rebuilding of the city. It also failed to give adequate consideration to some of the major natural problems inherent in Calgary's setting (i.e., the severity of the prairie climate or the periodic Bow River floods). Perhaps, just as importantly - as Morrow points out - the plan was simply too British, too Imperial for developing Canadian tastes. There is no question that Mawson envisaged a European-flavoured city which would have been more than a little incongruous in a Canadian prairie setting.

World War I brought the boom to an abrupt halt. For the next half-century Mawson's grand plan was virtually forgotten. In the past decade, however, as civic officials and planners have had to confront the massive task of controlling the runaway growth resulting from Alberta's oil boom, interest in Mawson's plan has been revived. Many of Mawson's concepts are embodied in the comprehensive planning scheme which is now being formulated for downtown Calgary. Coincidentally, Mawson's original line drawings and sketches were recently discovered in a Calgary garage. Following extensive restoration work by the Canadian Conservation Institute they were put on display in the recently opened park and historical interpretation centre, Fort Calgary.

This publication provides a good concise summary and critique of the Mawson plan for Calgary. In the initial pages the author offers a brief but, for the layman, interesting and informative survey of classic urban planning concepts. It should be of special interest, of course, to anyone concerned about the past and future development of Calgary and other western Canadian cities which have experienced the "boom" cycle, with all of its problems. The text is well supplemented by old photographs and reproductions in colour and black and white of Mawson's original drawings and sketches.

Leonard Gottselig
Glenbow-Alberta Institute
Calgary, Alta.

-oOo-

Thrower, Norman W., ed. The Compleat Plattmaker: Essays on Chart, Map, and Globe Making in England in the Seventeenth and Eighteenth Centuries. Berkeley, University of California Press, 1978. 241 p. (Clark Library Professorship Publications no. 3.) ISBN 0-520-03522-4. $14.95.

In a field in which comparatively little has been written and so much research

has yet to be done, the inviting (and later publication) of a series of lectures on the mapping of a particular area, period, etc., assumes considerable importance. The Clark Library at UCLA makes just such a situation possible. The collection gathers together materials for the study of British culture in the 17th and 18th centuries and among these subjects, science, including both the study of cosmology and cosmography, has an important place. The Clark Library is also endowed with funds for doctoral and senior fellows, visiting lecturers and a professor, all of whom contribute to regular lectures. Most of the papers appearing in this book were given at the library in 1972-1973 during the period of the editor's Clark Library professorship. Dr. Thrower's own paper on Edmond Halley was originally given in 1968 and published by the library in a small volume The Terraqueous Globe, now out of print.

The lectures vary somewhat in content and approach. Helen Wallis, Map Librarian of the British Library, has given a useful description of the setting in which map and globe makers worked in England in the time of Samuel Pepys. Her interesting and well written lecture touches on the types of globes and maps bought by officials such as Pepys, and the impact of visits of noted European cartographers such as Coronelli. She discusses auctions of globes, maps and contemporary comments on maps such as John Sellers' The English Pilot. Proposals for large atlases and new surveys which failed for lack of money such as Moses Pitt's English Atlas are also described. Finally, she notes Pepys' attempts to improve the training of mariners in navigation and the draughting of sea charts at a time when the teaching of geography and mathematics was only just being accepted at Oxford.

Thomas Smith presents a major article on the "Thames School of Cartography," the results of his considerable research on the work of this school. His analysis of the actual output of various cartographers, some but not all members of the Drapers Guild, and his description of peculiarities of their late portolan style charts and of the areas they mapped is a foundation stone for the study of sea charts of this period. He establishes that the main styles for the charts of the Mediterranean and North Atlantic were set down by Tatton, Reynold and Lupo in the period of the late 16th and early 17th centuries. However, in the period after 1670 when eight times the number of charts were produced, there was a shift in mapping and there were many more charts of the Orient, North America and the Caribbean, and also an increase in the production of larger scale charts of small areas for pilotage purposes. Towards the end of the period some of the chartmakers such as Sellers and Thornton began to engrave and print charts. Smith points out the difficulty of making definite generalizations about the chart types because of the probably high number that were lost.

Jeanette Black, in a brief article on the early mapping of the British Colonies, takes as her starting point the situation of the British in the 17th century, who, although still copying and pirating from the Dutch for maps of their own country and the world, could not on the whole do this for the colonies. Thus maps were made, prompted by the need for reconnaissance surveys, large-scale maps of settlements and maps of whole colonies both for the colonists and the sponsors back home. She discusses a few of the early maps, such as Mason's 1625 map of Newfoundland, Smith's survey of New England and Thornton's mapping of the Hudson's Bay area. She concludes that settlement was still too primitive in the 17th century to create a condition for co-operative production of a map of a whole colony.

Coolie Verner's detailed study on "John Sellers and the chart trade in 17th century England" is part of a considerable body of research that he has done on the mapping of this period and Sellers' The English Pilot in particular for which he has published a cartobibliographical study. The essay is very relevant in the context of this group of essays as Sellers was a major figure in the period and is discussed from other points of view in the other essays. The paper is an interesting analysis of the output and working methods of the map publisher who initiated the chart trade in London, but he sadly concludes that Sellers was not successful in many of his endeavours because he had no conception of his limitations in the field of engraving and publishing and because he was basically lacking in integrity, particularly in his reuse of Dutch and other plates in The English Pilot without acknowledgment. Ironically his publications and plates were taken over by Mount and Page and continued in print for most of the 18th century with few changes, much to the detriment of shipping.

David Woodward gives a detailed summary of English cartography in the period 1650-1750 touching on all relevant aspects. He thus comments on methods of surveying and instruments and methods of printing. He discusses types of maps produced, such as the strip road maps in Ogilby's Britannia, large scale plans including estate plans and town plans, the military survey of Scotland 1747 - 1755, small scale maps in general atlases, geographies and periodicals, imaginary maps and the beginnings of the production of multi-sheet county maps. In his summary he concludes that it was not a major period in English cartography and that except for John Ogilby's work there were few advances in any area. He stresses the need for more carto-genealogical studies, i.e., the study of sources used in a map and the linkage of various cartographers in this chain of geographical information.

Thrower's article on "Edmond Halley and Thematic Geo-Cartography" is the only one on thematic cartography in the collection. However, as he points out, Halley's work was the outstanding example and there was little else in the period. Halley's map of the trade winds in 1686, his isoline maps of magnetic variation, his chart of tides in the English Channel and his map of the path of the eclipse of the moon over England in 1715 show considerable innovation in the gathering and recording of scientific observations and particularly in the development of cartographic symbols. His isogonic map of the Atlantic of 1701 is the first to use the isoline symbol for this information and one of the very early isoline maps.

The volume is indexed and well illustrated with the maps and atlases under discussion. Altogether it is a useful contribution to the field and it is to be hoped that there will be more in the future. Possibly the Clark Library could sponsor a series of lectures to provide a complete analysis or survey of some particular theme or cartographer in the period along the line of the Nebenzahl Lectures, which commission research on segments of a topic which will then form chapters of a book.

Joan Winearls
Map Librarian
University of Toronto Library
Toronto, Ont.

-o0o-

BOOK NOTES - NEW EDITIONS

For those considering purchase of new editions of some standard reference books the following notes on the changes made to the editions may be helpful.

Tooley, R.V. Maps and Map-Makers. [6th ed.] New York, Crown Publishers, Inc., 1978. 140 p. $14.95 U.S. (and London, Batsford, £12) - The "Note to the Sixth Edition" indicates that a new general introduction has been provided and the lists of authorities at the ends of chapters have been brought up to date. Otherwise the text remains the same. In addition (in the first American edition at any rate), the illustrations are no longer printed on glossy paper and there are no colour reproductions.

Crone, C.R. Maps and their makers: an introduction to the history of cartography. 5th ed. Folkestone, Eng., Dawson; Hamden Conn., Archon Books, 1978. 152 p. £10. $18.00 U.S. - This standard text has finally got the format it deserves. The book has been expanded from a 5 x 8 in. to an 8½ x 11 in. format and is amply illustrated with 46 reproductions of maps compared with 8 in the third edition. The text has been revised but generally follows the plan of the earlier editions with some exceptions. Two new chapters have been added: one on the later hydrographical chart and another on atlases and thematic maps. The chapter on contemporary cartography has been written by Frank George and brings the subject up to the period of remote sensing and computer cartography. The chapter references and the general bibliography have been considerably enlarged. Altogether a considerable improvement and a useful short introduction to the subject.

Howgego, James. Printed maps of London circa 1553-1850. 2nd ed. Folkestone, Eng., Dawson, 1978. 295 p. £17.50 - Basically the second edition provides records of new maps, new editions and locations including private collections, and new information found in the 14 year period since the publication of the first edition. The author notes that the new records have been considerably more than expected. The introduction has also been revised and somewhat rearranged. Since the same entry numbers for the maps have been used the reader can check quickly against the first edition to see if new editions of maps have been found. In addition new maps are inserted in chronological sequence and given the preceding map number with the addition of letters a, b, c, etc. Similarly, new editions of maps have been inserted in the sub-sequence for an entry and indicated by a, b, c, etc. This labelling method makes the new material stand out very clearly to anyone using only the second edition. The illustrations have been changed slightly and increased by one. This edition is a must for any map collection which already has the first edition or has a demand for information on early London maps.

Joan Winearls
Map Librarian
University of Toronto Library
Toronto, Ont.

-oOo-

REPORT FROM BRITISH COLUMBIA

Selected New Maps of British Columbia

Beautiful British Columbia. [1:2 400 000 approx.] Victoria, Department of Tourism and Small Business Development, 1979. Cover title: Super, natural British Columbia, Canada. 1979/80 road map.

Bouguer anomaly map, British Columbia coast (OF 79-3(B)). Ottawa, Department of Energy, Mines and Resources, Earth Physics Branch, 1979. 1:1 000 000.

Bowen Island [maps to accompany Bowen Island, a resource analysis for land use planning]. 1:10 000. Victoria, Ministry of the Environment, Resource Analysis Branch, 1978. Contents: 1. Terrain - base data; 2. Terrain - interpretive; 3. Vegetation analysis; 4. Aquatic analysis - base data; 5. Aquatic analysis - interpretive; 6. Outdoor recreation feature analysis; 7. Visual analysis; 8. Slope analysis.

British Columbia electoral districts, redistribution pursuant to the Constitutional Amendment Act, 1978. (1JF). 1:2 000 000. Victoria, Ministry of the Environment, Surveys and Mapping Branch, 1978.

British Columbia electoral districts, redistribution pursuant to the Constitutional Amendment Act, 1978. (1SF). 1:5 300 000. Victoria, Ministry of the Environment, Surveys and Mapping Branch, 1978.

British Columbia Forest Service recreation sites. Scale varies. Victoria, Ministry of Forests, 1978. Bulkley Valley and Lake District; Clinton - 100 Mile House; Golden and area; North Fraser Valley; Quesnel Lake and area; Sayward Forest and northern Vancouver Island; Smithers and Hazelton area; Squamish-Pemberton.

British Columbia [land status maps]. 1:125 000 and 1:100 000. Victoria, Ministry of the Environment, Surveys and Mapping Branch, 1978-1979. 92G/SE, Langley (3rd status edition), 1:125 000; 92H/NE, Tulameen (4th status edition), 1:100 000; 92P/NE, Canim Lake (1st status edition), 1:100 000; 92P/SE, Bonaparte Lake (1st status edition), 1:100 000; 92P/NW, Lac La Hache (1st status edition), 1:100 000; 92P/SW, Clinton (1st status edition), 1:100 000.

British Columbia regional map series. Victoria, Ministry of the Environment, Surveys and Mapping Branch, 1978-1979. RM1, Peace River, 1:250 000; RM2, Parksville to Tofino, 1:125 000.

Bugaboo Glacier Provincial Park and Alpine Recreation area (PB I 32), rev. Dec. 1978. Victoria, Ministry of Lands, Parks and Housing, Parks Branch, 1979.

Existing and proposed dike and bank protection works on the Fraser River and on tributary or adjacent streams. Ottawa(?), Environment Canada, 1978. Cover title: Keeping the Fraser from the door.

Fraser River delta and estuary region; outdoor recreation, rev. ed. 1:50 000. Environment Canada, Lands Directorate, 1978.

Fraser Valley floodplain (Chilliwack), orthophoto (74-28T-0). 1:5000. 30 sheets. Victoria, Ministry of the Environment, Surveys and Mapping Branch, 1978.

Kitimat-Stikine Regional Districts regional resource inventory. 1:500 000 in 2 sheets. Terrace-Kitimat-Stikine Regional District, 1978. Design, research, compilation and cartographic production by Canadian Cartographics, Coquitlam, B.C.

Metallic mineral potential of British Columbia. 1:2 000 000. Victoria, Ministry of Energy, Mines and Petroleum Resources, 1978.

Proposed boundaries of Regional Districts, Oct. 1978. 1:2 000 000. Victoria, Regional Resources Committee, 1978.

Vancouver Island, British Columbia (SGS 1), rev. ed. 1:380 160. Victoria, Ministry of the Environment, Surveys and Mapping Branch, 1979.

Vancouver [provincial electoral districts]. Vancouver, Chief Electoral Officer, 1979. ca. 1:37 000. On verso, Victoria, 1:25 000.

Vancouver's old streams. No scale given. Vancouver, Vancouver Public Aquarium Association, 1978. Issued as Waters, journal of the Vancouver Aquarium. No. 1, First quarter, 1978.

West coast offshore environment [maps]. 1:1 000 000. Ottawa(?), Department of Fisheries and the Environment, Environmental Protection Service, 1978. Contents: 1. Marine associated birds; 2. Marine mammals; 3. Commercial salmon fisheries; 4. Ground fish and herring resources; 5. Shellfish; 6. Parks, ecological reserves and sport fisheries; 7. Shoreline geomorphology and marine vegetation; 8. Ocean currents; 9. Winds. Obtained as a gift from Environmental Protection Service, Kapilano 100, West Vancouver.

Duplicate Atlases

Nuevo atlas geografico metodico universal. 15th ed. Buenos Aires, Editions Geografico Peuser, 1966.

Atlas of Canada. Ottawa, Dept. of Mines and Technical Surveys, Geographical Branch, 1957.

Gulf of St. Lawrence (Geographical paper No. 53). Ottawa, Dept. of the Environment, Lands Directorate, 1973. 3 copies.

National atlas of Canada. Ottawa, Dept. of Energy, Mines and Resources, Surveys and Mapping Branch, 1970-1971. Folios A and B.

These can be obtained for the asking from Map Division, University of British Columbia Library, Vancouver, B.C. V6T 1W5.

-oOo-

REPORT FROM MANITOBA

New Maps available

Here is a list of recent maps published by the Province of Manitoba and currently for sale:

Manitoba [base map], second edition. 1:1 000 000. Province of Manitoba, Surveys and Mapping Branch, 1978. $1.

Manitoba Angling Map. 1:1 000 000. Province of Manitoba, Surveys and Mapping Branch, 1978. $1.50.

Manitoba Landsat-1 Mosaic. 1:1 000 000. Province of Manitoba, Department of Mines, Resources and Environmental Management - Surveys and Mapping Branch, 1975. $1.

Manitoba Municipalities and Local Government Districts. 1:1 000 000. Province of Manitoba, Department of Mines, Resources and Environmental Management - Surveys, Mapping and Lands Branch, 1977. $1.

Manitoba Relief. Province of Manitoba, Surveys and Mapping Branch, 1979. $1.50.

Manitoba Road Map. 1:500 000. Province of Manitoba, Surveys and Mapping Branch, 1978. $2.00.

Also, there are two free brochures available describing the different maps currently for sale by the Surveys and Mapping Branch. All of the above maps can be ordered from the following address: Surveys and Mapping Branch, Sales Office, 1007 Century Street, Winnipeg, Man. R3H OW4.

-oOo-

REPORT FROM THE MARITIMES

Harriet Irving Library Map Collection

Preamble - The first report by a map collection in the ACML Bulletin should, it seems, be accompanied by fireworks and celebration. It should contain tales of seemingly insurmountable obstacles miraculously overcome, tales of the acquisition of priceless items whose research value is so great as to be truly undefinable, and should include statistics enumerating the hordes of map users clamouring to get at the collection. Regrettably, this report is unaccompanied by fireworks, and perhaps justifiably so. We have "seemingly insurmountable obstacles" but, alas, no sign of miracles on the horizon. We have acquisitions, true, but none so valuable or rare that they require extra insurance. As for crowding in our map room - well, that only refers to the crowding of the maps, not of patrons, into our small room. Our status as a strong, active resource for cartographic materials is growing by centimetres, not by kilometres. It is growing, nonetheless, and this report is offered to give moral encouragement to the many map collections that find themselves in a similar state and, of course, to keep ACML members informed as to what is going on in a member institution.

Acquisitions - We exist without an infinitely deep well of funds, and the major volume of our acquisitions arrives through our depository library status with the Surveys and Mapping Branch, Department of Energy, Mines and Resources. However, we received a substantial boost in the arm this year from the National Map Collection in the form of their redistribution program. Through this program, we acquired approximately 60 Geological Survey maps, primarily produced in the period 1890-1935, which filled in many of the gaps we had in our Geological Survey map series. A rough division of our acquisitions through this program is as follows:

Area	Number	Series	Number
New Brunswick, general	39 maps	Canada Geological Survey	60 maps
Prince Edward Island, general	9 maps	MCR series	11 maps
Atlantic Provinces, general	12 maps	Hydrographic charts	40 charts
Canada, general	21 maps	NTS (1 in. = 1 mi.)	34 maps
		IMW series	7 maps
		Geological maps - N.B.	25 sheets

Also through the National Map Collection, we acquired approximately 12 Great Britain Ordnance Survey Maps, and 75 maps of France (scale 1:25 000). As exchange lists, or distribution lists, provide an effective way of adding to our collection without decimating our scarce supply of funds, we have also taken advantage of a WAML exchange list to obtain hydrographic charts of the eastern seabord of the United States. Total acquisitions counted for this year were 1569 items.

Cataloging - At the time of this report, we are still without a cataloger from the Harriet Irving Library Cataloging Department to help us work on cataloging our map holdings. We also are still undecided about the system to be used for classifying and cataloging our collection. NOTE: To conference organizers for the 14th ACML Conference - Is it too soon to ask that a workshop on map classification and/or cataloging systems be put on the conference agenda?

Policies - Early this year, we began formulating a cartographic materials collection development policy for the university. Great progress was made, to the point of having a second draft ready to go to faculty members for additions, deletions, comments and criticisms when summer arrived. With our faculty members now scattered to the four corners of the earth, it looks as if the policy, which we had hoped would be given its final seal of approval by September, will not be finalized until late fall. Any inquiries, by the way, on what we have done in drawing up this policy are welcome.

We had more success within the library system on a location policy for atlases, however. For the last 8 years, the atlases purchased by the library have routinely gone to the Reference Department and to branch libraries, and have been housed in a variety of places (not, notably, the map room). Duplication was frowned upon, and our map collection was somewhat hindered by the lack of these tools. Early this year, we began to work on a location policy for atlases, promoting a centralized location for atlases in the map room, with selective duplication for the Reference Department. Thanks to the moral support and advice of Betty Kidd and Lou Sebert, this policy was agreed upon late in the spring. Much of our work now is in transferring the atlases from their many locations to the map room.

Others - We finally, at long last, have a light table exclusively for the use of map users. By converting an existing albatross of a table into a light table, we have a functional, if not beautiful, light table. Today, a light table - tomorrow, who knows?

-oOo-

REPORT FROM NEWFOUNDLAND

Newfoundland's Role in the Historical Atlas of Canada

After 10 years of discussion the Historical Atlas of Canada has finally been funded for the next 6 years. The time span to be covered runs from 60 000 years before the present to 1951. The cut-off date is quite important to Newfoundland's participation, as any date earlier than 1949 would have eliminated this last province entirely. The three volumes which will form the completed atlas will run chronologically: Volume I from 60 000 years ago to 1780; Volume II from 1780 to 1881; and Volume III from 1881 to 1951. At the moment, Newfoundland's participation will be heaviest in Volume I and the details of its role in the other two volumes are not clear.

In Newfoundland efforts will centre around the Geography Department of Memorial University, where the project will be directed by Dr. Alan G. MacPherson, Dr. John Mannion, and Prof. Gordon Handcock. The cartographic work to be done here in Newfoundland will be the work of Gary MacManus, a draftsman cartographer at Memorial who is known for his cartography in Dr. John Mannion's The Peopling of Newfoundland. In addition they will request assistance from people in other disciplines, for example historical archaeology. As well as calling on people from all disciplines, this project will require the assistance of people from all across Canada and even outside. For example, Dr. Alan Williams, formerly of Memorial University but now of Birmingham, England will have input into an item of the Beothics and John Guy's colony.

The planned organization of Volume I is such that there will be approximately 20 plates dealing with natives, particularly Indians from early pre-historic to contact times, and then on through the cultural sequences to 1780. The rest of Volume I will be organized chronologically around Atlantic Canada, New France, and the Fur Trade. Newfoundland will of course be heavily involved in the Atlantic Canada section, and there will be 12 plates specifically on Newfoundland. Each plate may consist of anywhere up to 6 to 7 maps or diagrams. The plates which will be generated in Newfoundland will cover a wide range of subjects and will require the development of innovative cartographic methods, showing process and structure, interpreting data from the most recent investigations. One plate will cover the range of the North Frontier across the Atlantic, including Greenland. Another will cover the Beothic decline. Another plate will cover themes like the French fishery - a non-migratory one with French planters and fishermen at places like Placentia and the Strait of Canso, the Basque, English and Irish fisheries. Settlement and population structures during the pre-American revolution period will be shown, as well as something on migration showing the flow of individuals from Ireland and the southwest of England based on parishes in Europe. Other plates will show the attempts at formal colonization with particular emphasis on the Guy colony. There will be plates on settlement morphology, showing settlement layouts. In

this vein, reconstructed maps of early St. John's and Trinity will be presented, as will be a layout of an outport which will serve as an archtype of many others. Also to be presented cartographically will be the European base from which the English, Irish and French fisheries developed. Merchant systems in the fisheries will form the theme of another plate, showing perhaps the changing spacial organization of firms like Newmans and Lesters. The technology of the fishery will be central to another plate, using diagrams rather than maps to present sketches of boats, gear, shoreline premises, etc. Yet another plate will show the changing nature of the marketing system over the 280 years of the fishery in the Atlantic area.

When the plates for Volume I have been finished, they will flow in from all across Canada (including from St. John's) to the Geography Department of the University of Toronto for final drafting at their cartographic laboratory. It is expected that with the quality of Gary MacManus's work at Memorial, it will not be necessary to do much more than make minor modifications to the plates prepared in Newfoundland.

The Department of Geography at Memorial University feels that it will be ready to submit maps drafted for the printers by September of 1981, and it is felt that Volume I should be generally available by 1982.

[Editor's note: The Social Sciences and Humanities Research Council of Canada has given a grant of $3.5 million to University of Toronto Geography Professor William Dean who is in charge of the Historical Atlas of Canada project. The atlas is planned to consist of three volumes: v. 1, up to 1779; v. 2, 1780 to 1881; and v. 3, 1881 to 1951. The project is expected to take about 6 years to complete.]

-oOo-

CARTOGRAPHIC CALENDAR

To celebrate the 75th anniversary of the founding of the "Map Room" in the Public Archives of Canada, the National Map Collection is planning, among other things, to produce a wall calendar with reproductions of historical maps and related documents representing our holdings. To help in designing the calendar, we would appreciate being able to borrow old calendars of this type from anyone who has kept them from past years. We would, of course, take good care of them and return them once we and the designer had had an opportunity to study them. Please contact B. Kidd or E. Dahl, National Map Collection, Public Archives of Canada, Ottawa, Ont., Canada K1A ON3.

-o0o-

IFLA 45TH GENERAL COUNCIL MEETING, COPENHAGEN, 25 AUGUST - 1 SEPTEMBER 1979. GEOGRAPHY AND MAP LIBRARIES SECTION

Agenda

Standing Committee Meeting I - 1. Chairman's welcome. 2. Section report. 3. Financial report. 4. S.C. officers and members, 1979-1980. 5. Reports of the activities of the G&ML section's working groups by the chairmen: (a) Working group for the training of map librarians: chairman Dr. Lothar Zögner. (b) Working group on the International Glossary of Cartographic Terms: chairmen Dr. Anna Kozlova and David Carrington. (c) Working group UNIMARC Cartographic Materials: chairman Dr. Hugo Stibbe. (d) Working group World Directory of Map Collections (2nd edition): chairman Dr. John Wolter. (e) Liaison activities: Dr. Hans van de Waal. (f) Proposed working group on the physical planning of map libraries: initiator Dr. William Roselle. 6. The future of the "Bibliographie Cartographique Internationale." The "Bibliographie d'histoire de la géographie et de la géeographie historique," published by the Bibliothèque Nationale. Monique Pelletier. 7. The Manilla Conference in 1980. 8. Any other business.

Standing Committee II - Same subjects as the preceding meeting. Meeting I has a reporting character, Meeting II gives opportunity for open discussions about the future activities of the Geography and Map Libraries section.

Programme of the Sessions

Sunday, August 26, 10-11:30, meeting No. 25 - G&ML Standing Committee I (closed meeting) *** Monday, August 27, 14:45, No. 54 - Opening at Tivoli *** Tuesday, August 28, 11-12:30, No. 64 - G&ML Professional Meeting I (open meeting): (A) Moving a map library (speaker: Dr. William C. Roselle). (B) Planning session: World Directory of Map Collections, 2nd edition (speaker: Dr. John Wolter) *** 14-15:30, No. 74 - G&ML Professional Meeting II (open meeting): Reports and Medium Term Programme *** Wednesday, August 29, 9:30 - Visit to the Scan Globe Factory at Havdrup. Tour of the factory. Lunch. Only 25 participants can subscribe, during the previous meetings *** 9-12:30, No. 103 - Official Publications II/Special Libraries I (open meeting) *** Thursday, August 30, - Tour Day *** Friday, August 31, 9-10:30, No. 130 - G&ML Professional Meeting III (open meeting): Planning session for the Practical Seminar for Map Curators, with special

reference to developing countries, to be held in Utrecht, the Netherlands, in 1981 *** 11-12:30, No. 147 - G&ML Standing Committee II (open meeting) *** 14:30, demonstration by Per M. Laursen of a new paper filling machine at the Royal Library's Bookbinding Workshop. Only 15 participants can subscribe, during the previous meetings.

Hans van de Waal, Secretary

-oOo-

MAP AVAILABILITY NEWS

Maps of Bahamas and the Commonwealth countries in Africa are affected by the following notice received from Stanford's International Map Centre, London, England.

D.O.S. Mapping - Withdrawals

Changes in stocking policy at the Directorate of Overseas Surveys and other reasons have resulted in the following series being withdrawn from sale:

DOS.358 Bahamas,1:25 000...All sheets - New editions covering all the Bahamas have now been published in Nassau and D.O.S. has withdrawn from sale their earlier 1962 editions. They will NOT be holding copies of the new editions and these will only be obtainable direct from the Bahamas. We will NOT import the series as the financial terms offered are too unfavourable.

DOS.423 Kenya,1:50 000...ALL sheets, DOS.523 Kenya,1:100 000...ALL sheets - In October 1978 the Survey of Kenya required the D.O.S. to suspend all issues of the above series. Our stocks were withdrawn and there is now no UK distribution. Copies can now only be obtained by DIRECT application to Survey of Kenya, Nairobi, stating reasons for requirement in detail. This freeze applies to all new mapping produced by D.O.S. (See Map Add: List 215).

DOS.426 Uganda,1:50 000...140 plus sheets - New editions having been produced in Uganda, D.O.S. have withdrawn their current stocks of some 140 sheets covering NW, CENTRAL and SW Uganda. The new editions will not be held for distribution in UK.

DOS.424 Zambia,1:50 000...ALL border sheets - Some 220 sheets covering all border areas have now been withdrawn at the request of the Zambian Government and there will be no more UK availability of these maps.

Please Note - All African Commonwealth countries have now stopped the export of their official mapping and it is not possible for us to obtain any of this material through normal business channels.

-oOo-

ARCTIC INSTITUTE BECOMES PART OF UNIVERSITY OF CALGARY

The Arctic Institute of North America, a non-governmental, non-profit organization housed on the University of Calgary campus, will become an integral part of the university on April 1. This arrangement has been made possible through grants from

the Alberta department of advanced education and manpower, headed by the Hon. James Horsman.

The Arctic Institute of North America was formed by an Act of Parliament in 1945 to further the acquisition and dissemination of knowledge about the North by supporting and publishing research. Its work was guided by a board of governors with both Canadian and American representatives. The Institute was originally housed at McGill University in Montreal, with other offices in Anchorage, Alaska, and Washington, D.C., but in 1975 the headquarters operation was moved to the U of C campus.

"The Institute welcomes the opportunity to become part of the university," says executive director Dr. John Tener. "We feel this integration will provide a broader research base and will prove to be very stimulating and productive." Dr. Tener notes that the Institute will continue with all its present activities, including providing grants for research and publishing Arctic, a quarterly journal circulated to all Institute members and subscribing libraries.

The Institute library, acknowledged as one of the finest on the North America continent, will still be situated in the Institute headquarters but will now be classified as a special collection of the U of C library.

Membership in the Institute will remain open to all persons interested in the North and its development.

-oOo-

NEWS FROM THE LIBRARY OF CONGRESS: L'Enfant's Plan and Other Maps of Early Washington Are Subjects of New Quarterly Journal of the Library of Congress

Early maps and the formation and development of the nation's capital are the focus of the Summer 1979 issue of The Quarterly Journal of the Library of Congress. From Pierre Charles L'Enfant's plan of August 1791, now in the Library's collections, through the maps of others, especially Andrew Ellicott, authors of three essays examine the surveying of the original District of Columbia (then known as a "Territory"), the placement of streets, "squares," and waterways, the division of land into lots, and the positions of the first Federal buildings, notably the "President's House" and "Congress House," as originally labeled by L'Enfant.

The lead article, "The Delineation of a Grand Plan," by Richard W. Stephenson, head of the Reference and Bibliography Section in the Library's Geography and Map Division, describes the map that L'Enfant presented to President Washington. He traces the relationship between L'Enfant and the city's first planners and discusses other maps that revised these plans. Mr. Stephenson also argues for the firm attribution of the manuscript plan to L'Enfant himself, chronicles how it came to the Library of Congress and, finally, describes what is being done to preserve and restore it.

Sibley Jennings, Jr., supervisory architect with the Department of Justice, takes a fresh look at the 1791 plan in "Artistry as Design: L'Enfant's Extraordinary City." Taking exception to some of the theories about the French influence on L'Enfant and to the assertion that some of the characteristics of the Ellicott plan should be attributed to L'Enfant, the author instead focuses on some of the

neglected aspects of the plan - ones called for but never carried out. The 1791 plan included enclosed plazas at the "squares," avenues of shorter length with vistas minimized and obscured by trees, and major buildings such as the White House and Capitol at different locations. The plan also specifies a grand avenue on the Mall with Pennsylvania Avenue having much less prominence in the design than it does today, according to Mr. Jennings. The author used his knowledge of drafting methods in his examination of the manuscript, as well as special photography, some of which revealed pencilled inscriptions on the plan possibly made by Thomas Jefferson.

In "Mapping the Nation's Capital: The Surveyor's Office, 1791-1818," Ralph E. Ehrenberg, chief of the Center for Cartographic and Architectural Archives, National Archives and Records Service, discusses the work of James McDermott, Nicholas King and his father and brother, and Benjamin Henry Latrobe, among others, in view of the continuing developments and refinements of the L'Enfant-Ellicott plan that occurred as the nation's capital came into being. The surveying and mapping work that took place in Washington in 1791-1818 reached a peak of activity that would not be seen again until the Civil War, according to the author.

A final article in this issue of the Quarterly Journal takes up "Aborted American Atlases." Written by Walter W. Ristow, honorary consultant to the Library in the history of American cartography and former chief of its Geography and Map Division, the essay deals with several unfinished cartographic efforts of the late 18th and early 19th centuries, among them Walker and Abernethie's Traveling Map, Christopher Colles' Survey and Geographical Ledger, John Melish's state sheet maps designed to be part of an open-end or loose-leaf atlas, and the Ebeling-Sotzmann Atlas von Nordamerika.

The summer 1979 issue of The Quarterly Journal of the Library of Congress (ISSN 0041-7939) sells for $2.25 and is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, or in person only from the Information Counter in the ground floor west lobby of the Library of Congress Building. The subscription price is $9 a year ($11.25 for foreign mailing).

-o0o-

MAP MICROFILMING

Persons with information concerning bibliographic and technical description of microform material for maps are urged to contact Mr. Larry Cruse, Map Section, C-075P, University Library, University of California, San Diego, La Jolla, Ca 92093. He is currently engaged in a survey of the current availability of cartographic microforms worldwide. His interests include both printed and manuscript materials, as well as archival material. His research has included the Italian State Archives, Vatican Film Library, and Portuguese collection of the Prime Minister's Library at Groote Schuur, as well as Washington repositories.

-o0o-

THE NORTHPART OF AMERICA: AN ATLAS OF FACSIMILE MAPS IS FINALLY GOING TO BE PUBLISHED

This facsimile atlas has been near press since the late 1960's. Its publication had been scheduled for last fall but cancelled. Finally this collection of facsimile maps by Dr. Coolie Verner is at press and copies will soon be available. The following was recently distributed by Academic Press Canada Limited, formerly Longman Canada Limited. Their address is also listed below.

...Since that time production costs have risen drastically. We have entirely reassessed the price and discount structure on this book. The list price is now $500.00. The discount is 50% until December 31, 1979, and 40% thereafter, regardless of quantity. The book is non-returnable.

The beauty of the maps reproduced, the value of the historical background of each map and the authority of the carto-bibliography, not to mention the quality of the paper and binding, fully justify the new price. Each volume will be packed in a special styrofoam shipping container in addition to the slip case. Shipment will be prepaid and insured.

Would you please confirm at your earliest convenience your order at the new price and discount.

The volume is now on press. Finished books will be delivered to our warehouse in September for publication in October 1979.

Academic Press Canada Limited
55 Barber Greene Road
Don Mills, Ont. M3C 2A1
Telephone 444-7331

-o0o-

FOLIO OF FLOOR PLANS OF MAP LIBRARIES AVAILABLE

The second folio of map library floor plans entitled Federal, Provincial and Municipal Map Libraries in Canada: A folio of selected plans is now available. The folio consists of eight plates, each comprising a floor plan, statistical data, general information and a statement written to provide users with further insight into each particular facility. It is hoped that these plans will enable anyone interested in cartographic collections to see and compare the types of facilities that exist within our federal, provincial and municipal organizations.

The cost of the folio is $15.00 and it is available from:

Publications Committee
Association of Canadian Map Libraries
c/o National Map Collection
Public Archives of Canada
395 Wellington Street
Ottawa, Ont. K1A ON3

-o0o-

The atlas of California, by Stuart Allan ...[et al.] (Portland, Oregon: Academic Book Center, 1979). $40.00.

The atlas of Canada and the world, prepared under the direction of Harold Fullard and B.M. Willett (London: George Philip, 1979). $40.00.

Canada photographed from the air (Ottawa: Information EMR, Surveys and Mapping Branch, 1979). 16 p. Catalogue # M52-36/1978. Free. Available from: National Airphoto Library, 615 Booth Street, Ottawa, Ont. K1A 0E9.

Canadian book of the road (Montreal: Reader's Digest Association (Canada) Ltd., in conjunction with the Canadian Automobile Association, 1979). $25.00.

A complete cumulative catalogue of all available Landsat-1 data covering Canada has been compiled by CCRS and it is available free from: Jean C. Heffernan, User Assistance, Canada Centre for Remote Sensing, 717 Belfast Road, Ottawa, Ont. K1A 0Y7.

Environmental economic atlas of North Bay and area, by R.S. Brozowski ...[et al.] (North Bay: Nipissing University College, 1978). 73 leaves. Available from: Dr. Keith H. Topps, Department of Geography, Nipissing University College, P.O. Box 5002, North Bay, Ont. (prepay with cheque payable to Nipissing University College).

A geographical atlas of world weeds, by LeRoy Holm ...[et al.] (New York: Wiley, 1979). LC78-24280 ISBN 0-471-04393. $30.00.

Large type world atlas (Maplewood, NJ: Hammond, 1979) $17.95. ISBN 0-8437-1246-5.

Mission to earth: Landsat views the world, by N.M. Short ...[et al.] (Greenbelt, Maryland: Goddard Space Center, NASA, 1978). NASA special publication 360. Available from GPO, stock number 003-000-00659-4. $14.00. 469 p. 400 plates (28 plates cover parts of Canada). Also available: Educator's guide, by Margaret A. Tindal (Greenbelt, Maryland: Goddard Space Center, NASA, 1978).

Official place names in the Republic of South Africa and in South West Africa (Pretoria: National Place Names Committee, Department of National Education, 1979). 550 p. Introduction in Afrikaans and English. R47.25 prepaid. Available from: The Government Printer, Private Bag X85, Pretoria 0001, Republic of South Africa.

Optimum specifications for large scale urban mapping using convention photogrammetry: a study of existing techniques, by Jane E. Drummond (M. Eng. thesis, University of New Brunswick, 1978). Available from: National Library, Ottawa ($9.00). Canadian thesis on microfiche no. 35565.

Paper and leather restoration: a manual, by Paul Mucci (College Park, MD: Marac, 1978). Available from: Mary Boccaccio, Archives and Manuscripts, McKeldin Library, College Park, MD 20742, U.S.A. Marac refers to the Mid-Atlantic Regional Archives Conference and this is the first publication in the Marac Archival Series.

A projection handbook (Madison: Cartographic Laboratory, University of Wisconsin, 1979). $5.50.

Quite a bit about maps and compasses, by Harry A. Cunningham (Winnipeg: Department of Renewable Resources and Transportation Services, 1976). 32 p.

A socio-economic atlas of the City of Hamilton, by Mike Pennock, Cathy Allan and Peter Steckenreiter (Hamilton: Social Planning and Research Council of Hamilton, 1977). 35 p. $3.00. Available from: Social Planning and Research Council of Hamilton & District, 153½ King Street East, Hamilton, Ont. L8N 1B1.

Times atlas of world history, edited by Geoffrey Barraclough (London: Times; Maplewood: Hammond, 1978). $50.00. (Available in Canada through Fitzhenry & Whiteside in Toronto, $65.00).

Banff National Park, backcountry user's guide [pamphlet], Kootenay National Park, trail guide [pamphlet], Banff townsite [page size map], Jasper townsite [page size map]. Available from: Parks Canada, Western Region, 134 - 11th Ave. SE, Calgary, Alta. T2G 0X5.

National topographic system map of Canada. Cartes du Canada du système national de reference cartographie (Ottawa, Canada Map Office, 1979). MCR 2035-2037. The 3 index maps for NTS coverage of Canada have been revised to January 1979 and have been just released. Free.

Northern land use information series: map index (Ottawa: Canada Map Office, 1979). Free.

-oOo-