The NOVA SCOTIAN SURVEYOR

OCTOBER, 1972

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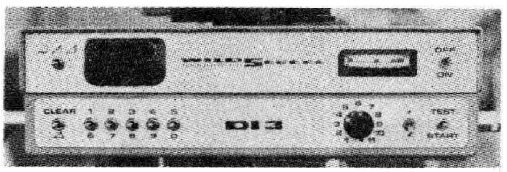

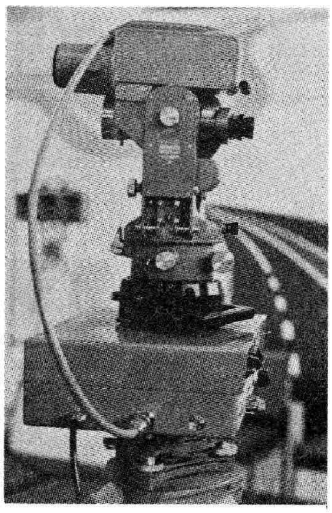

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BASIC CONSIDERATIONS RELATED TO CADASTRAL SURVEYING OF CITIES

Dr. Gottfried Konecny
University of New Brunswick, Fredericton, N. B., Canada

This paper was delivered originally at the North American Symposium on Urban Surveying and Mapping, Mexico City, in January 1969. It is presented here because of the timeliness on the Canadian scene, where city surveying is becoming very important. Reprinted from The Canadian Surveyor,

After a comprehensive review of various land registration systems and the costs of registering land, the author discusses the particular role of large-scale maps in a cadastral system upon which city surveying and mapping should be based. A concrete suggestion is advanced for establishing a multipurpose cadastre in North America and its role in city surveys is discussed.

INTRODUCTION

While topographic surveys describe the visible natural and man-made features of the earth's surface, cadastral surveys are involved in legal questions of ownership and rights vested in lands. Cadastral or legal surveys are tightly interwoven, therefore, with the legal principles and practices of a specific country or region. While the surveyor is responsible for conducting the survey, its urgency, its meaning, its significance and its usefulness generally are governed by law.

In turn, it is the responsibility of a professional surveyor to establish why cadastral surveys are necessary and how they can be performed most efficiently in the interest of the public, and to communicate his convictions to the legal profession and the legislators so that archaic laws may not become a hindrance to the requirements of modern community development.

LAND REGISTRATION

Land as one of man's major resources, ranks with stocks, bonds and commodities as a contributing factor to the economy of an individual as well as of the community. The question of land ownership and its associated rights, therefore, warrants legal protection. Such legal protection for the owner can be obtained by issuing legal documents, such as deeds, or by instituting a public land register.

The various systems of land transfer and of establishing land ownership that are used in the various countries of the globe are summarized in Table 1.

Private Conveyancing simply consists of the signing of a private deed by the parties exchanging a property. The solicitor merely describes the land and its history for at most 40 years in an "abstract of title". Only one deed is issued; there is no Public registration and no survey is required for issuing the deed. This system is still used in parts of England, Canada, Ireland, other countries of the Commonwealth and the United States.

Rudimentary Deed Registration is a means of providing the interested property owner with the opportunity of registering a land parcel in a publicly operated land register. In it, all private deeds are copied without checks. Surveys are not required. An index of proprietors is kept for every year, but because registration is not compulsory, no parcel index exists. Searches for old deeds are very time consuming and most uneconomical. The system is used in the Atlantic Provinces of Canada and in parts of England and the United States.

TABLE 1

LAND REGISTRATION SYSTEMS

System	Registration possible	Registration compulsory	Survey compulsory	State guarantee of ownership	State guarantee of boundaries	Type of law in force	Where applied (due to limited knowledge this list is not exclusive)	Evaluation of registration system	Evaluation of survey system
Private conveyancing	no	no	no	no	no	English	parts of Ireland, England, Eastern Canada, other Commonwealth countries and the United States	unsatisfactory	no public legal survey record
Rudimentary deed registration	yes	no	no	no	no	English	Atlantic provinces of Canada, parts of England, United States	deed search costly and unreliable	no public legal survey record
Improved deed registration	yes	yes	no	no	no	English	Scotland	register bulky, contains both old and recent record	poor surveys; topographical map used as index map for parcels; survey records not publicly used
Title deed registration	yes	yes	yes	no	yes	code	South Africa, Western Europe	register bulky, contains both old and recent records	based on control surveys monumentation of boundaries integrated use of survey record
Land title registration (Torrens System)	yes	yes	yes	yes	no	English	Australia, New Zealand, Western Canada, parts of other Commonwealth countries (Africa) and the United States	efficient; can discard or file away dead matter; applicable to automation	surveys only recently tied into control; no public use of survey records
Land title registration (Eastern Europe)	yes	yes	yes	yes	yes	code	Germany, Austria, Eastern Europe, Switzerland, Scandinavia	efficient; can discard or file away dead matter; applicable to automation	based on control surveys; monumentation of boundaries; integrated use of survey records

Improved Deed Registration is a means of making the registration of land transfers compulsory. The registers contain ownership, mortgages and encumbrances. Entry of these is checked for correctness by the Registrar. Because registration is compulsory, all parcels of land can be included and all deeds can be filed by aid of a parcel index; however, an accurate survey is not prescribed. The system is practised in Scotland.

Title Deed Registration states that no land transaction is valid until it is recorded in a land register. The registration includes ownership, servitudes, mortgages, mineral rights, leases, contracts and restrictions and is checked for correctness by the Registrar, Registration can only be carried out after a survey has been completed according to specifications in which the boundaries were marked by monuments. Each survey is checked by a government organization (the Surveyor General) after an application for registration has been received. The system is in use in South Africa and in some Western European countries.

Land Title Registration. The state authority establishes title by declaring under guarantee that the land is vested in a person subject to the specified encumbrances; by registration, defects of title are cured.

There are two types of land title registration practised:

The *Torrens* system, which originated in 1858 in South Australia and quickly spread through many parts of the English-speaking world, upholds three principles; the mirror principle, whereby the present state of ownership is reflected by the register along; the curtain principle, whereby no further historical search is necessary beyond the register; the insurance principle, whereby a bona fide owner who is contradicted by the register is reimbursed out of an insurance fund. The guarantee of title pertains to ownership of the land but not to its misdescription.

The *European* System, practised mainly in Central, Northern and Eastern Europe, also follows the mirror and the curtain principles, but it does not include the provision of an insurance fund. On the other hand, the state guarantees the balidity of survey records for the re-establishment of boundaries. Presumably, regulations covering the survey, the monumentation of boundary monuments and their upkeep were easier to establish under Code law than under common English law. But it may also be true that the Torrens system could not give legal significance to land boundaries because these were not as well established as in Europe.

An evaluation of land registration systems cannot be done justly without considering the survey system. While the land register is primarily concerned with the question of who has rights on the land, the survey system defines its whereabouts.

Although, in the English speaking countries, the tendency during the last 100 years has been to progress from private conveyancing to deed registration and to a Torrens Land Titles system, this progress has only taken place in the purely legal aspects. The Torrens system, which is upheld as an ideal for land registration, provides the benefit of an efficient public register which guarantees:

a) *security* to the registered owner of the land;

b) a *completeness of record* for the entire community owing to the Compulsory nature of registration;

c) *accuracy* owing to the fact that the register is kept by competent personnel who will check the validity of the property transfer;

d) *simplicity* owing to the elimination of lengthy searches;

e) *compactness of the records* owing to elimination of dead matter;

f) *speed* - a land transfer can be completed within a few hours;

g) the *expense* in maintaining a Torrens system is less than that of a deed registration system mainly because of the absence of search costs (see Table 2 - charges by solicitor).

The Torrens system, as it is now being used, however, still has the defect that it does not sufficiently ensure the standard of the survey, its recoverability and, most of all, the utilization of survey records for public uses.

In this respect, the system is inferior to the Title Deed Registration system of South Africa and the European Land Title Registration systems. These provide legislation whereby machinery was established which

a) requires the incorporation of all legal surveys into a control network provided by government organizations to sufficient density;

b) requires the monumentation of all boundaries by monuments; for this purpose, natural boundaries have been replaced by straight-line boundaries;

c) protects boundary monuments by law;

d) sets specifications for all legal surveys;

Under the Torrens system, government survey offices, established parallel to the registry offices, have the task of checking the survey plans submitted as part of an application for registration; owing to the more stringent survey requirements set forth by law, the amount and scope of work of the survey offices is considerably enlarged. The survey offices have the duty of maintaining a reproducible up-to-date map record on the basis of all surveys carried out.

TABLE 2

COSTS OF BRINGING LAND UNDER REGISTRATION

Registration System	Value of land	Charges by the registry*	Charges by solicitor**	Total***
Rudimentary deed registration (England)	$6,000 $60,000	$16.50 $660.50	$112.50 $465.00	$129.00 $1125.00
Improved deed registation (Scotland)	$6,000 $60,000	$67.50 $660.50	$206.25 $1195.90	$273.75 $1855.90
Title deed registration (South Africa)	$6,000 $60,000	$198.75 $2651.25	$70.44 $151.84	$269.19 $2802.85
Land title registration Torrens (Canada)	$6,000 $60,000	$21.00 $110.50	$60.00 $325.00	$81.00 $435.50

*This contains all government charges for registration and checking operations (legal and survey).

**This contains charges by the legal profession.

***The total does not contain charges by a private surveyor; these are considered to be comparable for all systems.

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**This contains charges by the legal profession.

***The total does not contain charges by a private surveyor; these are considered to be comparable for all systems.

Owing to the accurate survey and monumentation requirements, the *expense* of registering a parcel of land (unless costs are absorbed by tax revenue as in Europe) is higher than in a Torrens system, as reflected in Table 2 for the South African Title Deed Registration. Nevertheless, it is important to consider that the survey offices are fulfilling duties which otherwise, would have to be paid for by the municipalities and absorbed by their general tax revenue. The indicated higher expense is more than compensated for by an overall saving due to the continuing benefits of an up-to-date record of real estate.

As to the other qualities of a Torrens system, the European Land title system is able to offer *security of boundary determination* in addition to *security of title*. The *accuracy* and *completeness* of title, both in the South African as well as in the European system, are extended from the parcel as a unit to the description of its boundaries. Only the *speed* with which a transaction can be performed is slower; instead of a few days, it takes one or two months to register a parcel owing to the additional checking. But with automated procedures (the use of computers in checking and plotting survey returns), it may be possible to reduce the time required for a transaction to a few days.

Under the South African and European systems, boundary disputes are rare and can be settled almost exclusively by the surveyor from survey records, while, under the Torrens system and English common law, boundaries are determined from deed description, monumentation and occupational evidence presented to the courts by the surveyor, acting as a witness only. The prime requirement in improving the Torrens system, therefore, lies in the establishment of a survey authority capable of providing a public service of maintaining an up-to-date geometrical record of all parcels equivalent to the service the Record Office provides in maintaining the ownership record.

The advantages of the European land registration system were clearly demonstrated after the destruction of World War II. There was no delay in reconstruction because an unambiguous, complete survey record was available. However, in North American the destruction of the town of Cabano in Quebec by fire in the 1930's presented problems which are still unsolved.

When comparing the various land registration systems in use around the world, one also finds that only countries with registration systems insisting on the public maintenance of up-to-date property records and plans have large-scale maps for all cities; such maps depict not only the topography but also the land boundaries. The upkeep of such maps is only possible by the existence of a survey authority responsible for it by law.

LARGE-SCALE MAPPING

Although the European land registration system is superior to that of English-speaking countries, it is also clear that an excellent survey system cannot be an end in itself and that surveys are only justified if they fulfill a genuine need. In the early days of settling the American or the Australian continent, it would have been absurd to require the same standards of survey as in the densely populated areas of Europe. Today, on the other hand, the density of population in the North American cities has surpassed that of many European areas and it becomes necessary to view the problem in a new light. The necessity and the economy of a survey system must now be considered.

While there have been feverish attempts to produce large-scale maps depicting, as well as it was possible, topography and ownership for various cities at various intervals of time, there has been a continual uncertainty attached to these maps, so that they never served as a legal record. An example is found in the City of London in Ontario. It possessed a beautiful large-scale map 1:1,200 compiled by the Government of Canada in 1926. Owing to the lack of a machinery to update the map record, it became necessary to resurvey the city independently by photogrammetry in 1965 at a scale 1:2,400. The result is a completely new map of considerably lower standard, while the first map has been rendered useless. This does not cover the many detailed surveys that have been carried out by private owners, industry, utility companies and the city between 1926 and 1965, because the original map and its survey records were not updated.

Perhaps, one of the deterrents to the upkeep of the map both in 1926 and in 1965 is the fact that maps have been produced by outside agencies, the Federal Government or an aerial survey company, while the responsibility for maintaining a map should have rested with the municipal authorities who were not sufficiently involved in the preparation of the map and did not feel that they had enough equity in it to set up revision machinery.

Offhand, it is not yet established whether the production of the new map would not have been more economical than the upkeep of the old one. Nevertheless it is of prime importance to assess the value of a survey system and of a map by their long-range effects in eliminating the necessity for project-oriented costly duplications. The pity of the present situation is that still no one is willing to analyze the economy of the problem. The answer cannot lie in property recording and mapping alone.

THE CADASTRE

In considering the advantages of those land registration and survey systems which are favorable to mapping, one should go back to their historical roots. It is interesting to note that most of these legal survey systems originated from the desire to create a cadastre. The cadastre is, by definition, an official register of the quantity, value and ownership of all real estate. The purpose of establishing the cadastre was to create a basis for just taxation. At the time the first cadastres were established in Europe (around 1800), the area of the property constituted a just means of taxation. The *tax cadastre* was therefore primarily of interest to the revenue department of a state. It consisted of a register of all land parcels which were indexed on a large-scale map which determined the area of land and its location. Both register and large-scale map constituted the cadastre.

In the era of industrialization, the tax structure shifted from property values to income, and, even as far as land is concerned, resale values including buildings, are today a more realistic means of distributing the tax load than the area of the land. Countries possessing a tax cadastre, nevertheless, soon realized that the maps forming that cadastre were invaluable for the purposes of planning and construction and for the preparation of maps at medium and smaller scales. The land register itself could be expanded to contain statistical information about buildings, land use and land value. The cadastre became a multipurpose *planning cadastre*. Most European countries believe that this function alone justifies the present existence of a cadastre.

It was finally just a matter of convenience when around 1900 most European countries accepted the use of the cadastre in its present function as a *boundary cadastre*.

It is perhaps the fault of the survey profession that in preoccupying itself with the technical details of surveying it has neglected to emphasize its more important service to the community, that of systematically recording the topographic and legal changes of communities for public use. This might be the very reason why a multipurpose planning cadastre, which also fulfills the functions of a boundary and a tax cadastre, has not yet been established in Canada and the United States.

SUGGESTIONS FOR THE ESTABLISHMENT OF A MULTIPURPOSE CADASTRE IN NORTH AMERICA

It is primarily the North American technical outlook which could easily help to establish a multipurpose cadastral survey system faster than anywhere else and with an even greater potential.

It would be absurd in a fast developing economy to suggest solutions which will not bring benefits for another 50 years. It would be unwise, therefore, to suggest that cadastre and city maps should now be compiled from all legal surveys conducted in the city. Nevertheless, it would be of great importance to establish a route whereby all legal surveys conducted in the city should be filed as a public record for present or future use.

The establishment of a multipurpose cadastre for all North American cities is, no doubt, an urgent matter. The following steps would be necessary:

a) Since the cadastre must contain a complete record, compulsory land registration will be required. The establishment of a land titles registration system is the most desirable and the simplest means to arrive at a property register.

b) The land titles system should be amended as to survey requirements, specifications for its accuracy and the checking of surveys by a local authority are concerned. Invariably this will lead to the establishment or the expansion of a city survey office with an enlarged scope of activities to maintain an up-to-date geometric record of the cadastre.

c) In order to require land surveyors to submit satisfactory returns it will be necessary, in most cases to densify the national geodetic control network to such a density that the land surveyor is able to perform his studies without economic loss. The establishment of such a control network is easily possible today with modern electronic distance measurement. It is of prime importance that the control network is maintained by the city. In recognition of this need the survey agencies of the Government of Canada recently provided many Canadian cities with basic control networks on condition that they will adequately maintain them. Where the control network is not yet sufficiently dense, land surveys should securely monument boundary points so that these may serve as coordinated starting points for further surveys.

d) Based on this control, photogrammetric procedures are ideally suited to compile large-scale maps, which can serve as base maps for the cadastre, primarily in its functions as a tax cadastre. For this purpose, the property distribution can gradually be transcribed from records onto the plotted topography. The approximate delineations of the boundaries, together with a parcel number, identify the land in the "tax map". The boundaries are defined by numerical survey records as these become available.

e) In the sense of automating the compilation of maps, particularly of making their revision more economical, it may be entirely feasible to utilize an orthophoto in place of a large-scale map as a base for preparing tax maps and other overlays.

f) The topographic and the legal base map, or the orthophoto overlay, may be used to record varied information, such as utilities, land values and regulations pertaining to land and statistical information on buildings or on population.

In the age of widespread computer use, several cities in the United States (Alexandria, Va. and Washington, D.C.) have already begun to establish data banks, which carry this statistical information referenced to parcel numbers on the base map; the information is stored on magnetic tape. The searching and processing capabilities of such data files, to arrive at meaningful economic decisions are unprecedented. The Atlantic Provinces of Canada, particularly the Province of New Brunswick, are in a process of establishing a data bank that will combine the functions of a land register under a Torrens system with those of a statistical data file. Wherever possible, such as in gradually covered "integrated survey areas", the identification and definition of the land parcel might be given by the coordinates of its boundary points stored in a special tape file. After such a system is perfected it will open possibilities for automated cartographic outputs of selected information contained in the data bank. While such geometric information will be the ideal of the future, the information of the first stage automated land register, a computerized multipurpose planning cadastre with vastly expanded information content, will be related to parcels identified on a large scale photogrammetric map.

Although many of the mentioned tasks can be carried out by outside contractors, such as the compilation of maps and orthophotos, it is, on the other hand, quite obvious that the responsibility for such contracts and the collection of information for the multipurpose register should best be in the hands of a municipal authority.

FUNCTIONS OF A CITY SURVEY OFFICE

Within a city survey office there should be six major areas of activity: 1) control surveys, 2) technical surveys, 3) legal surveys of interest to the City, 4) checking and recording of survey returns from land surveyors, 5) production and upkeep of city maps, 6) collection of data for a data bank.

Control surveys - the monumentation, survey and maintenance of a dense control network for positions and for elevations.

TABLE 3

PRIMARY ACTIVITIES OF CITY SURVEY OFFICES WHICH HAVE PROVIDED INFORMATION (NOT EXCLUSIVE)

City	Province or country	Establishment of horizontal control network	Use of horizontal control network	Establishment of vertical control network	Checks for encroachments and zoning bylaws	Urban renewal surveys and expropriations	Checking and filing of survey returns	Photogrammetric mapping at large scales	Compilation and revision of maps by legal surveys	Printing of base maps	Printing of derived maps	Utility surveys	Existence of a land register	Collection of information for a data bank
Calgary	Alta.	A	B	Y			N			O	O		Y	S
Halifax	N.S.	C	C	Y		A	N	A	N	O		A	N	
Hamilton	Ont.	A	B	Y		A	N						Y	
London	Ont.	A		Y			N	A	N	P,O			Y	
Montreal	Que.	A	A	Y		A	N	A				A		
Ottawa	N.C.C.	A	B	Y			N	A	N	O	P		Y	Y
Saint John	N.B.	A				A	N						N	
Toronto	Ont.	A	B	A	Y	A	N	A	N	O	P	A	Y	
Vancouver	B.C.			A			N						Y	
Winnipeg	Man.	A	B	Y	Y		B		Y	O	P		Y	
Munich	Germany	A	A	Y	Y	A	Y	N	A	P	P	Y	Y	B
Nuremburg	Germany	A	A	Y	Y	A	Y	C	A	P	P	Y	Y	B

A = extensive; B = partly; C = limited; D = none; Y = yes; N = no; O = ozalid; P = printing; S = started.

Technical surveys - The survey of new streets and their grades, municipal utilities; the supervision of construction on behalf of the city; checking of municipal planning and zoning regulations of geometrical nature.

Legal surveys of interest to the city - the determination of right-of-way for all new streets and roads, legal surveys of city-owned property; surveys for expropriation and urban renewal projects. The tasks of urban renewal will also make it necessary to have competence in appraising property values.

Checking and recording of survey returns from land surveyors - the checking function should ensure a sufficient standard of property surveys in the community. Redundancies of measured quantities contained in the survey returns should permit the assessment of whether the survey is within accuracy specifications without lengthy computations; if deemed necessary, these could easily be performed using a computer. The recording function concerns the indexing and filing of survey information and the updating of a master map as to parcellation and ownership.

Production and upkeep of maps - from map manuscripts supplied by contractors or from updated master plans, new maps can be drafted and reproduced whenever the changes on the map become significant. Revision periods of five years are not uncommon in European cities. If the cities have a large enough population (500,000 inhabitants or more), it may become feasible and economical for the survey establishment to maintain its own cartographic map printing facilities. Their own cartographic map compilation and reproduction possibly will be of particular advantage for the production of maps at the smaller scales, derived from the base map at scales 1:1,000 or 1:1,200. Such smaller scale maps are invaluable for planning and for public uses at scales 1:2,500, 1:5,000, 1:10,000, 1:20,000, 1:50,000 or the like.

....continued on Page 23

Canadian Council of Professional Land Surveyors

L. R. Feetham, N.S.L.S.

On September 22 and 23, I had the pleasure of attending the fall Provincial Presidents' Meeting held at the Constollation Hotel in Toronto. My purpose in attending this meeting was twofold. First, I represented our President, J. F. Doig, and secondly, I reported as Chairman of a Special Committee on the continuing investigation on the possible creation of a Canadian Council of Professional Land Surveyors.

Subject to the approval of Council you will receive a notice of three Resolutions which I intend to submit to the general membership at our Annual Meeting in Sydney. Many of you will recall discussions on the creation of such a Council at our Twenty-First Annual Meeting in Halifax and I was authorized at that time to continue my investigation and to report back to Council.

During the last year I have attempted to accumulate information on the need for creating such a Council and what benefits our members would derive from its creation. In this work I had the assistance of a committee structure which included members from Quebec, Ontario and British Columbia. We were fortunate in obtaining a great deal of information from the Canadian Council of Professional Engineers, which is structured in a manner similar to the Council we envisage for the Professional Land Surveyors of Canada.

The Canadian Institute of Surveying by its very nature cannot speak or act solely for the surveyor. Consisting of many disciplines it lacks the voice we need in national affairs and by its own admission has stated so. Thus, the need for a National Council of Professional Land Surveyors governed and controlled by land surveyors only. The C.I.S. has and still is supporting the creation of such a Canadian Council.

The Canadian Council of Professional Land Surveyors would be a coordinating agency for all Provincial Associations in Canada primarily to achieve standardization of standards, admission requirements, etc., to facilitate the movement of land surveyors between provinces, to deal with problems of the profession which are national in scope and to act as a national voice for the profession. More defined aims and objects are listed in a draft Letters Patent which has been prepared and will be made available to any member upon request to the writer.

It is hoped that the Canadian Council would maintain a reasonably close liaison with universities and technical colleges across Canada, both directly and through the Provincial Associations. Hopefully we could some day see the establishment of a Canadian Accreditation Board which would carry out a program of formal accreditation of all survey facilities and schools in Canada. This, of course, is a long way in the future. The Canadian Council of Professional Engineers has such a Board and, to the best of my knowledge, is the first all-Canadian Accreditation Board ever created in any field. No doubt some of the universities would object to its creation, but in the long run they will realize the benefits of a standardized educational program. Thus, a National Syllabus of Examination.

The Canadian Council of Professional Land Surveyors would have a Board of Directors with one director from each province plus a president who does not represent any particular province. This president chairs all meetings but does not have a vote at Board meetings. Eventually, this Board could hold one or two meetings a year, with an executive committee holding several meetings a year and generally running the affairs of the Council. There would be no meetings requiring total membership participation as there is with C.I.S. or the Provincial Association at present. The Board would also attempt to assess the qualifications of a foreign applicant.

....continued on Page 23

** MORE EXCERPTS FROM LAW REPORTS **

submitted by

J. F. Doig, Principal
Nova Scotia Land Survey Institute

EVIDENCE - Lewis vs The King 16 MPR (1941) p. 71 (P.E.I.)

If there is no direct evidence, the indirect evidence must be such as to satisfy the Court that the circumstances are inconsistent with any other rational conclusion than that of the guilt of the accused.

* * *

JUDICIAL NOTICE - Rafuse vs T. Eaton Co. (Maritimes) Ltd. 40 MPR p. 150 1957

"As to (1) above I would add that it is a matter of common knowledge of which I may take judicial notice that customers of large stores in Halifax, including Eatons, do frequently bring go-carts and strollers with them into such stores, and take them with them when proceeding about their shopping activities in various parts of the stores."

* * *

MAPS AND PLANS - Grassett vs Carter 10 Can. SCR 105 p. 114

"Where land is described by reference either expressly or by implication to a plan the plan is considered as incorporated with the deed, and the contents and boundaries of the land conveyed, as defined by the plan, are to be taken as part of the description, just as though an extended description to that effect was in words contained in the body of the deed itself."

* * *

RIPARIAN BOUNDARIES - Fudge vs. Boyd 50 MPR p. 384 (New Brunswick)

"As stated by the learned trial judge the rule expressed in 17 Halsbury, 3rd ed., at pp. 309 and 310, was followed by Mr. Trainor in making his survey. It reads:

> 'It has never been decided by the Courts where exactly the medium filum aquae is to be taken in the case of non-tidal rivers, but it has been decided what is the extent of the bed of a river. From this it seems to follow that the medium filum aquae (the common law boundary between fisheries belonging to riparian owners) is a line running down the middle of the bed of the river, the bed being that portion of the soil of the river, which is always covered with water and that portion which is laternately covered or left bare as there may be an increase or diminution in the supply of water, and which is adequate to contain the water at its average and mean stage during the entire year, without reference to the extraordinary freshets of the winter or spring or the extreme droughts of the summer or autumn, where a river gradually or imperceptably changes its course or its width, the boundary of a fishery in the river will follow such laterations, notwithstanding the existence of bounds or marks by which the former boundary can be ascertained.'

On such footing Mr.Trainor located the middle line of the bed of the river in front of the lodge property at five different locations. Opposite such points, offset 15 or 20 feet towards the north shore, he set iron stakes to designate the limits claimed by the plaintiffs. As the defendants, despite all warnings continued to fish north of the line so marked the plaintiffs on 26 July 1962 issued their writ of summons....."

* * *

CONVENTIONAL LINE - Smith vs Anderson 16 MPR p. 287 (1942)

An agreement between an intending purchaser of lands and the owner of the adjoining lands as to their dividing line does not create a binding boundary between them. To be effective, such an agreement must be between the actual owners of the properties.

A purchaser of land, whose executed deed was on deposit in a bank for delivery upon payment of the purchase price, considered not to be the owner of the lands.

* * *

In re Lounsbury Co. Ltd. MPR 38 p. 185 1955 Moncton, N. B. Per Michaud CJQBD:

It is suggested that, because in this conveyance the western boundary is not mentioned as running at right angles from Main Street southerly, it must run parallel with the side line of the street leading past Graves' Stables. The words used must be given their literal meaning, and when it is stated that the line runs southerly sixty feet from the south side of Main Street, it must run at right angles, otherwise it would have been mentioned as running southeasterly or southwesterly.

* * *

ADVERSE POSSESSION - Carson vs McMahon 15 MPR p. 109 Charlotte Co., N. B. 1940

One tenant in common cannot maintain an action of trespass against a co-tenant, nor obtain an injunction against him to prevent him exercising acts of ownership over the property owned in common, except in the case of threatened destruction of the common property.

If A. (owns) land and B. enters and occupies it, then after A. has discontinued possession for twenty years, he cannot make an entry or bring an action to recover that land. X. taking a conveyance from A. which he registers is in no better position. If A. dies, his heir or devisee is equally unable to make an entry or bring an action. B.'s title is good against all the world.

ADVERSE POSSESSION - Legere vs Caissie 41 MPR p. 305 (NB 1958)

In Bentley v. Peppard (1903), 33 SCR 444, an appeal from the Supreme Court of Nova Scotia, the facts also resemble in many aspects the circumstances of this case. The observations of Sedgewick J. in the Supreme Court of Canada, speaking for the full Court, respecting the relevant legal principles are peculiarly opposite. At pages 445 and 446 he says:

"3. Where a person without title and without right (in Canada we call him a 'squatter') enters upon land, his possession in a legal sense is limited to the ground he actually occupies, cultivates and encloses; it is possessio pedis--nothing more.

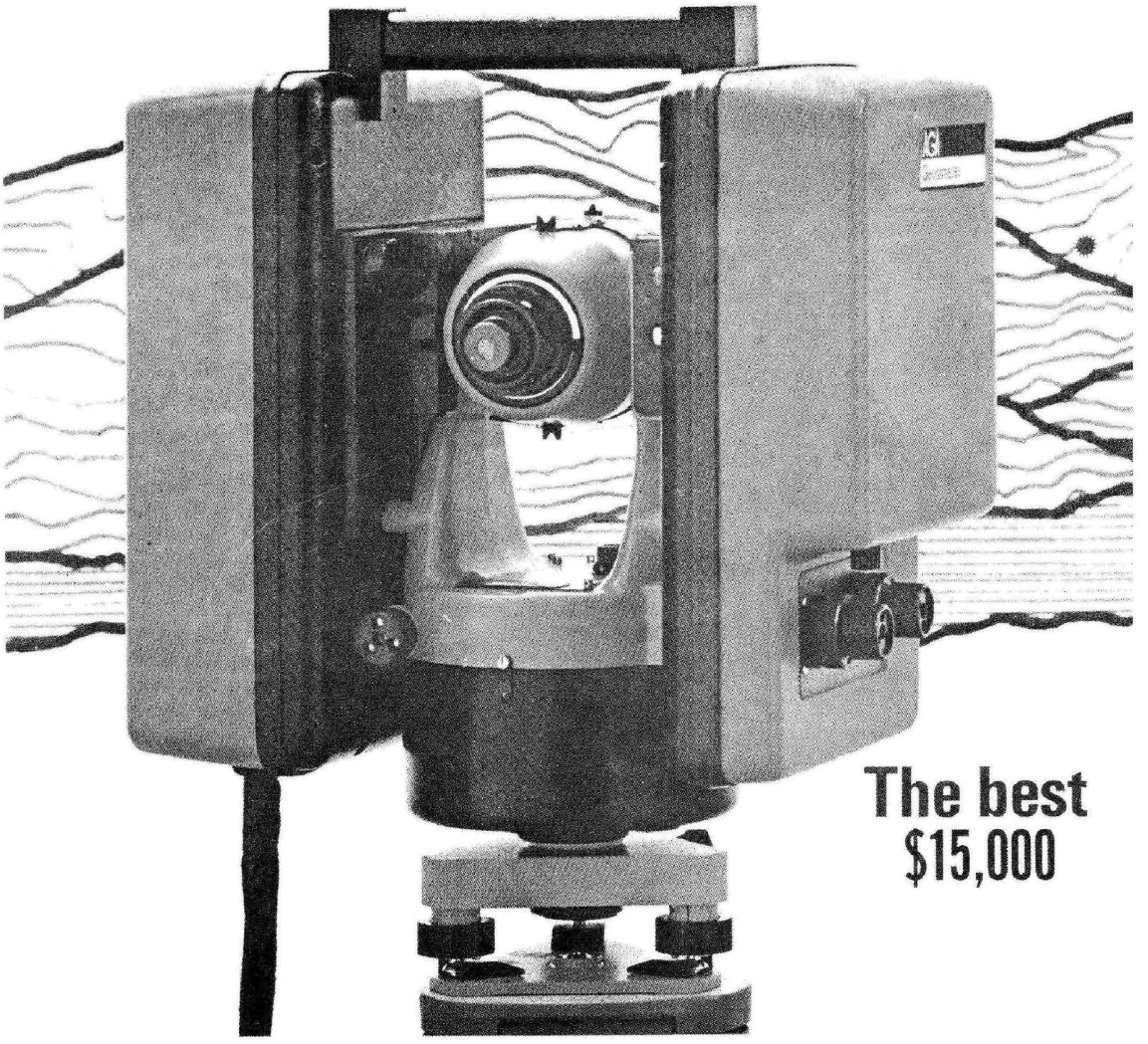
4. But where a person in good faith under a written instrument from on purporting to be the proprietor, enters into Blackacre--a definite territorial area--his actual occupancy of a part--no matter how small--in the absence of actual adverse occupancy by another, given him a constructive possession of Blackacre as a whole. He has it, as the phrase is, under 'colour of title'."

* * *

Legere vs Caissie et al 41 MPR p. 305 (NB 1958)

"The evidence discloses that for well over 40 years the plaintiff and his father before him were the only persons exercising or attempting to exercise ownership. It is true that in the late twenties and early thirties, before it was brought under cultivation, picnic parties went on the cleared area next the shore; that during

....continued on Page 23



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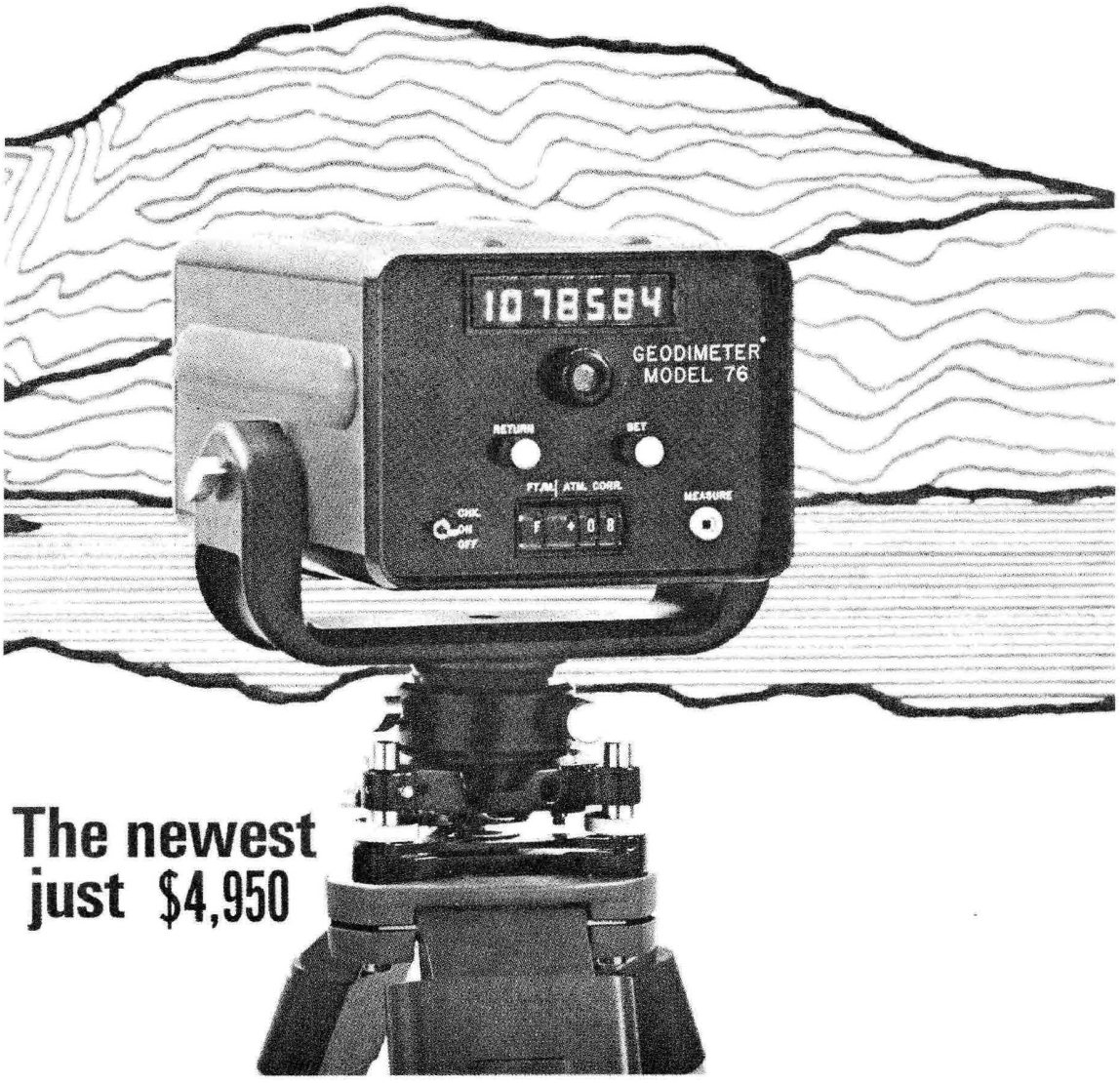

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- PINE STUBS -

From Reports of Crown Land Surveys
During the 1942 Field Season

Evidence, in the form of an old blazed pine stub, was found of the original boundary line survey of Crown Grant No. 3377 east of Northeast Bay on Lake Rossignol. This stub was broken off approximately ten feet above the ground, was about 18 inches in diameter at stump height, and was in good preservation. It bore the original surveyor's centre marks, (blazed and hacked three times down) as was the custom of the old time surveyors. The centre marks were plain and in excellent condition.

The Crown Land Records show that Grant No. 3377 was surveyed by James More in 1852. The wonderful preservation of the centre marks on both sides of the stub after 90 years is remarkable.

Another stub was found on an east boundary line of the same Grant which bore perfect centre marks on the south side. The north centre marks were found on a downed portion of the stub.

A fallen pine stub revealed evidence of the original east boundary line of Crown Grant No. 4531, which bore the original surveyor's centre marks with three hacks down. The Crown Land Records show that Grant No. 4531 was surveyed by Whitman Freeman in 1858. There was little, if any, tree growth over the old surveyor's marks, indicating that the tree was nearly dead when it was marked by the surveyor. By appearances the stub had not been down many years, so it is about certain that the old pine had stood for 70 years after it was dead.

The northwest corner of Crown Grant No. 2116 was recorded as a blazed pine tree. During the resurvey of this grant a dead pine tree about 8 inches in diameter in sound condition, and bearing a well preserved blaze on each of its four sides, was found on the east shore of McLean Lake in Queens County. It was the original northwest corner as surveyed by James F. More in 1852. Men have come and gone, but for 90 years this small pine tree corner has weathered the storms on the shore of McLean Lake, proudly and silently bearing the mark of the old surveyor.

The durability of these pine stubs is remarkable, and some interesting facts concerning them are brought to light during the resurvey of the old Grant boundary lines. They bear the marks of the pioneer surveyor long after he has passed up his compass and staff and has gone to plot his notes in peace.

R. M. Schofield,
Nova Scotia Land Surveyor.

NOTE: - Thirty years have passed since the Crown Land Survey of 1942. Time and elements have wrought their changes, and it is doubtful if any trace of the original surveyor's blazes and centre marks of the 1850's can be found on these old Grant lines today.

R.M.S.
October 1972.

JOHN HARRIS - DEPUTY SURVEYOR -

The following letter has been kindly submitted by Miss Susan Harris - a direct descendent of John Harris, Esquire, of Annapolis, who as Deputy Surveyor was responsible for the survey and construction of the Old Annapolis Road.

This road was laid out from Hammonds Plains in Halifax County, westerly through Sherwood, New Ross, The Forties, East Dalhousie, Albany Cross and West Dalhousie to Annapolis Royal. This letter illustrates the urgency for surveys to be speedily carried out in 1816 as they are today.

The reader will note from the following invoice that the surveyors remuneration in 1816 was - something else!:

"Halifax, June 8, 1816

John Harris, Esq., Deputy Surveyor

Dear Sir:

Immediately on receipt of these few lines, I must beg you will set out with all possible dispatch and meet me at Windsor. The object is to accelerate the immediate settlement of the New Road from Annapolis to Halifax, as traced out by you, and as you are the Commissioner for the expenditure of that money and are zealously disposed to promote its success, I know you will exert yourself, as dispatch is the life of business. My son, Charles, will attend you as assistant. The present object is to cut the Road six feet wide, westerly on your track towards Annapolis, from the point where it intersects the Chester Road, at the distance of about fourteen miles. As a number of Corps are to be disbanded here shortly, His Excellency expects to employ them at the rate of two shillings per day in cutting the Road, and settling the real farmers between the Chester Road, and where the Road leading from Lunenburg to Nictaux crosses your track and about two miles of distance beyond it.

I beg your immediate attention to this letter written with the approbation of His Excellency the Governor.

I am Sir Your Sincere Humble Servant,

Charles Morris, Surveyor General."

- I N V O I C E -

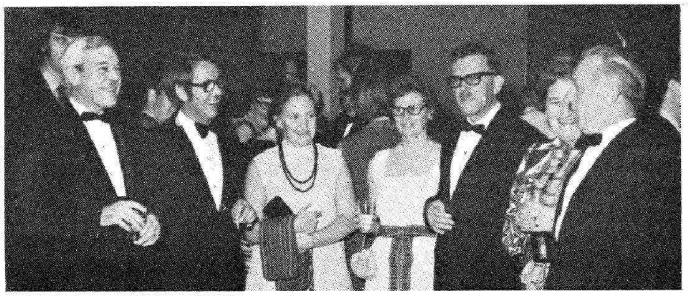
Charles Morris, Surveyor General
to John Harris, Debitor.

1816	To time spent in and for the purpose of laying out land for the disbanded Corps of the Newfoundland and Nova Scotia Regiment. Allotting and showing them their lands, making and returning plans of the same to the office re between the 24th June A.D. 1816 and the 31st of December following, viz:		
	40 days @ 15 shillings	=	£30 00 00
	To provisions for 40 days @ 3 shillings per day	=	6 00 00
	Assistants, viz: Chain bearers, axemen, and men to carry provisions -		
	70 days labout @ 5 shillings	=	17 10 00
	To cash paid George Harris for measuring off the width of 85 lots on the road west of the settlement and affixing bounds to the same	=	10 00 00
	N.B. The whole track laid out comprising 347 lots of the hundred acres each amounts to 34700 acres.		
		Total	£63 10 00

Errors excepted - John Harris.

*** RECEPTION TIME - 1971 Annual Meeting ***

(L. to R.)
Doug & Judy Melhman, Merv & Bernadette Hartlen,
Chris & Terry Doogue



(L. to R.)
Gil Simard, Jean-Marie & Jeanne Chastenay,
Madelyn & Jin Doig, Mr. & Mrs. Cecil O'Hearn

(L. to R.)
Al & Diana Grant, Rus & Shirley Melanson,
Teresa & Dick LeLievre

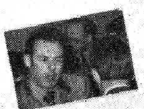
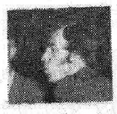
DO YOU RECOGNIZE THESE PEOPLE???

1971 Annual Meeting



















The Editor,
The Nova Scotian Surveyor,
Halifax, Nova Scotia.

Dear Sir:-

There is a general understanding that before any land development can be carried out, a land surveyor must first appear on the scene. Whatever the purpose of the survey, whether it be a plan to accompany a subdivision or rezoning application or a topographic survey plan to be turned over to an architect or engineer for design and ultimate construction, the cry from the client is always the same - "we need it yesterday".

To the developer, the surveyor has become a mastermind at making excuses. One would not for one minute believe that the following letter (found while carrying out research on some of our older files) has had anything to do with the formation of his opinion:

"August 23, 1952.

Dear Sir:

Re: Survey of Property at Woodside, N. S.

Further to our various telephone conversations I would like to outline herewith some of the difficulties which I encountered to date on my survey of your Company's property at Woodside, and also to give you an idea of when you may now expect to have a complete plan of survey of the boundaries.

During June when I expected the bulk of the fieldwork would be done we had almost continual bad weather or threat of same and I therefore did not get really started till early in July. I have had a party in the field on all days possible since the fourth of July. On days that predicted rain or showers I did not deem it advisable to put the party in the field due to the long transportation time and distance expense involved, and days that it did rain it had the effect of wetting the woods to such an extent that to go in the following day was to get soaked by the bushes. Thus as we worked only a five day week a rainy day even in July when the weather was much better had the effect of spoiling two days in a five day week or forty per cent of the possible working time. Added to this was the hot weather in the woods along with the flies and insects which did not help to speed things up any.

Lack of definite information in deeds and also conflicting information has added considerable time to the survey especially in reference to the rear boundary of the front lot and the north boundary of the rear lot. There is also some encroachments on the south boundary of the front lot which also required extra study in the field.

Local magnetic attraction has been encountered on some of the woods lines which involves the use of the transit instead of the compass which latter is very much faster although not as accurate. On some of the lines there are very large swamps which are most difficult and time consuming to cross and carry on a survey. Some extra time was also involved (to save time later) in setting points when passing that would be of future use in locating buildings, etc.

Other than my own personnel, outside help who had any experience with an axe was impossible to obtain and therefore all the cutting as well as the instrument and survey work fell on my own field party and myself. This later along with the other difficulties mentioned above especially the rain, heat and flies had the combined effect to prolong the completion time of the job well beyond what was normally at first expected.

My instrument-man and rodman (they have been with me seven and five years respectively and are thus well experienced) had requested their annual holidays of two weeks to start the 2nd of August at which time I first thought the field work for the job would be completed. When we ran into difficulties as above I asked them if they could put same off till the 23rd of August which they agreed to do. However now that this time has arrived with completion not yet accomplished and in the meantime they had made definite reservations, etc. for their holidays I did not feel that it would be fair to ask them to cancel their plans a second time. Also this two week period I can use to good advantage to bring the office plotting work up to date and try to locate further information from abbuting owners as regards the rear boundary of the front lot and the north boundary of the rear lot.

With completing the remaining fieldwork after this two weeks holiday period is over, some more additional office work on the plan and allowing for some bad weather, it will run the job to around the 20th or last of September.

However in the meantime if you would like to make a field trip with me to inspect progress, etc. I would be only too glad to do so at your convenience.

Yours very truly,

Prov. Land Surveyor."

Perhaps some of our members might get a chuckle out of it and perhaps some may be able to use it.

Roy Dunbrack, N.S.L.S.

AMBROSE F. CHURCH - MAP MAKER

The name Ambrose F. Church probably has little meaning to most, but he is one local resident who should not be forgotten. It was Mr. Church who, between 1865 and 1888, surveyed and mapped all 18 counties of Nova Scotia, and produced maps that were described by the Morning Chronicle as "splendid style".

Originally, Jacob Chace, Junior, of Portland, Maine, was to do the provincial survey and produce the resulting maps. Chace had come before the Nova Scotia Legislature Committee, which was investigating the cost and means of mapping the province. Mr. Chase showed the quality of his work with several maps, including one of a portion of Halifax County. The committee was impressed, so much so that their report was adopted in 1862 by the provincial Assembly. However, Mr. Chace died within a year or so, and the work of mapping fell to his associate, Mr. Church.

In 1865, Ambrose Church and his wife Nancy, with their year old daughter, Alice, moved to Halifax. Before leaving, he purchased the survey of Halifax County that had been completed by H. F. Walling (of New York City).

By early summer, he received a provincial grant of $400 (with the idea that $600 more would be forthcoming) and started the Halifax County map - first in his series of Topographical Township Maps. The first county map was completed by the early part of August, and was the first map to be published by the newly formed A. F. Church and Company, of Halifax.

This first map was drawn to the scale 500 rods to one inch. This was the only map drawn to this scale, as all others were drawn to the scale one mile equals one inch. The size of the finished map was 62 inches by 64 1/2 inches. It proved to be Church's largest map, as the rest were approximately 55 inches square. All county maps were provided with a directory listing all settlements within the county, as well as insert maps of the whole province. Township maps, on the Halifax County map, showed the layout of the following communities: Bedford, Falkland, Germantown, Halifax, Herring Cove, Ketch Harbour, Oldham, Peggy's Cove, Sambro, Tangier, Upper Prospect, and Waverley.

Mr. Church provided to the Nova Scotia government 200 copies of the engraved map, and was authorized by the Lieutenant Governor in Council to receive $1,000 for the county maps.

Throughout the next 23 years, Mr. Church and his workers continued to survey and draw maps for each county. For the same number of years, he was involved in conflicts with the government over payments for his maps. It was a long drawn out affair that was never really settled to the satisfaction of Ambrose Church.

In addition to the 18 provincial maps, Church and Company produced a provincial map of Canada for Confederation and a large mineral map of Nova Scotia.

After living in Halifax for about three years, Ambrose and his family moved to the community of Dartmouth, where he spent almost four years. At the same time that he and his family lived in Dartmouth, he moved his mapping office from Duke Street to Granville Street, over in Halifax.

Following their four-year stay on Ochterloney Street, they moved to Bedford Village in 1872, at which time he also moved his mapping office to Bedford, as well.

Some time later, Mrs. Nancy Church went to Boston with her daughters. Ambrose continued to live in Bedford Village, although he made many trips back to Boston to be with his family. His only son, Harold, stayed with his father to help produce some of his later maps. Harold later attended Dalhousie University in 1896. Eventually Harold and his wife moved to Rio de Jenerio. In 1914, Ambrose moved to

Rio to be near his son, staying there until 1920, when he passed away at the age of 84 years.

It is to the work of one of Nova Scotia's most outstanding topographers that Nova Scotia owes a debt, a debt of gratitude for providing what proved to be excellent and outstanding work of extreme value to the province.

- reprinted from an article by David E. Stephens, published in the Dartmouth Free Press.

* * * * * * * * * * * * * *

CITIES from page 10

Collection of data for data banks - information on land parcels of a statistical nature can be collected in conjunction with the various legal and technical surveys, but it may also come from other sources. It is quite conceivable that a city survey agency may, for the most part, be responsible for the maintenance of a data bank resembling a multipurpose cadastre. Otherwise, liaison with the agency responsible for the data bank will have to be maintained.

CONCLUSION

Various levels of municipal government in North American cities generally recognize the need for the outlined activities of a city survey office and many, if not most, of these activities are currently being pursued intensely. Table 3 gives some information about these, as provided by a number of Canadian and a few European cities.

* * * * * * * * * * * * * * *

REPORT from page 11

Initially the plan is to use joint office space in conjunction with the Canadian Institute of Surveying based in Ottawa. Staff will not be hired until a financial reserve has been built up and a period of years could go by before we are able to justify even the hiring of a Secretary. We will work closely with C. I. S. for some years to come and gradually go our own way as our numbers and finances increase to the point where such actions can be justified.

The creation of such a Council will place a very small financial burden on each active land surveyor in Canada, to be exact $4.00 per year. The benefits we can derive from this Council in the future cannot be measured in terms of dollars but rather in terms of professional upgrading which must come about if we are to survive in an ever changing world.

You will be asked to vote on three motions, which I mentioned earlier, at the Annual Meeting in Sydney. I ask your support in approving this Canadian Council in principle and solicit your continued cooperation in this regard.

* * * * * * * * * * * * * * *

ADVERSE from page 13

such period, before running at large was prohibited, neighbours' cattle strayed upon the lot; that children, and others, picked cranberries in the woods; and that; after two lobster factories were built about 1924 on the shore near the wharf, local fishermen at the close of the fishing season in the fall of the year used to place lobster traps along the Wharf Road and sometimes in the field. Such random acts were obviously not done in the assertion of any proprietary right and have no bearing on the issues."

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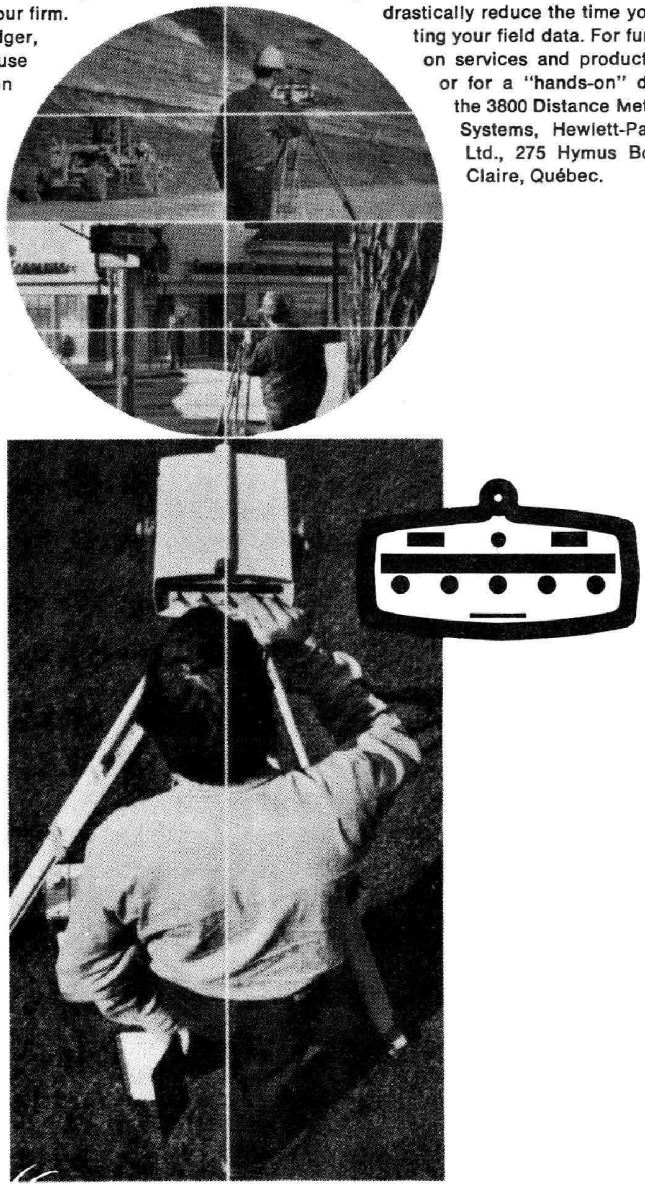

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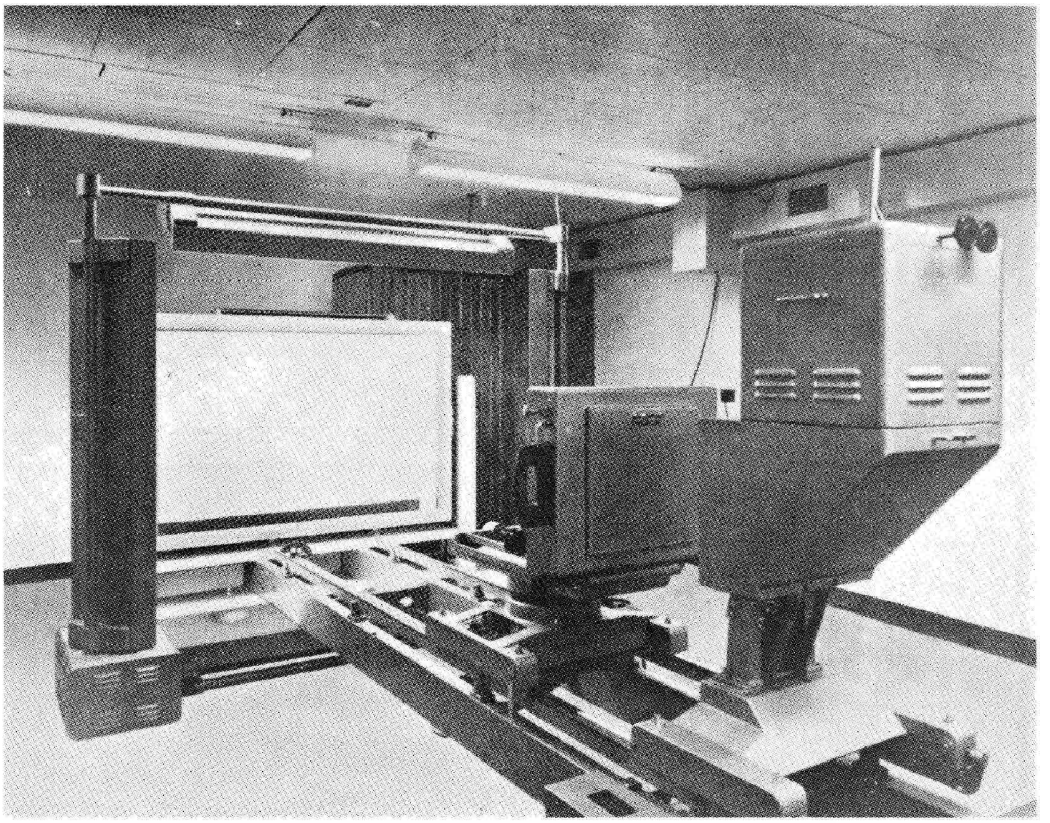

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STRETCHING THE TAPE----

There was a man whose nagging wife scolded him on every occasion. She passed away, and while the graveside services were being conducted, there was suddenly a great, rolling peal of thunder and a jagged lightning bolt streaked across the sky.

The bereaved husband contemplated this phenomenon for a moment. Finally, he turned to the minister and said, "Reverend, I think she made it."

* * *

One teacher to another: "Not only is he the worst behaved child in school, but he has a perfect attendance record."

* * *

A girl's hardest task is to prove to a man that his intentions are serious.

wade

INFORMATION

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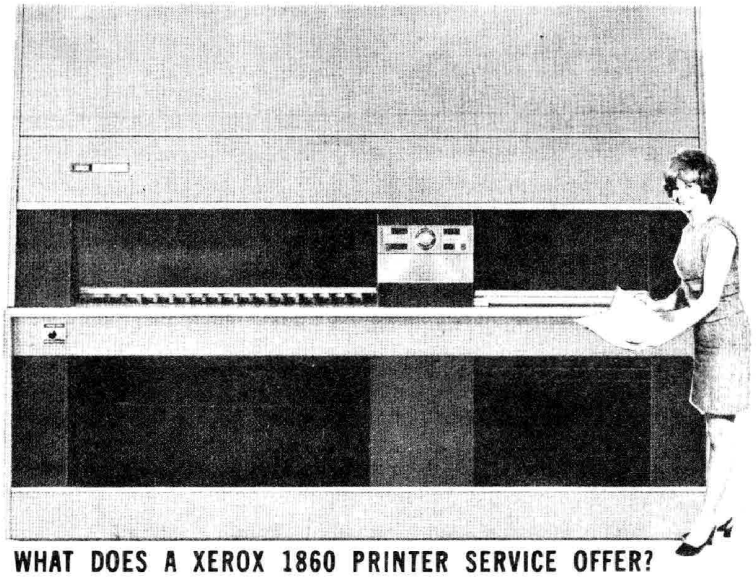

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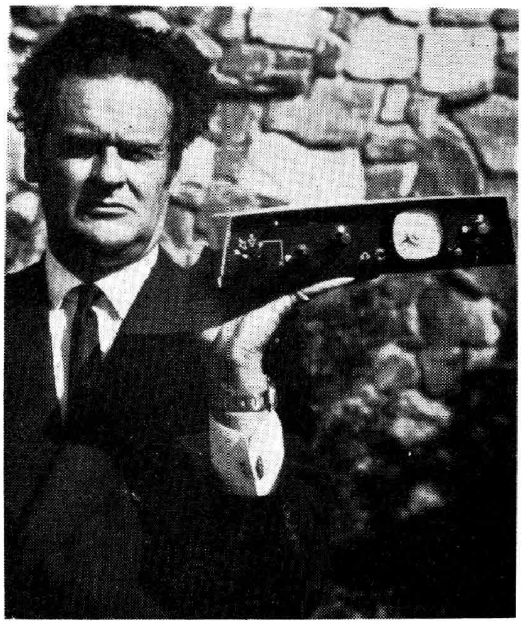

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