A Review of the Recent New Brunswick Land Titles Act

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This is the second of two papers examining the new Land Titles Act in New Brunswick. The first paper reviewed trends and developments in land registration systems against which this legislation has been measured. This paper describes the new act in general and makes a critical review of various aspects. The review concentrates mainly on administrative and technical issues with particular emphasis on surveying and mapping. In recognition that the new legislation cannot be examined in isolation, the existing conveying and deeds registration system is briefly described, as is the existing cadastral survey system and the operation of the Land Registration and Information Service (LRIS) in the province.

Voici le deuxième article traitant de la nouvelle Loi sur l'enregistrement foncier du Nouveau-Brunswick. Le premier s'intéressait aux tendances notées en ce qui a trait aux systèmes de cadastrage et aux améliorations subies par ces derniers, en fonction desquelles on a étudié la loi. Le présent article décrit la nouvelle loi en termes généraux et examine d'un oeil critique certains de ces éléments, surtout des questions d'ordres administratif et technique liées à l'arpentage et à la cartographie. Étant donné que la nouvelle loi ne peut être étudiée en termes généraux, le système actuel de regroupement des actes translatifs et des actes est brièvement décrit dans l'article, tout comme le système actuel de levé du cadastre et le fonctionnement du Service du cadastre et de l'information foncière (SCIF) de la province.

INTRODUCTION

This paper is the second of two articles examining the new Land Titles Act in New Brunswick. The previous article reviewed trends and developments in land registration systems against which this legislation has been measured. It is recognized that the New Brunswick system should make a simple start and develop incrementally. It is desirable that the system should begin with a sound base such that it can take advantage of desirable developments.

The article concentrates mainly on technical and administrative issues, with an emphasis on the technical aspects associated with surveying and mapping. This is in contrast to such reviews as Torrens' Elusive Title by Thomas Mapp [1978] which is concerned almost exclusively with legal issues in the Alberta legislation. In reviewing administrative arrangements, it is recognized that a fundamental consideration is the size of the land registration system and the concomitant level of activity. For example, during 1981 there were approximately 650,000 dealings recorded in the centralized New South Wales Land Titles Office of Australia whereas the average number of dealings in Alberta County, where the new Land Titles Act in New Brunswick will be introduced, is about 5000 per year.

In recognition that the new legislation cannot be examined in isolation, the current conveying and deeds registration system is briefly reviewed, as are the existing cadastral survey system and the operation of the Land Registration and Information Service [LRIS]. The new legislation is then described. This is followed by a critical review of certain aspects of particular relevance to the surveying community.

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The Deed Registration System

The present system of holding and conveying rights to land in New Brunswick is based upon the traditional principles of English common law. It employs a rudimentary deed registration system for recording and storing conveyancing instruments. The basic characteristics of this form of registration include:

1. the instrument of transfer, before recording, must be acknowledged before a public official;
2. the entire instrument must be recorded;
3. legal priority is generally assured by the act of recording; and
4. the instrument is operative without record, with the title passing before the instrument is recorded.

The legal basis for the registration system is found in the Registry Act, a statute which has undergone remarkably little modification since adopted at the time New Brunswick became a province in 1784. The act is currently administered by the Department of Justice.

Conveyancing instruments are recorded in 15 county registry offices. These registries handle approximately 60,000 real property dealings in total each year. The registry offices simply act as repositories for instruments and assume no responsibility for the content of the registered documents. Conveyancing is undertaken primarily by lawyers in the province who are responsible for certifying title for each transaction. One of the reasons for resistance to change in the system is that many solicitors have abstracts of title for sale, in the same way as some surveyors sell their survey information. There are as yet no title insurance companies in New Brunswick, although this has been considered from time to time. An important component of the conveyancing process, especially when financing is required, concerns obtaining a location survey from a licensed New Brunswick land surveyor. Surveys are required primarily in the major urban areas.

In 1961 the provincial government established a one-man commission to review the existing conveyancing system. The commissioner made this statement [McGloon 1961, p. 14]:

No good reason has ever been advanced as to why such a system, so costly, dilatory, cumbersome and uncertain as compared to the systems in other parts of Canada, should prevail. It can only be concluded it has been accepted as one of the natural and unavoidable evils which has to be patiently endured, even if it is recognised to be indefensible.

The commissioner also quoted a prominent New Brunswick lawyer who commented on the existing system as follows (p. 14):

The existing Registry system is in its nature and use, cumbersome, expensive, time consuming, delaying, deceptive, defective, inadequate, incomplete, inept, imperfect, uncertain, unprofitable, undesirable, unsuitable and down right stupid.

The commissioner concludes by stating (p. 9):

It is sufficient to say that the present system of conveyancing in New Brunswick, even in its simplest form, with its recitals, premises and habendum clauses, covenants for title and other covenants, is now cumbersome, outmoded and archaic. It was designed to suit the cart-age, has not since been altered to any appreciable extent, and is totally unsuited to present-day conditions.

Discussions with registry officials, solicitors and surveyors suggest that in the intervening period between the findings of the commission and the present, the situation has not improved and if anything has deteriorated further.

Existing Cadastre Survey System

There are two major statutory controls over the carrying out of surveys in the Province of New Brunswick. The primary control is the New Brunswick Land Surveyors Act and associated bylaws. The other is the Surveys Act and its associated regulations. The Land Surveyors Act is administered by the Association of New Brunswick Land Surveyors, which has the responsibility for setting both technical and professional standards for surveys in the province through their by-laws. The Community Planning Act also has a major influence on surveys in the province since this legislation requires that virtually every new subdivision must be surveyed by a licensed New Brunswick land surveyor.

A primary responsibility of the Surveys Act and regulations is to create and administer the coordinate survey system in the province. The act establishes the projection and technical specifications for the system. It creates the office of Director of Surveys who is responsible for the maintenance of the system under the Minister for Natural Resources. The Director of Surveys is also responsible for the surveys of Crown lands. While the Surveys Act is applicable to the whole province, the use of coordinates under that act is only mandatory in designated areas. To date only the County of Saint John has been constituted as an "integrated survey area". Within such an area all new surveys must be based on the coordinate system. Each plan of survey shows projection distances and areas, and displays a coordinate for each corner. The director of surveys is responsible for checking each plan of survey within the integrated survey area although he is not responsible for the legal definition of boundaries.

Even though only one area has been constituted as an "integrated survey area" in New Brunswick, the control network is such that surveys can be connected to the system virtually throughout the province. The Land Surveyors Association has consequently introduced a bylaw which requires all surveys to be placed on the system where practical. As a result, the majority of surveyors in the province work on the coordinate survey system as a matter of course. Unfortunately some surveyors have not shown coordinates on their plans even though they have connected their surveys to the control network since they consider this to be private (and marketable) information.

Outside the County of Saint John, cadastral surveys are not checked in any meaningful fashion by any government authority, even though they are usually based on the coordinate system. Once a subdivision plan has been prepared by a surveyor and certified as to compliance with the Community Planning Act, it is registered in the appropriate Deeds Registry. The parcels thus created are then simply conveyed in the normal manner, making reference to the new plan of subdivision.

Land Registration and Information Service

The Land Registration and Information Service (LRIS) was formed as a cooperative venture under the direction of the Council of the Maritime Premiers in 1973. The council was established by the provincial governments of New Brunswick, Nova Scotia and Prince Edward Island. Initially there was a five-year agreement for the establishment of LRIS with the federal government contributing 75 percent of the funding. The primary objective of LRIS was to implement a phased program to build a land information system for the Maritime provinces. The program involved four phases [Roberts 1980]:

1. The establishment of a second-order network of survey control monuments throughout the Maritime region at densities of 300 m in urban areas, 800 m in suburban areas and 4000 m in rural areas.
2. The provision of topographic base map coverage of the region, which comprised 1:10 000 orthophoto maps in rural areas, and 1:1000 and 1:2000 line maps in urban areas. This phase also included the provision of property maps (Fig. 1). The property map system was developed in conjunction with the creation of a computer file for each land parcel, each parcel being identified by a unique parcel identifier (PID) which is a six-digit number. The parcel file maintains this data:
   a) location of parcel;
   b) apparent owner's name and address;
   c) tax code;
   d) map number;
   e) area; and
   f) reference to documents registered in the local registry office.
3. The transition on a county by county basis, from the old registry system to a new land titles registration system using the PID.
4. The design of an improved land information system based around phases one to three.

In 1979 the federal government ceased its funding for the project. At this time LRIS had completed a substantial amount of phases one and two. In 1980 the Maritime provinces signed a new five-year agreement which was funded solely by the Maritime provinces. The emphasis of the program shifted to maintaining existing functions rather than to developing new activities as outlined below:
1. The emplacement and maintenance of a coordinate system of control surveys.
2. The production of aerial photography.
3. The production and revision of large-scale maps.
4. The production of property maps.
5. The establishment and maintenance of a parcel index file.
6. The provision of assistance in the implementation of an improved system of land registration.
7. The provision of such other services as agreed upon by the provinces and the council from time to time.

In essence LRIS has become a comprehensive mapping agency. Significant achievements to date in New Brunswick include [LRIS 1983]:
1. The establishment of approximately 21 000 control survey monuments.
2. The completion of the first round of topographic base mapping. This comprises 1778 large-scale urban line maps at 1:1000 and 1:2000, and 2348 medium-scale orthophoto maps at 1:10 000 (March, 1984). The second round of mapping will commence in 1984. It will be a digital line map at a nominal scale of 1:10 000 in rural areas and 1:2000 in urban areas.
3. The virtual completion of the initial property mapping program. This program comprises identifying and representing the geographical location of land parcels on a base map, assigning a parcel identification number, and establishing a computer file containing ownership information about the parcel. This amounts to 345 000 parcels in the system at this date. A substantial maintenance program which updates the system is an integral part of the system.

Of the special services undertaken by LRIS, the major activity concerns the establishment of a Land Titles Pilot Project in Albert County.

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Fig. 1. Sample Property Map and Computer Records.
The Land Titles Act

The new Land Titles Act became operational in Albert County, New Brunswick on July 9, 1984. The intent and purpose of the legislation was "to provide a system for the registration of the title to land in the Province and instruments related thereto and to provide statutory authority for guaranteed land title". The statute is based on a modernized version of the Torrens statutes of Western Canada, with the greatest influence coming from the Province of Alberta.

The statute provides for the creation of the office of registrar general for New Brunswick and a registrar for each land registration district, of which Albert County will be the first. The system applies to all land in Albert County. The statute also binds the Crown. As well, it provides for the introduction of short forms for all transactions together with the introduction of statutory mortgage and lease covenants.

First Registration

The conversion from the present deeds registry system to registration of land titles will be based on compulsory, albeit sporadic, conversion. The system can be referred to as "dealing driven" [Holstein and Williamson 1984] that is, in general, each transfer will be subject to compulsory conversion. First registration may also be undertaken by a land owner at any time, by the registrar general or, by a court order. New Crown grants will also be automatically issued with a registered title. There are a few statutory exceptions to compulsory first registration but they are small in number and are not transfers for value.

An application for first registration is made out by the owner of the land or his agent and is accompanied by a description of the land, the PID for the parcel and a diagram. The registrar general may accept any diagram of the parcel, on condition that it sufficiently identifies the location of the parcel. The diagram could be a copy of part of a registered plan of survey, a building location survey or simply a sketch prepared by the applicant, although in the majority of cases it is envisaged that the diagram will be a copy of part of the appropriate LRIS property map. Whatever the case, each diagram must have a PID assigned by LRIS. The application is accompanied by a certificate of a solicitor certifying that the attached abstract is a true and correct abstract of the title information recorded in the deeds registry. After the application and associated documents have been checked, the title is duly registered under the PID number.

The Register

The register is, in fact, the collection of documents relating to a particular parcel maintained within a file indexed by PID. There are two such files for each parcel: the file containing current documents and the file containing historical documents. The most important document contains a summary of the information on the Certificate of Registered Ownership mentioned below. This information includes the name of the owner, any encumbrances on the title, and a description and diagram of the parcel. This, however, is only an internal administrative record. There is no Certificate of Title as found, for example, in the Australian systems and some of the Canadian Torrens systems. In a colloquial sense "the register is everything". No estate or interest passes or is valid until it is recorded on the register. The statutory objective of the Land Titles Act is stated in section 16 as:

...the owner who is shown by the title register to be the owner of a parcel of land described therein holds the land in fee simple subject in addition to the overriding incidents implied by this Act, to such encumbrances, liens, estates or interests as are shown by the title register to have been registered against or in respect of that land and free from all other encumbrances, liens, estates or interests whatever, except in case of fraud wherein he has participated or colluded.

Under this act adverse possession is not permitted. However, any person who had the use and enjoyment of a right-of-way prior to the date of registration may apply to the court for relief. In general such a person will be compensated or the title register will be rectified to show the existence of the right. There is no statutory period which restricts such an application.

As defined by the statute, the "title register" means a book, file, micrographic, electronic or other storage means whereby or wherein are registered the title to land and instruments relating thereto. An "instrument record" is given the same broad interpretation. Again the statute defines the term "records" to be interpreted very broadly to include everything from a handwritten record, to a magnetic impulse, to a computer printout. These definitions obviously are designed to permit the system to introduce computerized titles at some time in the future.

Pursuant to the act every parcel of land which has a registered title must have a PID and be identified by that number in the register. In general the PID will have been previously allocated by LRIS. However, where the parcel does not have a PID and is the subject of an instrument to be registered, the registrar may require a plan of survey of the parcel to be filed or otherwise identify the parcel in some satisfactory manner. In either case, it is envisaged that the person lodging the instrument will have to go to LRIS and be allocated a PID. For a new subdivision, every parcel will generally be required to have a PID.

The regulations state that registered land shall be described and diagrammed in such manner as the registrar general considers is best calculated to secure accuracy. At the same time, however, they state that the description and diagram of registered land are not conclusive as to boundaries or extent of the land. A similar statement to this latter regulation is also found on the Certificate of Registered Ownership. Considering these regulations and the fact that adverse possession is not permitted, there at first seems to be a conflict. What must be distinguished are the two components in the system: the "legal" or proprietorship and encumbrances sections; and the "survey" or parcels section. The new statute guarantees the legal component of the register and does not permit any right, title or interest to be gained adversely of title by the possession of another. On the other hand the statute takes no responsibility for the description or diagram of a parcel to which a registered title relates. This is similar to a title which has a limitation as to parcels, as in New Zealand and Australia. However, it appears that the regulation concerning "non-conclusive" boundaries was taken from the Ontario Land Titles Act. This act states that "registered land shall be described in such a manner as the proper master of titles deems best calculated to secure accuracy" and further the "description of registered land is not conclusive as to the boundaries or extent of the land". The Ontario statute of 1885 was derived from the 1875 Land Transfer Act in England which is referred to as Lord Cairns' Act. Another statute which adopted Lord Cairns' Act was the Irish Registration of Title Act, 1892. The Irish system uses large-scale property maps based on Ordnance Survey topographic maps to show all land parcels in the system. Prior to showing land parcels on the original ordnance survey maps the boundaries of all parcels were adjudicated or "quietened" in Ireland. Due to the wording in Lord Cairns' Act the Irish do not consider that they use "general boundaries" as in the English system. They prefer the term
“nonconclusive boundaries” since the Irish consider the English system “too precise”.

The Irish system also permits adverse possession as did Lord Cairns’ Act.

One major distinction between the Ontario and New Brunswick statute is that in Ontario every parcel in the register has to have, in general, a survey by an Ontario land surveyor. However, Ontario does not permit adverse possession even though “nonconclusive” boundaries are adopted. What Ontario does is assume a statutory responsibility that certain standards are maintained concerning the survey and description of land parcels. Also all plans of survey are checked by a government authority before being considered acceptable for use by the system.

The difficulty with the new Land Titles Act in New Brunswick is that it does not allow adverse possession yet it takes no responsibility for boundaries or extent of the land. It is suggested that this may be interpreted to mean that whole parcels (or whole titles) cannot be acquired by adverse possession yet the boundaries will continue to be influenced by occupation and long standing possession. In other words the boundaries will continue to “move” as in the existing system. However, it would appear that the new statute would guarantee the “boundaries” of a title, that is that the title is bounded by a road, an adjoining lot or a reserve, etc. What distinguishes the New Brunswick statute from virtually every other Torrens system is that the legislation does not “guarantee” that the boundaries of a title have been surveyed to a particular standard as laid down in a set of survey practice regulations. Even in the Ontario and Irish systems, the statutes clearly outline the role of survey or a method for clearly depicting land parcels by maps. As will be discussed later, this deficiency in the New Brunswick statute has many ramifications which could affect the performance of the system. It is also suggested that this aspect of the legislation still requires clarification.

There are several other attributes of the Land Titles Act which should be noted. First, priority in the system is according to lodgement. Secondly, every instrument for lodgement must have an address in the province and thirdly, the registrar is required to maintain an ownership index for registered land. The main entries in the index will be the PID and the name and address of each owner.

The registrar is responsible for issuing two major forms of documentation. The first is a Certificate of Search in the prescribed form. This certificate indicates the owner, any exceptions and reservations pertaining to the land and a general statement concerning overriding interests. The second document is the Certificate of Registered Ownership which is issued to every owner on first registration. A new certificate is issued to the new owner after each transfer, as well as each time there is a change to the title register, or at any other time that the owner makes application and pays the appropriate fee. The Certificate of Registered Ownership, however, is not a duplicate certificate of title in the Torrens sense. It is only certified as correct at a certain time and date. The certificate includes the parcel description supported by a diagram, together with a statement that “neither the description nor the diagram are conclusive as to the boundaries or extent of the land”. Both the above certificates will be prepared in prescribed form on a word processor, with the details of all transactions being stored on “floppy disks”. The registrar, however, will be based solely on paper records. For all practical purposes, the only difference between the two certificates is that the Certificate of Registered Ownership includes a description and diagram.

Under the new act no action of ejectment or other action for the recovery of registered land shall lie against the owner except in the case of a mortgagee where the mortgagor is in default, a lessor where the lessee is in default or in particular circumstances where a person has been deprived of land by fraud.

With the approval of the registrar general, the registrar may rectify the register where there is an error or omission, where two or more persons are, by mistake, registered as owners of the same estate, etc., or where upon survey of the registered land a dimension shown on a plan is found to be incorrect. This last reason for rectification seems at variance with the statement that the description and diagram of registered land are not conclusive as to boundaries or extent of the land. However, this approach is compatible with the regulations which state that the registrar must receive survey plans of registered land. This will enable the parcels component of the register to be upgraded. This is not the situation at present in the deeds registries. Pursuant to the act, the court may also direct the registrar to rectify the title register in certain circumstances. Generally, however, the title register shall not be rectified so as to affect detrimentally the title of the registered owner who is in possession.

In general, the indemnification provisions in the new legislation refer to the giving of compensation or rectifying the register, for an error or omission in the register or on a certificate issued by the registrar, or where a document has been lodged at a land titles office for inspection or safe custody and becomes lost or destroyed. There are a number of exceptions to indemnification, notably where the claimant has himself caused or substantially contributed to the damage by his fraud or negligence. However, where the claimant derives title from such a person described above for valuable consideration the new owner will be protected by the title register. Pursuant to the act, any application for indemnity must be commenced within two years from the date that the applicant knew of the event that occasioned the damage.

The new act makes provision for any person who is dissatisfied with any decision of the registrar general or a registrar to apply to the court for relief or remedy.

**Transfers and Dealings Generally**

The legislation requires the registrar to stamp every instrument received in the land titles office for filing or registration with the date and time of receipt and a serial number, and to immediately enter a record of the instrument, date, time and number in the instrument record. The instrument record is an index of daily lodgements. Instruments are not registered at this point; they are simply lodged prior to examination and registration. After lodgement, the instruments are examined and signed by the registrar, and a record of acceptance of the instrument for filing or registration is again entered in the instrument record. It is at the time of acceptance that instruments are deemed to be registered, however, priority is based on the time and date of lodgement as indicated by the instrument record. This method of deferred registration may be contrasted with the system of instantaneous registration practiced in Ontario.

The registrar may refuse to file or register an instrument in the following cases:
- a) where it does not relate to land in his district;
- b) where it does not describe land as indicated by the PID;
- c) where it is not in proper form; or
- d) where it does not comply with the Community Planning Act, if applicable.

Each transfer must be executed in the prescribed form. The transfer operates or takes place at the time the registrar records his acceptance in the instrument record. At the time of a transfer the registrar is required to cancel the existing Certificate of Registered...
Ownership, if any, and to issue a new one in the name of the new owner. In the case of a subdivision, a certificate will generally be issued for each lot in the subdivision plan.

Miscellaneous

The previous description of the new Land Titles Act was directed at the major processes and administrative components of the statute. The act, however, deals with many other matters which concern the legal incidents and processes associated with conveyancing, and the ownership of land. These topics will not be discussed in the article but are briefly itemized below: mortgages, leases, covenants, stop orders, judgements, powers of attorney, conditions and covenants, bankruptcy proceedings, tax sale proceedings, miscellaneous transfers, transmission, implied covenants in instruments, proof of execution for registration, service, trusts, and seals and consideration. The act is also supported by regulations and a large number of standard forms.

A Review of Certain Aspects of the Land Titles Act

It is recognized that the introduction of such a major reform should be incremental and evolutionary. The introduction of any complex legislation, such as the Land Titles Act, cannot expect to be designed to cope with every problem that will occur. This particularly applies to legislation such as this which will have significant legal, administrative and social consequences. It is anticipated that there will be numerous amendments to the legislation over the years. Such is the nature of any dynamic system. It is in the above context that a number of criticisms and recommendations are directed at the new Land Titles Act.

There are many difficulties in introducing new legislation, such as the Land Titles Act, which changes fundamental processes in society. Nothing is more fundamental than the system of holding or owning land and the associated practices of transferring those interests. A change is all the more difficult when one of the most powerful professions in the province, the lawyers, has a perceived vested interest in maintaining the status quo. As Roberts [1979], a former director of LRIS has stated: “From our experience so far, we understand very well why it took from 1875 to 1925 to get a land titles system functioning ... in the U.K.” The English experience and to a greater extent, the USA experiences, are not conducive to encouraging governments to introduce title registration.

Considering the attempts by the Maritime provinces over the last decade to introduce land title legislation, the Province of New Brunswick is to be commended for introducing the new Land Titles Act. It is suggested that the priority for the province should be to make the system operational. Difficulties can be resolved when they arise and appropriate amendments made, but it is important that the system be introduced as planned, otherwise the concept will lose momentum and credibility.

It is understood that it has been politically attractive to make the legislation very narrow. Obviously the fewer people or professions affected by the legislation, the easier will be the introduction. As it stands now, really only the legal profession is affected. The survey profession has no significant role in the new system; however, it should be recognized that the survey profession has played a leading role over the years in getting the concept of title registration accepted although they have had no involvement in drafting the present new legislation. The new system simply serves the conveyancing process and even then it only serves the “legal” component.

As was stated in the previous paper there should be two objectives of a land registration system. First the system should result in an efficient and secure system of conveying and recording proprietary interests in land. This includes treatment of both the “legal” and “survey” components equally within the system. Secondly title registration should be recognized as an integral part of a broader land information system. As previously stated the new Land Titles Act only partly meets these objectives. It does not recognize the broader role of land registration in a land information system. On the survey side it places no statutory control over the preparation of descriptions and diagrams of parcels other than to say that every parcel must have a PID and that land shall be described and diagrammed in such a manner as the registrar general considers is best calculated to secure accuracy. There is no statutory direction as to who issues the PID or for that matter what form of PID should be adopted. The role of the LRIS property maps, which will be an integral part of the operation and success of the new system, is not mentioned. The role of surveys, as carried out by New Brunswick land surveyors is also not mentioned. Considering that the strength of a title registration system is that it is parcel based, it is surprising that such little recognition is given to the fact.

From an administrative point of view, it is suggested that the land titles office and the deeds registries should be more clearly related with the survey and property mapping functions in the province. It is simply not desirable to have the “legal” and “survey” components of the title registration system separated. It would be envisaged that all legal problems concerned with the operation of the title registry would be the concern of the registrar general, as at present. On the survey side, all boundary problems and administrative matters concerning descriptions and diagrams should be the concern of the director of surveys. In contrast to the present Surveys Act, the director of surveys should have the power to adjudicate boundaries and the extent of title. The adjudication of the title itself should lie with the registrar general.

One suggested scenario is that the survey authority be combined with the land titles office, the deeds registries, the assessment offices and the Crown lands administration. The core of the survey authority would come from the existing LRIS structure. The LRIS would continue to serve the Maritime provinces as a topographic mapping authority. It is suggested that property mapping is a provincial function and should be closely connected with title registration and the other provincial wide parcel based systems. Support for such a scenario is strong among land administrators, as evidenced at a March 1984 meeting in Fredericton, New Brunswick [Hamilton 1984].

It is suggested that the flexibility and potential of the title registration system as proposed is limited by not being adequately supported by a parallel survey and mapping system. As stated, the basis of title registration is the parcel, and if it is not possible to determine the extent of a parcel to which a title relates within reasonable limits, the system will have little chance of achieving its objectives. Under the proposed system, most benefits will flow to the public due to the improved conveyancing system, and even those will be limited and restricted. The government, however, will derive little benefit from the system since title registration is not designed as an integral component of the other parcel based land administration systems in the province.

By examining land registration systems around the world it can be concluded that any system that does not attempt to describe the extent and boundaries of land, to which a title relates, is deficient. The English and Torrens systems attempt to describe the limits of title: the English use a graphical description with the precise positioning being determined by occupations on the ground; and the Torrens systems use a combination of monuments, occupations and precise mathematical descriptions to determine the boundaries. Even the
Irish system with its "nonconclusive" boundaries gives a workable solution because boundaries are determined by physical occupations on the ground as depicted on large-scale maps, in conjunction with adverse possession provisions. In the New Brunswick statute, the position is not clear. Neither the registrar general nor anybody else takes any responsibility for the boundaries or extent of land in the description or diagram of a parcel to which the title relates. On the other hand, adverse possession of the title is not permitted, yet the system does not even attempt to give any assurance as to the extent or boundaries of the title in the first place. Surely this provision needs to be put in context, especially in the long term.

It must be stated, however, that the approach to use "nonconclusive" boundaries is to be commended as a very good administrative method to initiate and complete the register, in the same way that other systems have successfully used "limitations as to parcels" with success. But why stop here? The system should provide some method whereby the "survey" or "parcels" side of the register could be upgraded. Why should the system place a limitation on recent or new surveys? Any of the western provinces or Ontario could provide a suitable solution. What is required in the legislation is the statutory role of a survey authority in the operation of the land titles system. This authority would maintain the LRIS property maps, allocate PID's, check all plans lodged for registration, and supervise the survey system in general in the province. Many of the problems in the new legislation could be resolved by only applying the "nonconclusive" boundaries clause to descriptions and diagrams not approved by the survey authority.

What must be recognized is that the property maps presently prepared by LRIS will be the foundation of the new land titles system. In time these maps, and in particular the cadastral or parcel overlay, will be digital, and the digital cadastral data base will represent the "survey" or "parcels" component of the title register. Cadastral or boundary surveys will simply be a means of updating this data base, although they will still be a valuable reference in marking out boundaries. The new legislation should provide some statutory responsibility for updating the property maps in either digital or hard copy form.

Obviously all new surveys should be based on the New Brunswick coordinate system. This would necessitate the designation of all counties as integrated survey areas as soon as possible. This should not impose too many difficulties since most surveys are already based on the system. It is suggested that, at the same time, the role of coordinates in the delimitation process should be the subject of further study. The present role is considered to be unclear and places too much emphasis on the role of coordinates in the administrative process.

There are a number of other issues which should be mentioned in this review, in addition to those associated with the two objectives outlined above. Some of the issues concern matters that need clarifying in the legislation while others relate to how this statute compares to trends in title registration systems in other jurisdictions. The issues are itemized and discussed below.

1. The new legislation does not permit adverse possession. This is against the trend in title registration systems and should be reexamined, particularly since the "parcel" or "survey" component of the register will be based on large-scale property maps. Interestingly, as mentioned previously, the legislation permits any person who prior to the date title to land was registered, had the use and enjoyment of a right-of-way over that land to apply to the court for compensation or to have the register rectified to show the existence of the right. This appears at variance with the restriction on adverse possession.

2. The method of conversion to title registration is based on a "dealing driven" or sporadic approach. Considering that Albert County has existing property maps and property records in computer form maintained by LRIS, it is surprising that a "plan driven" or systematic approach was not adopted. Land titles "qualified as to title" could have been easily adopted where the chain of title was not satisfactory. Experience has shown that a "dealing driven" approach will never result in a complete register and sooner or later a systematic approach will have to be adopted for all remaining titles.

3. In general the procedures adopted in the legislation appear efficient and satisfactory. There are a number of procedures which could be introduced into Albert County as a result of developments in other jurisdictions, but it is doubtful if they would be justified considering the very small size of the future register.

4. The fact that the legislation also binds the Crown is in line with recent trends elsewhere, however, there appears to be no recognition within the system that it is desirable for all Crown land and Crown tenures to appear on the title register. The province should outline some objectives or strategy for "completing the register". Such proposals are in accordance with the suggestion to have one department in the province for all the provincial wide parcel based land administration systems.

5. The legislation is designed to permit the use of computerized titles but it is questionable whether such a system could be justified at present. The proposed use of a word processor to prepare all certificates is innovative and has the potential of linking into some larger data base at a later date.

6. The legislation recognizes the problem of overriding incidents. It includes an extensive list of such incidents in the act and also repeats them on the back of the Certificate of Registered Ownership. It is interesting that after the decade of work and research that has gone into this act, this statute is no closer to solving this very significant problem than any of the other jurisdictions which operate title registration.

7. Considering the extensive use of building location surveys in the conveyancing process in the province, it is unfortunate that some statutory requirement could not be introduced to maintain a record of such surveys. Simply, a copy of the latest survey certificate could be maintained in the current file for each parcel. Such a process is even more attractive since the New Brunswick Land Surveyors Association introduced a bylaw in 1984 that requires each building location survey to be a full survey which requires that at least one front corner monument must be in place.

CONCLUSIONS

The introduction of the new Land Titles Act into New Brunswick is potentially a most significant accomplishment to be applauded and supported. The drafting of the legislation has had to overcome many political, legal and administrative difficulties.

The major criticism of the legislation concerns the almost complete lack of attention to the "survey" or "parcels" component of the title register. The approach to use "nonconclusive" boundaries is to be commended but there should be some procedure to upgrade the survey component. It is suggested that this lack of attention to the survey part of the register will in time restrict the operation of the conveyancing function of the register as well as make it difficult to integrate the new system into a broader land information environment — a requirement which is increasingly demanded by governments.

The new system is simple and narrow in its operation at present. The reasons for this can
be appreciated. It is important, however, that the legislation lay a sound foundation upon which a broader, more comprehensive and useful, land titles system can operate in the future. The legislation does not achieve this at the moment. This article has attempted to make some recommendations which will assist the development of the system in this regard. In making the evaluation and recommendations, recognition has been given to trends and developments in other title registration systems, particularly in other parts of Canada and Australia. The article also recognizes that the requirements of each jurisdiction are relatively unique, with New Brunswick being no exception. For this reason an effort has been made to describe the existing system in the province, albeit briefly.

One major conclusion from this review is that title registration and cadastral surveying and mapping should not be treated in isolation. Legally, administratively and institutionally they should be treated as one operation.

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Reference Ellipsoid Misalignment, Deflection Components and Geodetic Azimuth

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Whichever way the geodetic reference ellipsoid, used as a horizontal datum, is oriented within the earth it is theoretically never exactly aligned with the geocentric coordinate system (called here Conventional Terrestrial System). It is then important to know just how much the misalignment affects the pertinent geodetic quantities in the horizontal geodetic network: the azimuth and the deflection components. The misalignment effect on these geodetic quantities must be accounted for to maintain the consistency of all the involved coordinate systems and transformations between them.

Quelle que soit la façon dont l'ellipsoïde de référence, utilisé à titre de canevas horizontal, est orienté vers l'intérieur de la terre, il n'est, théoriquement, jamais aligné exactement sur le système de coordonnées géocentriques (désigné ici sous le nom de système terrestre classique). Il importe donc de savoir jusqu'à quel point un mauvais alignement influence sur les valeurs géodésiques pertinentes au sein du canevas géodésique horizontal, qui sont les azimuts et les déviations. Il faut tenir compte de l'incidence d'un mauvais alignement sur les valeurs géodésiques pour assurer l'uniformité de tous les systèmes de coordonnées en cause et des transformations qu'ils subissent.

INTRODUCTION

The nonparallelism (misalignment) of different Geodetic coordinate systems (i.e., of horizontal datums) and the Conventional Terrestrial system (see Fig. 1) has been extensively studied [see, e.g., Molodensky et al. 1962; Bursa 1962; Krawicki and Thompson 1974; Wells and Vanicék 1975]. This misalignment cannot be avoided [Vanicék and Wells 1974], and thus allages all existing horizontal datums. To have a consistent geodetic system — by which we mean the datum, the network, and all the related quantities — it is necessary to make the misalignment axes ($\alpha$, $\beta$, $\delta$) properly reflected in the pertinent geodetic quantities. Our aim is to derive explicit equations for the effects ($\Delta \alpha$, $\Delta \beta$, $\Delta \delta$) the misalignment has on geodetic azimuths ($\alpha$) and the deflection of the vertical components ($\beta$, $\delta$) in horizontal geodetic networks.

It may be of interest to recall that there are three techniques for positioning horizontal datums within the earth [Vanicék and Krawicki 1982]:

(i) by means of a selected number of basic points (e.g., the NAD 1983);
(ii) by means of all the points in the network — this is the "floating datum"; and
(iii) using the origin of the network (e.g., Meades Ranch in the case of NAD 27).

The first and third techniques give a position invariant with respect to network densification. In addition, in the third case, the misalignment angles must obey the following conditions:

\[
\begin{align*}
\varepsilon_\alpha &= \Delta \cos \phi \cos \lambda, \\
\varepsilon_\beta &= \Delta \cos \phi \sin \lambda, \\
\varepsilon_\delta &= \Delta \sin \phi.
\end{align*}
\]

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