

**NATURAL BOUNDARY RETRACEMENT IN ONTARIO:  
SOME PROBLEMS, SOME REASONS, SOME SOLUTIONS**

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## NATURAL BOUNDARY RETRACEMENT IN ONTARIO: SOME PROBLEMS, SOME REASONS, SOME SOLUTIONS.

### *Survey before settlement*

Water boundary location problems in Ontario are the outcome of surveys and land grants, the exploitation of resources, and the policy and direction of government. The policy has sometimes been in an uncomfortable posture vis-a-vis the common sense of the common law.<sup>1</sup> In contrast to some other jurisdictions, this has left some strange results in Ontario.

An American authority, Farnham, in the *Law of Waters and Watercourses* (1904) stated:<sup>2</sup>

The policy of the common law is to assign to everything capable of ownership a certain and determinate owner, and for the preservation of peace and the security of society, to mark by certain indicia, not only the boundaries of such ownership, but the line of demarcation between rights which are held by the public in common, and private rights. If capable of occupancy and susceptible of private ownership and enjoyment the common law makes it exclusively the subject of private ownership; but if such private ownership and enjoyment are inconsistent with the nature of the property the title is in the sovereign as trustee of the public, holding it for the common use and benefit.

It seems such a simple notion that a parcel should be an observable entity as, for example, the parcels of England edged with stone walls and hedges. Ancient traditions of beating the bounds and feoffment with livery of seisin effecting the transfer of title, on the ground in front of witnesses, helped a parcel to be better known as to its bounds. The settlement of North America and the colonial venture of opening up new lands, which totally lacked the traditional cultural bounds of man's activity, brought the present survey notions and practices into existence. They became the basis for the systems parts of the *Surveys Act*<sup>3</sup> of this province after the enactment of 1818.<sup>4</sup>

'Survey before settlement' appears to have been the policy of the Crown and of land administrators, instructed by the Secretary for the Colonies in England, in the thirteen American colonies, in Canada, and later in Australia and New Zealand. Adherence to the policy was sometimes shaky. In 1859, faced with unexpected boatloads of immigrants in Sydney and other coastal towns of New South Wales, British subjects entitled to vote, Sir John Robinson won the premiership on a policy of 'selection before survey': "We'll get you on the land and worry about what you get later". Three years later, the government fell for the simple reason of the confusion of parcels that had resulted.

In 1783, Frederick Haldimand, Governor of the Province of Canada, had a problem. It was not only that the new arrivals were loyal to the Crown and deserved just treatment; they were refugees, with little baggage salvaged from their lost American homes, and with faint hopes of surviving in a climate much harsher than they had left, and with all the work of settlement to be done anew. The demand on the commissariat for ploughs, oxen, cows, pigs, axes, blankets, was the biggest problem for the limited facilities. Fast and orderly location of parcels for settlement was a more

controllable problem, and there were methods to effect settlement surveys in a scrupulously economic manner.<sup>5</sup>

Sufficient exploration was quickly done. Ontario is not a mountainous terrain. Southern Ontario is not even rugged. A pattern of land division, that later gained the name of the 'single front system', was devised to establish townships of orderly lines on the ground: survey and mark the parcels by measured frontages on concession lines and define the parcel to be that frontage as marked on the ground extending back through the whole depth of the concession. In other words, 'survey before settlement' was effected by a cheap and incomplete survey: the *concept* defined the bounds, not lines etched or marked on the ground.

It was left to the patentee to have the remaining lines run. This was to have been done only by licensed surveyors, to ensure that the results would be correct according to the system. The principles were clearly expressed by Harrison, C.J., in *McGregor v. McMichael* (1877), 41 U.C.Q.B. 128 at 133-134:

The existence of a completed survey previous to a grant from the Crown, although convenient, and for that reason usual, is not essential to the validity of the grant. No one disputes the power of the Crown to grant land before any survey is made, and so long as the land described in the grant can be found on the ground the grant must be operative.

Where a grant of lots is made before a survey or completed survey, the situation and boundary lines of the land granted on the ground must be ascertained as they were ascertainable before the passing of any survey Act, that is by the courses and distances expressed in the grant, and where there are original plans, instructions, field notes, diaries, or descriptions for patents, these may be referred to for the purpose of aiding the grant.

Land division by township schemes of incomplete survey has been the method of the Crown in Ontario; the subdivision of townships ended about 1936. There are other ways: a rigorous geometric statutory system such as Dominion Lands Surveys of western Canada,<sup>6</sup> or a non-geometric system which requires that the redefinition of boundaries of parcels must be done strictly by the common law principles of evidence and without the imposition of rules to restructure a geometric pattern. The gravest problems for a geometric system arise when the first surveys are substantially flawed by faults of the basic measurements.

By far the major portion of the Ontario township subdivision surveys of Crown lands was done with the magnetic compass until early in this century. Where the word 'astronomic' appears on the plans - after about 1818 - it was only a technique of the system of orienting at one point of the survey. The meridian was found by observation of the sun or Polaris or other stars with a theodolite or transit, simple of form at that time, and then the magnetic variation was observed along that meridian line. Thereafter, the survey was completed using the magnetic compass with the dial offset for the variation. The compass was the essential field instrument; it was a matter of costs; transits or theodolites were extremely expensive and were saved from the hard use of field surveys if at all possible. The lengths given in 'chains' of 100 links (66 feet) were measured with actual chains; the accurate steel bands were in rare use until after the turn of the century. Within a township outline there was little control of the measurements, and hence abundant errors of bearings and distances.

They were not good surveys, if reviewed in the harsh light of modern criticism and finer technology.<sup>7</sup> They did, however, serve the purpose for which they were made. They were settlement surveys; the markings on the ground that settlers could find were far more important than the measurements. Usually the parcel was bigger than the stated measurements. In New South Wales, we do know that the surveyors sometimes put an extra link - nearly eight inches - into the chain to ensure the oversize, but there are other ways to achieve this with which the early surveyors of Ontario were equally talented. The bearings and distances of most old original surveys are a bit of a deception, usually a quite harmless one that is protected by the declaration of the *Surveys Act* that parcels are bounded by the corners and lines marked on the ground, the measurements notwithstanding. The declaration is the common law rule: measurements are secondary to physical markings of boundaries.

What was most controlled was the surveyors' financial accounts. The errors of survey would not be known until check measurements of the township were made, or the remeasurement of particular lines, or a call for resurvey after the obliteration of the original markings by forest fires or logging and the ravage of time itself.<sup>8</sup>

If Ontario history does not come easily to mind, look at Jeffrey's drawings of the work of settlers.<sup>9</sup> It was decades before the land was cleared. Opening up Ontario was a miscalculation founded on a misconception. Immense tracts were cleared that should never have been touched. The parcels which were granted to serve the notion of freehold for everyone were enough to keep a man busy for a lifetime but were not sufficient in size for sound agricultural practices. Nor was the rigid grid layout conducive to good practices. It will be many decades - even centuries - before the landscape settles down to the balance that exists in England, or the New England states of America.

Boundaries, and especially roads, should be features of the topography, not the imposition of a grid. There is no merit in the fact that a grid looks tidy on a map. The mileage of roads opened to travel is probably exceeded by the mileage that should never have been designated as road allowances in the first place. If the land is flat, a grid can work; it may even have some appeal - if you like dead straight lines of roads. The orderly grid of Ontario was a premeditated administrative decision. The surveyors did the job, and later became equally infatuated with the notion of parcels in orderly serried ranks. At any event, the reality on the ground is that the grid, especially in southern Ontario, is not so perfect as the original survey plans purport. The bends and jogs that are found along the roads reflect the errors and blunders of the original surveys.

#### *Township survey systems: an attempt to say it simply*

The first system of survey of townships, used till about 1815 - the 'single front system' as it came to be known in later years - fronts on the Saint Lawrence, Lake Ontario and Lake Erie. By 1800, the demand for settlement lands had eased a bit. Emigration from England had been replaced by conscription. The end of the Napoleonic Wars in 1815 brought a new wave of settlers to a rather uncertain economy in Upper Canada. The Crown sought ways to cut the costs of the surveys. One way was to contract the surveys with payment in acreage of 4 1/2 to 5 1/2 percent of the surveyed lands, not money. The surveyor and his financial backers could benefit immensely from this contract; as first person present on the ground the surveyor knew which lands were the

best, he enjoyed the first choice of selection of lots and the grants were free of all settlement duties. The second means was to further reduce the mileage of lines run: let the concession lines serve to mark double sized lots - 200 acres - on both sides, i.e., double fronts; grant the lands in half lots of 100 acres; leave out the running of the back lines of the half lots; and, of course, continue the practice of not running any side lines. This method is known as the 'double front system' of division of townships and these form the ranges of townships next to the north of the single front townships. The system was in vogue from 1815 to 1829. It had advantages: with lots on both sides of the roads, there were more settlers obliged to clear and build the roads by statutory labour.

By 1829, it was recognized by the Surveyor General's Department that there would have to be some method applied to control the errors and outright blunders of the field surveys. The system of block survey began with the 2400-acre section system for the division of Crown lands<sup>10</sup> and, concurrently, the 1000-acre sections were used in the survey of the immense Huron tract granted to the Canada Company.

Figures 1, 2, 3 and 4 show the townships laid out by, respectively, the single front, double front, 2400-acre sectional and 1000-acre sectional systems.

Figures 5, 6, 7 and 8 illustrate some of the blunders of measurements of the original surveys of townships.

#### *The surveys of "Cottage Country": Muskoka, Parry Sound and Haliburton*

The preceding systems of township surveys are the major patterns that cover Ontario south of the Trent-Severn waterway, that is, south of the Canadian shield. Land division began in the shield about 1850. It was poor land for agricultural settlement; it was forest land, which alone should have been grounds for not subdividing the whole territory. It was also at this date, in adopting the 1000-acre sectional system for the townships, that the Crown introduced the variation of keeping a strip 66 feet in width along the shores of the navigable lakes and rivers, that is, the waterways that the surveyor considered to be navigable. These strips were designated as road allowances, equally as the road allowances of the grid of concession and side roads. Section 9 of the *Surveys Act* reads in part as follows:

. . . every road allowance, highway, street, lane, walk and common shown on the original plan shall, unless otherwise shown thereon, be deemed to be a public road, highway, street, lane, walk and common, respectively.

Where there are shore road allowances in a system of survey, therefore, the granted parcels of lots in the concessions are not riparian.

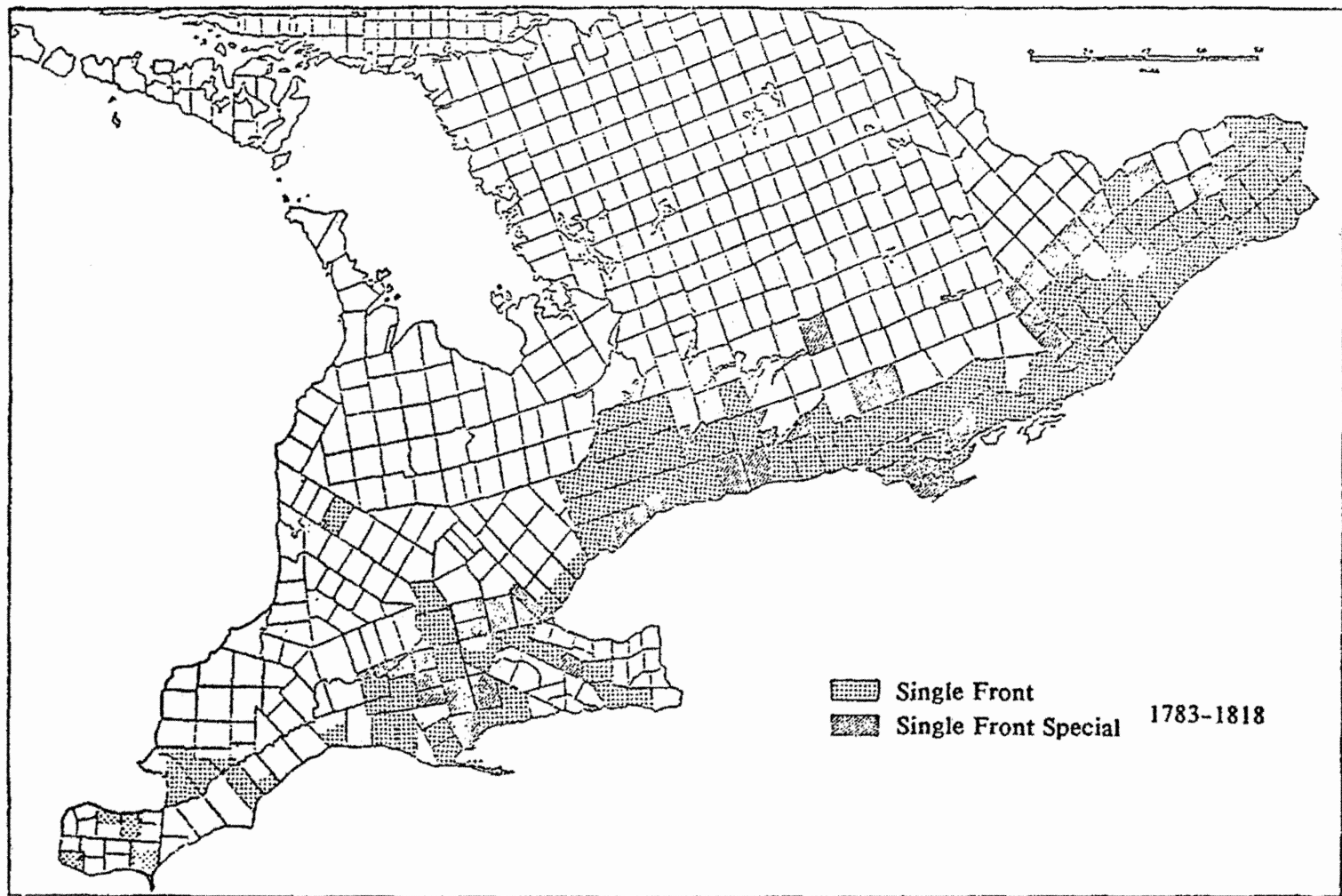


Figure 1

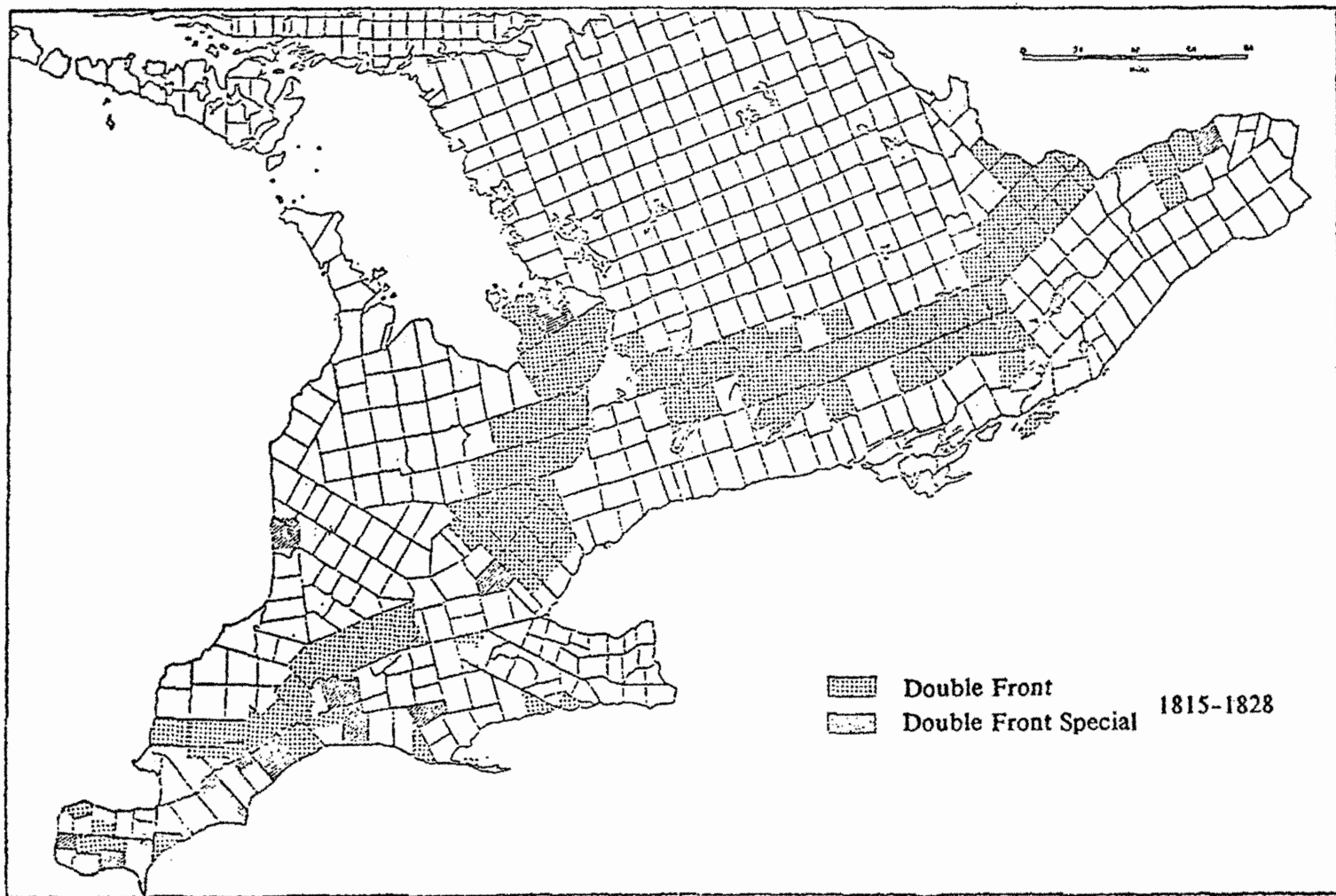


Figure 2

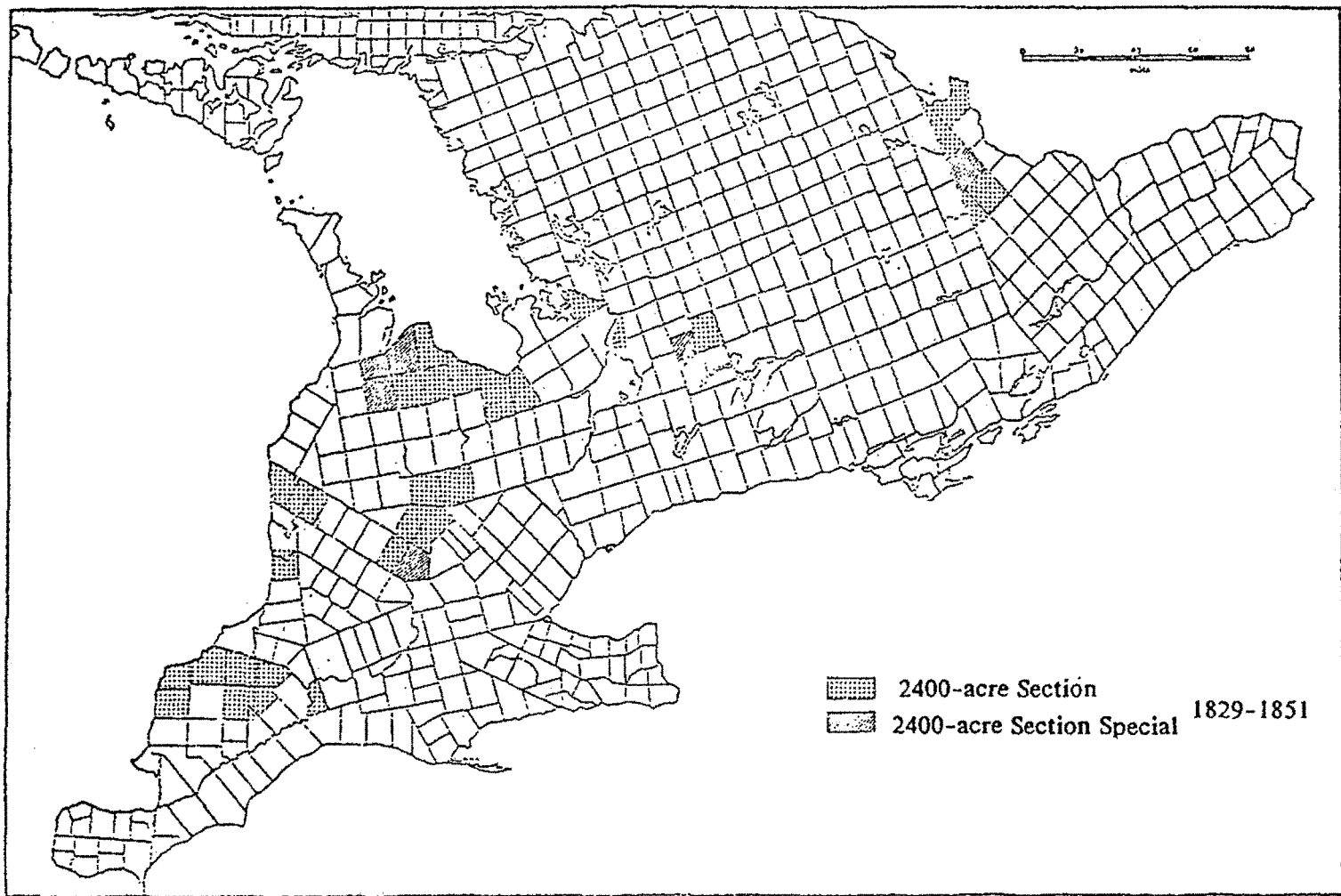


Figure 3



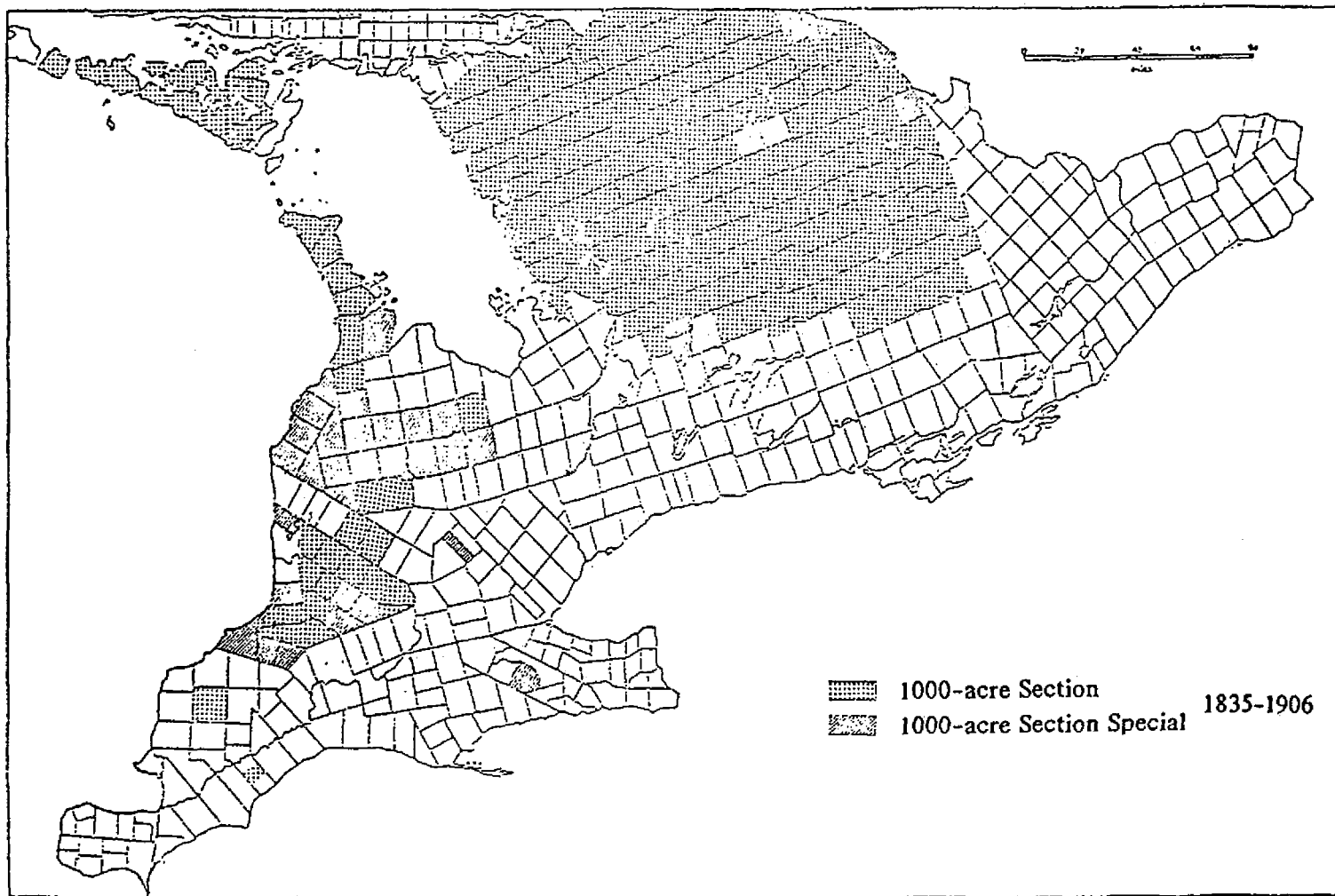


Figure 4



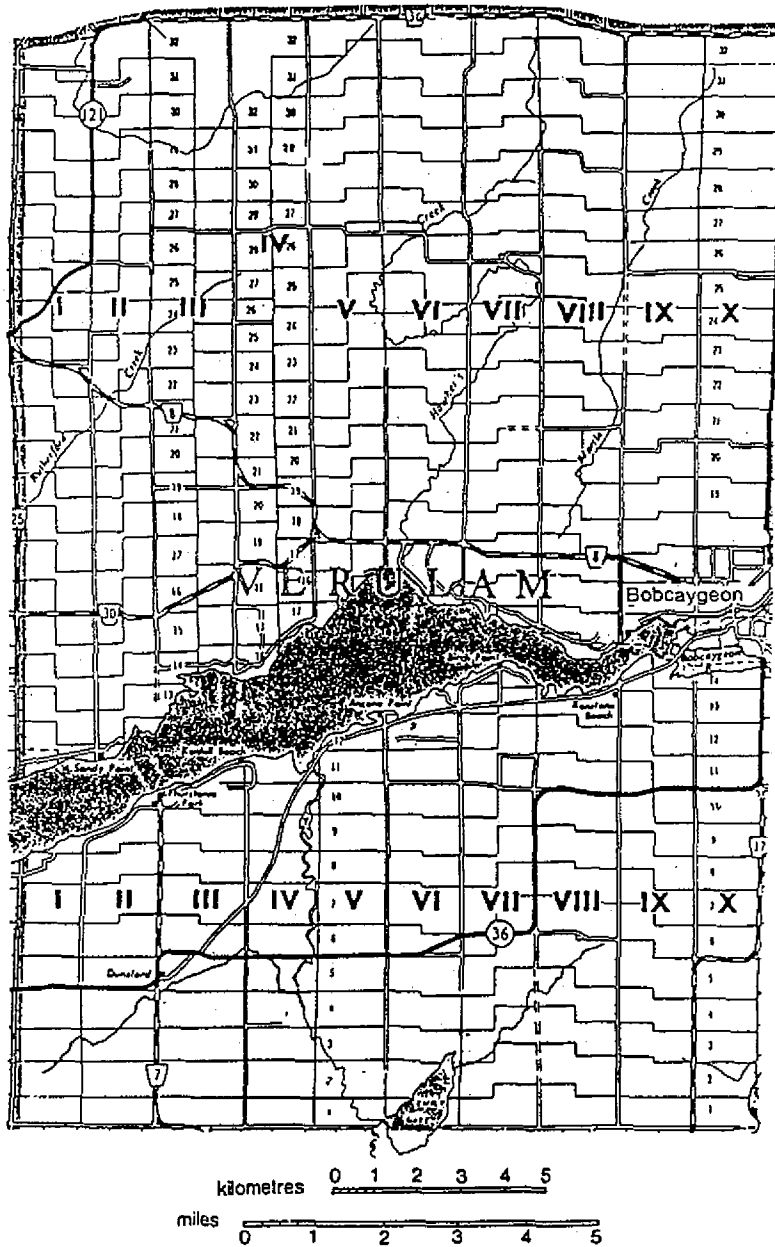


Figure 6: Verulam Township, Lindsay District, Central Region.

The concession lines are fairly regular but the jogs of the side lines at the mid lines of the concessions exceed a quarter mile in many places. These are blunders from chainage along the concession lines.



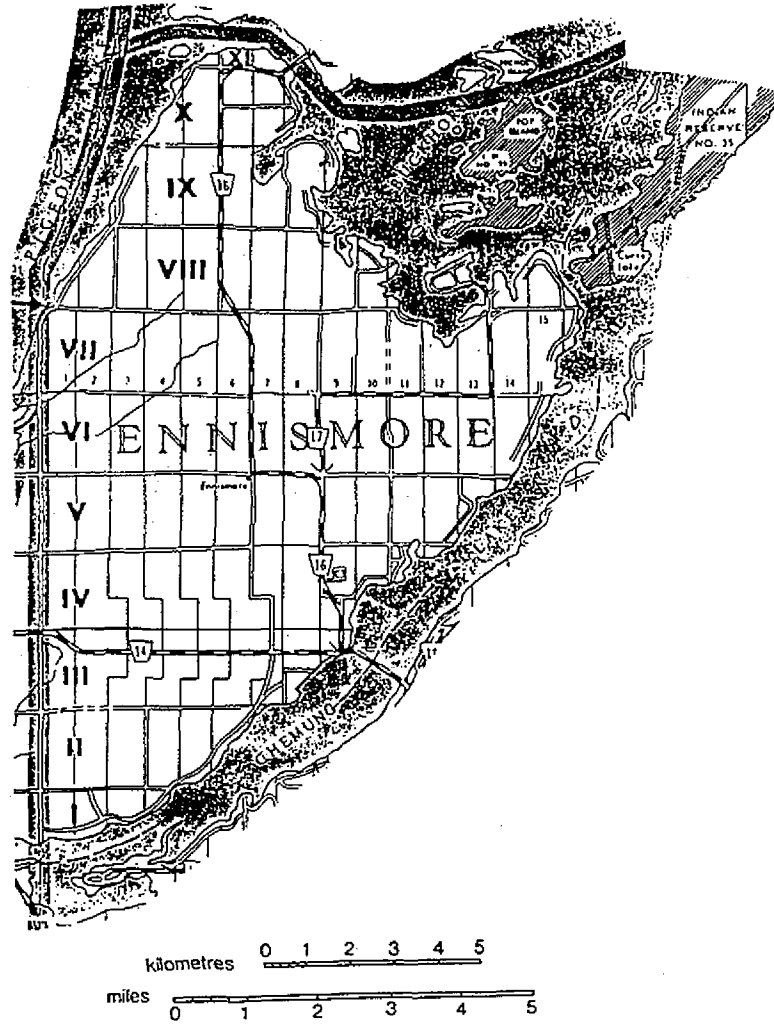


Figure 8: Ennismore Township, Lindsay District, Central Region.

The concession and lots are fairly regular - except in concessions III and IV.

### *Township road allowances: stained glass windows*

The simplest way to envisage the situation in a township is to consider the whole pattern as a leaded glass window; as each lot is granted a pane is knocked out; when all lots are gone, the lead framing alone remains as one complex parcel which comprises the road allowances of the original survey of the Crown vested in a municipality upon its incorporation.

With the surveys of the first few decades, the emphasis was clearly on speed and economy. The first concession line, or base line, or magistral line, usually fell inland from the lake a sufficient distance to be all on land, which left a broken front concession lakeward. The side lines of the lots were not run; the acreage needed for the Crown grant was determined from the plot of the survey, which included a depiction of the shoreline, often by mere sketching, later by minimal rapid traverse and much sketching.

In *Badgeley v. Bender* (1833), 3 U.C.K.B.(O.S.) 221 at 225-226, Chief Justice Robinson had this to say:

I am well aware, and so is every one at all conversant in such things, and I have heard it several times proved in other trials, by surveyors on their oaths, that unless surveyors are directed by the government for some special purpose to lay down accurately the rivers, lakes or streams which border upon or intersect the townships which they are surveying, they never do so in fact, but content themselves with giving a general idea of them from the eye, or by noticing the points where their lines actually intersect them, not pretending to delineate minutely their several indentations.

By the middle of the last century a practice had evolved that produced a fairly reasonable picture of the configuration of the shores of the lakes and rivers of the townships. There are many instances of gross error of depiction after, as well as before, 1850. *Of all lines on a township plan, the least reliable is the shoreline.*<sup>11</sup> *It is just these lines that cause most difficulty in the retracement of boundaries.*

Quite apart from the inherent inaccuracies of surveying, there is the question: to what points were the measurements taken? The indefiniteness of the official instructions for the original survey of the Crown must be acknowledged when modern notions seeking perfection are not easily reconciled with old records:

### *Finding the bounds: reality is on the ground*

For the grantee there remained a task. The legacy of the township surveys was that of somehow creating legal boundaries out of a theoretical system. Surveyors are, obviously, God's chosen profession to perform the sacred task of straightening out such messes. It seems that like all the best things in life there were not enough surveyors to go around at a reasonable price and expedient solutions were applied; the bounds began to appear on the ground, and decades afterwards it is doubtful whether the oddities we find can be convincingly ascribed to a home-made solution, to instrumental error, or to blunders, or whether a surveyor was even present with his instruments to run out the side line. It needs a testing of evidence when the reality on the ground

does not fit the theory of the record. In the New Zealand Supreme Court decision of *Equitable Building and Investment Co. v. Ross* (1886), 5 N.Z.L.R. 256, Mr. Justice Richmond stated the necessary solution eloquently:

Neither the words of a deed, nor the lines and figures of a plan, can absolutely speak for themselves. They must, in some way or other, be applied to the ground.

Alternatively, *what is on the ground must be shown on a plan and reconciled with past records*. The system of title records is irrelevant; this is a matter of the bounds of parcels, and the matter is entirely common law.

There is confusion in Ontario about many aspects of the title issued under the *Land Titles Act*,<sup>12</sup> perhaps arising from the simple fact that where there are two systems of recording, there is one system too many. For this reason alone, it is helpful to look at the solutions achieved in other places. In a test of the Torrens title, this time in Australia, Queensland Chief Justice Griffiths stated in *Overland v. Lenehan* (1901), 11 Q.L.J. 59:

A certificate of title does not rest on a pinnacle by itself, but is an ordinary written document to be construed in accordance with the ordinary rules for the construction of documents of title.

A man's certificate of title gives him his rights, but cannot be trusted to give him all it purports to do. *What it really gives him depends upon evidence outside his title deeds, and much of this evidence can be given only by a surveyor.* [our emphasis]

The *Surveys Act* gives legislative confirmation of the common law approach or principle: "A surveyor in re-establishing a lost corner or obliterated boundary . . . shall obtain the best evidence available . . ." before proceeding to the mechanical methods of the particular system.

*'true and unalterable': tautology - "a rose by any other name." (Romeo and Juliet, II.2.) or, "a rose is a rose is a rose is a rose" (Gertrude Stein in "Sacred Emity").*

The *Surveys Act* specifications for the various systems of division of the townships deal with the geometric lines. The Act does not, I suggest, have anything to do with natural boundaries, and particularly I maintain (though others, for example Lamont (1976) in *Real Estate Conveyancing*,<sup>13</sup> have said to the contrary), section 9 does not make the natural boundaries of any parcel into lines that are true and unalterable in position as is the case with the geometric lines, even though such natural boundaries are 'shown on the original plan'. Section 9 reads in part as follows:

. . . every line, boundary and corner established by an original survey and shown on the original plan thereof is a true and unalterable line, boundary or corner, as the case may be, and shall be deemed to be defined by the original posts or blazed trees in the original survey thereof, whether or not the actual measurements between the original posts are the same as shown on the original plan and field notes or mentioned or expressed in any grant or other instrument . . .

In the *Canadian Encyclopedic Digest, Title 19: Boundaries and Surveys*,<sup>14</sup> two of the present authors, Lambden and de Rijcke, stated their conclusion on this aspect in the following words:

The statute does not operate to fix natural boundaries as unalterable in position; the common law rules remain operative in respect of the evidence of boundaries and of the movable character of natural boundaries arising from slow and imperceptible accretion or erosion.

We mention this because elements of the fixed natural boundary notion persist in Ontario. As considered by Lamont in *Real Estate Conveyancing* at page 562:

The word 'boundary' is unqualified and includes natural boundaries. Therefore, the boundary of a broken lot is the original high water mark or the original edge of the bed, a fixed line which does not move in or out as the high water mark is changed by either natural or unnatural causes.

This erroneous notion of a 'true and unalterable' natural boundary long preceded its appearance in Lamont's text. However, when 'true and unalterable' was first used in the 1818 Act<sup>15</sup> there was no mention of natural boundaries, only the geometric lines of the system concepts. The common law rules respecting natural boundaries were not revoked in the 1818 Act nor in subsequent statutes. The *character* of a natural boundary as a limit of riparian interests remains unalterable, except when varied by sudden natural change or by purposeful filling in beyond the limit. Unfortunately, some practitioners in law and in surveying have concluded that it is the *position* that is fixed, a notion that has real implications when dealing with the amendment of records when a change of extent has occurred from accretion or erosion.

We do not have a decision that has interpreted section 9 of the Ontario statute. This section of the present Act is the restatement of a long standing section of the Act that was rewritten for clarity in 1958. The virtually identical prior wording appeared in the *Official Surveys Act* of British Columbia as section 2, R.S.B.C. 1948, c. 321, and was the subject of a critical analysis in the trial decision of *Attorney-General for British Columbia v. Neilson* (1954), 13 W.W.R. 241. Mr. Justice Wilson concluded:

Not having before me a clear demonstration of legislative intent and a clear execution of that intent I am asked to imply that legislation passed for one purpose effects another purpose and, in so doing, abrogates an ancient and honoured rule of the law. I cannot do so.

The trial decision, first upheld in the Court of Appeal, 16 W.W.R. 625, was reversed on the evidence by the Supreme Court of Canada, [1956] S.C.R. 819. At 822, Kerwin, C.J.C., commented:

It is unnecessary to consider if s. 2 of the *Official Surveys Act*, R.S.B.C. 1948, c. 321, prevents the operation in British Columbia of the English common law in regard to accretions as that point which was taken before Wilson, J., was abandoned by counsel for the appellant.

The decisions of the Ontario courts reflect the same views of the paramountcy of natural boundaries as monuments and that the water boundary is ambulatory in nature and not fixed by the surveys under the *Surveys Act*.



It follows, then, that a post planted by a surveyor along the side line of an upland riparian property is not a parcel corner but is a post on line as an indicator of the direction of the line that must continue to the water boundary. In this respect see, for example, *Re Walker and Attorney-General of Ontario*, [1971] 1 O.R. 151, for the trial decision of Mr. Justice Stark, at 172-178, later commented upon and followed in *Merriman v. New Brunswick* (1974), 7 N.B.R.(2d) 612 (C.A.), with Dickson, J., saying at 628-631:

Lakeside markers or posts were obviously intended primarily to indicate the division lines between lots rather than the forward positions of those side lines.

The preceding comments do not, of course, discount the significance of a surveyor's post on line and a recorded distance to water, or to a water feature, for this may be the evidence that settles a contest about the existence of accretion or erosion, or whether the change was by way of filling or extraction of sand or gravel.

The key is, of course, that the upland parcel is riparian, bounded by water, in which case the natural boundary does not need, in fact cannot take, a surveyor's mark to designate a fixed limit; for a water boundary is ambulatory under recognized conditions of legitimate erosion and accretion.

#### *Volcanic Oil & Gas Co. v. Chaplin (1914)*

There is an interesting twist on the principles of riparian rights in Ontario. In the absence of some reservation of riparian rights, there is no doubt that a parcel is riparian if it is an upland parcel that runs to the water *at the time of grant*. It is then susceptible to the effects of water so that accretion increases the area of the parcel, and erosion reduces the parcel. If, however, the parcel is not riparian at the time of original survey nor at the time it is patented, what is its status when water slowly and imperceptibly encroaches onto the parcel? This presupposes that a strip of upland originally lay between the monumented parcel and the water. It also points out the distinction between ambulatory natural boundaries and fixed and monumented boundaries.

This scenario prompts at least two questions. First, does section 9 of the *Surveys Act* mean that the fixed, monumented boundary remains a true and unalterable line defining one side of the parcel, despite the action of the water? Second, can the owners of the monumented parcel be said to have acquiesced in the encroachment of water onto the parcel, and thus be somehow estopped from claiming title to the part of the parcel now covered by water?

The first question was dealt with at some length by *Volcanic Oil & Gas Company v. Chaplin*. It is the only reported case in Canada in which the issue involved water encroaching over a monumented boundary. At the time of trial, Chief Justice Falconbridge recognised the novelty of the case (1912), 27 O.L.R. 34 at 37:

The point involved is extremely interesting, and is one which, if I correctly apprehend the English and Canadian cases, has never yet been expressly decided, either in the old country or here.

The case was reversed at the Ontario Court of Appeal, (1914), 31 O.L.R. 364, on the basis of facts not being proven. The legal principle enunciated at trial and at the first appeal to the High Court of Justice was not questioned. In *Boundaries and Surveys* (Title 19 of the *Canadian Encyclopedic Digest*), the principle is summarized:

Where the line in a deed is a fixed and permanent one defined by fixed marks and features, when first conveyed, so as to indicate a definite parcel of land, the limit at the date of the deed remains, and does not follow the changes which may result from the subsequent action of water.

The facts were as follows. The west half of Lot 178, Township of Romney (near Leamington on Lake Erie) was patented by the Crown in 1825, specified as the lot and also given a metes and bounds description. It was separated from the waters of Lake Erie by a beach and by the Talbot Road. By the early 1900s, Lake Erie had slowly eroded the beach and the road, so that the plaintiffs (Volcanic) claimed that water had encroached on Lot 178. The plaintiffs held the oil and gas rights under Lot 178; the defendants (Chaplin) had acquired the oil and gas rights to the water lot in front of Lot 178. Chaplin erected a derrick on the 'locus in quo'; that is, in the water but, at least according to Volcanic, on top of Lot 178.

In the absence of any persuasive Canadian or English cases, counsel for both sides relied on Indian and American case law. The crux of the issue at trial and at first appeal was that Lot 178 did not touch the water at the time the patent was issued and was therefore not an upland riparian parcel. The court held that just as a non-riparian parcel cannot gain by accretion, it should therefore not lose by erosion or encroachment of water. However, the reversal of the case on the facts, as it were, has led to uncertainty for the land surveyor and to inspiration for these writers.

Another reason for the uncertainty is that there is a body of American case law that allows a parcel, which originally does not run to the water, to become riparian at some later date and so to gain by accretion. A clear statement of the principle came from the 1887 Connecticut case of *Welles v. Bailey*, 10 Atl. 565:

If a particular tract was entirely cut off from a river by an intervening tract, and that intervening tract should be gradually washed away until the remoter tract was reached by the river, the latter tract would become riparian as much as if it had been originally such.

The American cases appear to leave unanswered the status of the original boundary of the non-riparian parcel. Instead, they answer our second question about extinguishing title to the eroded parcel. The 1885 New York case of *Mulry v. Norton*, 3 N.E. 581, said that:

It is not, however, every disappearance of land by erosion or submergence that destroys the title of the true owner, or suffices another to acquire it, for the erosion must be accompanied by a transportation of the land beyond the owner's boundary to effect that result, or the submergence followed by such lapse of time as will preclude the identity of the property from being established upon its reliction.

In other words, perhaps the failure of the riparian proprietor to stop the erosion and to repel the encroachment of the water represents acquiescence in the loss of land.

*Flooded lands: if artificial it is an easement*

What, however, of boundaries encroached upon by water that is artificial flooding? These boundaries can be monumented lines or original natural water boundaries as in the case of many of Ontario's lakes and rivers. Consider, for example, a township on the Trent-Severn Waterway.

Research has indicated that in the past 150 years or so, the level of the lake has been raised some 7.7 feet because of a dam at its outlet. Owing to the gentle topography, this has resulted in about 150 feet of horizontal flooding over a lot that was riparian at both the time of original survey and the time of the patent. The upland riparian proprietor has been compensated once for the flooding of some ten acres of land, yet title to the flooded part has never been acquired by the Waterway. The courts are emphatic that erosion must be slow and imperceptible to reduce the area of a parcel. Flooding from a controlled dam is not considered equivalent to erosion, and so the original water's edge would continue to bound the lot. In other words, title to part of what is now the bed of the lake is vested in the upland proprietor by virtue of it comprising part of the original township lot. *It is these original natural boundaries which were most poorly located in the first instance.* The present water line is correctly designated "controlled high water level" with the elevation stated. It is not a 'high water mark'.

These scenarios will increasingly surface as access to water becomes more important.

*'to the water' means riparian rights*

A road allowance along the natural water boundary is, like any other fee simple, subject to loss by erosion or gain by accretion. The character or quality of use as a road is imposed on the fee simple, so that an addition by accretion means an extended road width and erosion means a limited road area. Issues are arising now on these exact situations as problems of beach rights extend further northward in Ontario - beyond the Trent-Severn waterway - into the townships surveyed with shore road allowances. Not all roads along waterways were the creation of the survey systems. If they were so created, they are properly 'road allowances' within the meaning of the statutes; and the inner limit is 66 feet from the water boundary *at the time of the original survey*. This follows the analogy of the stained glass leaded window. If, on the other hand, they were created by reservation or exception in the Crown grant,<sup>16</sup> the limits are to be determined *as at the date of the grant*. Again, it is a matter of evidence as to what will be found about the location of the limits of the parcels.

Why Ontario set out road allowances by survey along the watercourses is not known. They are not a feature of the surveys of other jurisdictions (although, of course, shore roads may be reserved in grants). Searches in public records have so far been fruitless; the best that can be suggested is that they were introduced to facilitate the river driving of timber so that the landing and anchoring of booms on the shores would not be a source of constant trespass. The timber operations of the last century were much

favoured by the Upper Canada and later Ontario legislatures, with more licence than restriction granted by such statutes as the early *Lakes and Rivers Improvements Acts*.<sup>17</sup>

In *Merriman v. New Brunswick* (1974), 7 N.B.R.(2d) 612 at 631, Dickson, J., stated in the trial decision which is included in the report on appeal:

It is most difficult to imagine that in the mid nineteenth century the authorities in granting wild lands in hitherto undeveloped and unsettled sectors of the province would have concerned themselves with maintaining in the Crown title to land along either a lake or river. The first awareness of such a necessity most obviously arose in or just prior to 1884 [in New Brunswick]. In the early days of colonization the most obvious boundary for land fronting on water could only have been - as suggested by Stark, J., in the *Walker* case - the edge of the water.

The Ontario awareness was earlier. There are records of reserving clauses dating back to 1821 applying to specific situations and parcels; there were no provisions in the instructions for survey until 1851; these applied to the lands north of the Trent-Severn waterway.

In the records of Crown correspondence before the early 1900s, and in the patents of Crown grants, it is evident that there was no clear policy of intent about natural boundaries. The terminology was indiscriminately used - 'shore', 'bank', 'water's edge', 'margin', 'edge', 'to the lake or river', 'high water mark' (sufficiently often to make the term well known), etc. Sometimes the grant was the lot on the plan of the original survey; sometimes a surround description was written using any of the terms but not always a term that could be derived from the instructions to the surveyor, or from his field notes, or his report on his field operations.

Mr. Justice Dickson, in his trial decision in the *Merriman* case previously cited, at page 631, provides a fair analysis of this use of words:

The various terms employed in the early grants to designate the waterside boundary of lots, i.e., 'to the bank or edge', 'to the bank or shore', 'to the border of the lake', etc., do not in my view reflect any precise effort to indicate fine distinctions in the exact location of the boundary, but rather indicate merely that lack of preciseness and employment of a nonstandardized terminology which could only naturally be expected to have marked the usage of the early surveyors. Those terms must therefore be deemed, as has been variously held, to be synonymous.

There is no indication in the Crown records that it was a matter of concern at an early time in this province. Except where there was a road allowance or other shore reservation, no restriction was imposed on the riparian interests of the upland grantee. This fits reality, and accords with the common law policy stated by Farnham.

The terms describing the land/water interface are sufficiently descriptive that the implication of the meaning is - or should be - contact with the water. The courts have upheld this view, even though at times with a rather hard wrestle with the interpretation to be put on a parcel description since, of course, there is a presumption in operation and the presumption is open to rebuttal on the words of the description. On inland non-tidal waters, the primary common law presumption for the

interpretation of descriptions is that title extends to the middle thread. In Ontario, in the case of navigable waters, this presumption was ended by the *Bed of Navigable Waters Act* of 1911, 1 Geo. V, c. 6, s. 2 (now R.S.O. 1980, c. 40, s. 1). What remains is a presumption that title extends to the water's edge, but it is still a rebuttable presumption.<sup>18</sup>

*Legislative expropriation (without compensation?)*

In the amending sections of the *Beds of Navigable Waters Act*<sup>19</sup> in 1940, the synonymy of all the various terms - some eighteen terms had been used in Ontario referring to the water boundary - was obvious and it was the intent of the legislation that the one term, 'high water mark', was thereafter to be used. Subsection 2(2) of S.O. 1940, c. 28 read:

Where in any patent, conveyance or deed from the Crown, made either heretofore or hereafter, the boundary of any land is described as a navigable body of water or the edge, bank, beach, shore, shoreline or high water mark thereof or in any other manner with relation thereto, such boundary shall be deemed always to have been the high water mark of such navigable body of water.

This was interpretation: in the words of the Explanatory Note of the Bill the amendments were necessary "to make uniform the interpretation of patents, conveyances and deeds". Subsection 2(3) went beyond the idea of clarifying the meaning of terms and provided for the fixing of the boundary:

The Minister of Lands and Forests may, upon the recommendation of the Surveyor-General for Ontario, fix the high water mark of any navigable body of water or any part thereof, and his decision shall be final and conclusive.

The statute fixed the *character*, or nature, of the natural boundary; subsequent action under this subsection would fix the *position*, that is, the natural water boundary would be superseded by a non-ambulatory line by survey and it would appear to follow that the riparian right would also be cancelled. It is not known whether this has ever been tested.

Over the next decade the Act led to a disturbing amount of pending litigation because it was seen as effecting the expropriation of property along the shores of the inland lakes and rivers without compensation being paid.<sup>20</sup> In 1951, the amending provisions were repealed. Subsequent to the repeal, the Crown administration of lands and surveys has continued to use the term 'high water mark' apparently treating it as some line different from the meaning of the other terms. Yet "*high water mark*" is the one term that most lacks certainty in use on inland non-tidal waters.

Mr. Justice Stark in the trial decision of *Re Walker and Attorney General for Ontario*, [1971] 1 O.R. 179, summarized the significance of *Parker v. Elliott* (1852), 1 U.C.C.P. 470, n 491:

. . . the majority of the Court held that in the case of inland waters, a grant having a river or lake boundary extends to the water and that the law of foreshore as it is applied in England with respect to tidal waters is not properly of application in the inland waters of the Province of Ontario, and

that the distinction of high and low water marks will not hold, save where the tide exists.

*Parker v. Elliott* appears to have caused much confusion in the lay world and, perhaps, uncertainty in the legal world. The headnote of the reported decision is quite incorrect. Fortunately, the *Canadian Abridgment* summarizes it correctly.

Nearly four decades later a slim volume entitled *An Alphabetical Digest of Cases Relating to Crown Lands and Cognate Matters* was published in which George Kennedy, M.A., LL.D., Law Clerk to the Department of Crown Lands for Ontario, stated case synopses, including:

BANK means land line defined by high water mark, *Parker v. Elliott*, 1 C.P. 470.

BEACH, Crown has right to grant, to high water mark, *Parker v. Elliott*, 1 C.P. 470.

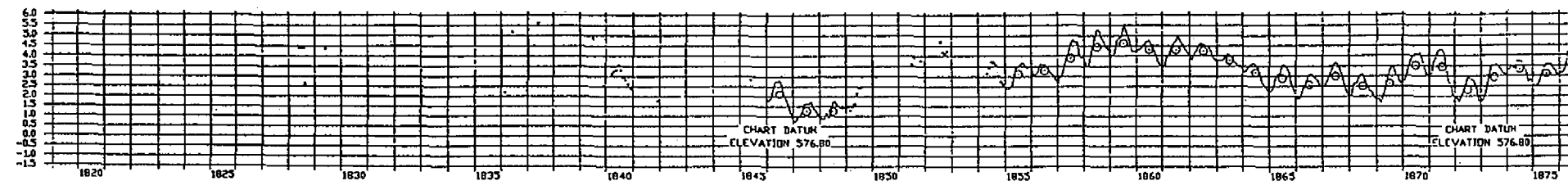
The use of the term 'high water mark' was in fact rejected by the majority of the court. Nevertheless, the administration, with the *Digest* in hand, thereafter most vigorously added the term to instructions and practice.

### *Tidal waters*

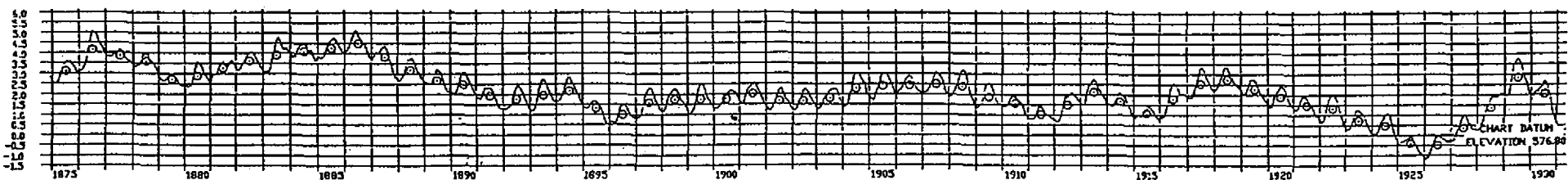
There are tidal shores in Ontario - Hudson Bay and James Bay - and someday there will be litigation about boundaries on those shores. The boundary issues will be about the location of 'high water mark' or 'low water mark'. These are tide water terms. Mariners have always needed a good sense of tides - their lives depend on this; the reef that might be cleared on high tide could be the graveyard of the vessels and the men if struck at a low tide. In the Mediterranean, Baltic and Black Seas, there are virtually no tides; on the Brittany coast and the Bay of Fundy, the range is over 30 feet. The tides may also create immense and confused currents. Elsewhere the effect can be equally frustrating, as when grounded at low tide a half mile or more from the shore forced to wait in mud and ooze till the change of the tide in a matter of hours.

Time is the key to the tides. Two hundred years ago it was strictly a matter of experience. Today the knowledge of the tides is impressive. The rise and fall - the flow and ebb - follow the cycles of attraction of the moon, primarily, and the sun. Tidal analysis has enabled the prediction of the levels in advance of the occurrence. Herein lies safety for the mariner.

For the waterfront property owner - the upland riparian, or littoral, proprietor - it means that the natural boundary at the high water mark can be found with surprising exactness - if it is warranted. The point for emphasis here is the predictability of the tides.<sup>21</sup>



## MONTHLY AND YEARLY MEAN WATER LEVELS LAKE MICHIGAN - HURON



LEGEND  
 ○ YEARLY MEAN  
 x MONTHLY MEAN  
 — CONTINUOUS  
 ^ MONTHLY MEANS

Elevations are in feet referred to the International Great Lakes Datum (1955)

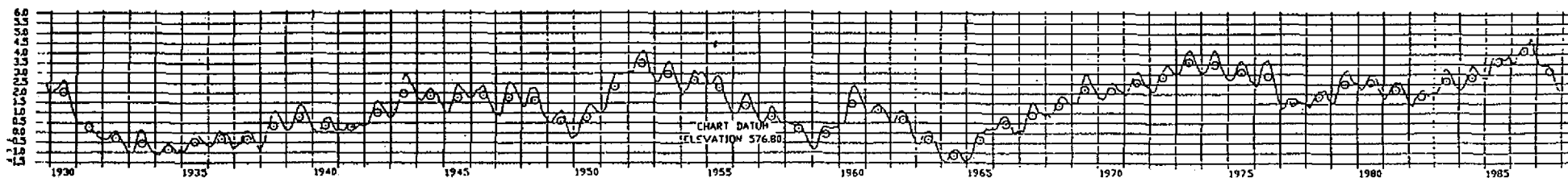


Figure 9

The tidal boundary line reflects the averaging of a regular and repeatable pattern. A riparian proprietorship on the sea coast is deemed to be sufficiently answered for constancy of contact on a daily basis by a boundary that is defined as the 'high water mark'. This boundary is found as the mean of the high spring and high neap tides over a term of years; for all practical purpose, it can be arrived at by simpler principles: *North Shore Ry. v. Pion* (1889), 154 A.C. 612.<sup>22</sup>

### *Great - and lesser - Lakes*

On inland waters that are of the size of the Great Lakes, it is high and low water *levels* that are involved as is clearly evident from the diagrams of recorded levels. Figure 9 shows the monthly and yearly mean water levels of Lake Michigan-Huron from 1819 to 1987. The levels are notoriously irregular both in intervals and in heights, and long term forecasting of levels is not reliable. There is, however, a yearly cycle of highs on the Great Lakes in mid-summer, lows in mid-winter.

The legal questions are: where is the natural boundary to be found for inland waters?; and what is it properly called? It is obvious that confusion has reigned supreme by calling it 'high water mark', which is a term uniquely applicable to a tidal regime. The doubtful approach in attempting to find inland water boundaries is the attempt at analogy that is sometimes made, appealing as it may seem, that the high and low levels are similar to high and low water 'marks' by the tides. This doubtful approach appears in *Parker v. Elliott* and in other decisions, and represents a line of thought that blurs the true nature of what the watermarks are and what constitutes the natural boundary. Decisions made for the purpose of survey and for the purpose of legal argument should relate to the subject, that is, tidal or non-tidal, lake, river or pond.

Colloquial expressions appear to be a menace to boundary definition. 'Shore' and 'bank' are just two instances; they impart the general meanings of area as well as line. 'Line of the shore' and 'line of the bank' are meaningful in terms of boundaries. Ontario has had more than a hundred years of fine decisions on these terms and the consistency is evident in all of them. The Australian states, faced with similar problems of interpretation moved to legislative definition and stated the common law meanings; thus, from the *Queensland Water Act* (1926-1968):

'Bed' and 'Banks' with reference to any watercourse or lake, means the land over which normally flows or which is normally covered by the water thereof, whether permanently or intermittently, but does not include land from time to time temporarily covered by the flood waters of such watercourse or lake, and abutting on or adjacent to such bed or banks. 'Bed' means the relatively flat and 'banks' the relatively steep portions of the first-mentioned land.

The Australian *Water Acts* put the watercourses and lakes under Crown control by deeming that no alienation had ever been made. In the Canadian western provinces, nearly the same was achieved towards vesting the beds of waters *and the water* in the Crown. As our solution in Ontario, we have the legislative reversal of the common law ruling that was arrived at by the Court of Appeal in *Keewatin Power Co. v Kenora* (1908), 16 O.L.R. 184, varying 13 O.L.R. 237. However, the Ontario statute, the *Bed of Navigable Waters Act* of 1911,<sup>23</sup> only dealt with navigable waters to retain the beds in the absence of express grant or prior decision.<sup>24</sup>



Perhaps this narrative will help clarify why there is now a survey problem. Navigability was reserved to the federal Crown in 1867; it is a matter of title that can only be resolved in the courts. *As a capable observer/agent in the field, the surveyor can express an opinion, but it will not settle the title and hence the parcel of the bed. It is an impasse, not a conundrum.*

In the review of provincial legislation made by the federal Minister of Justice in 1912, it was recommended that the Ontario act not be disallowed but be left to such operation as it might have, and that it did not affect the rights of the Crown Canada. In 1922, *Provincial Legislation Reviewed*, Vol. 2 at p. 107, another review is reported. It appears the whole matter came close to an upset as potentially confiscatory.

This is a major part of the impasse; the rest is the interpretation of terms. There is this unfortunate term 'high water mark'.

### *Boundaries of tidal waters, lakes and rivers: first define, then find*

'High water mark' is clearly a term with a meaning properly restricted to waters with a noticeable tidal effect. To be pedantic on a technical matter, there is a tidal influence on the whole of the earth's surface, land as well as water. On the ocean waters of the earth, the effects are marked. The causes, primarily, are time related.<sup>25</sup> The tides vary with the positions of the moon relative to the sun producing, generally, two high and two low tides each lunar day of 24 hours and 50 minutes and a very particular pattern over a lunar month of about 28 days. The persistence of hydrographers<sup>26</sup> over many decades led to the analysis of the tidal causes and ultimately to the modern accurate tide prediction tables so essential in navigation to safely clear the reefs below and the bridges above. In boundary location, high winds, storm runoff into deltas and bays, tsunamis and a dozen and one other unpredictables must be considered by the surveyor equally as by the mariner.

On the Great Lakes, the tidal effect is present, but it is so insignificant that it is lost in the lap of the waves, and hence the legal decisions discount the effect and deem the Great Lakes to be non tidal (*de minimus non curat lex?*). However, the low and high levels of the waters of the lakes are well known. Similarly, there are low and high water levels on rivers.

Restricting consideration for the moment to waters in their natural state uncontrolled by dams, locks and other works - the variable line of the water's edge, the 'line of the bank', is, in the case of rivers, a phenomenon repeatable in an annual cycle of weather. There is a distinct and measurable line of high normal flow; this is the level of flow that was clearly dealt with in Callis's work on the *Statute of Sewers*; there is a level in rivers that takes the ordinary full flow from the upland without damage to riparian owners or, at least, for which they may not make legal claim. There are low waters levels, sometimes drought, which do not restrict the riparian entitlement of the upland proprietors to use and enjoy the waters. There are flood levels when the waters are, in legal parlance, "out of their banks" and to which riparian owners are subject as a recurring event of nature.

With all the waters that tumble down a single river tributary to the Great Lakes, the effect on levels of the lakes is not measurable; each of the lakes is an immense holding basin.<sup>27</sup> From *all* the rivers of the watershed, the result is an annual rise and fall of about 15 inches, increasing in range in each of the lakes from Lake Superior down the chain. The low levels occur in mid-winter and the high level a few months after the annual spring runoff from snow melt and spring rains. Over many years, there are times when the highest levels are frightening in the destructive effects of erosion on shore properties and other times when the owners may revel in their wide beaches exposed by the reliction of the waters. The levels are erratic; they cannot properly be called cyclical or periodic (in the sense of a sine curve). The extreme range of about 6 feet over many decades has no pattern and cannot be forecast. It is the result of the unpredictable climate.<sup>28</sup>

The reported Ontario decisions on water boundaries on the Great Lakes have dealt with early patents of land that had descriptions that did not use the term 'high water mark'. The decisions seem to be fairly interpreted to mean that the term, for whatever is claimed as its meaning, cannot be applied retrospectively.

The first rule would appear to be: search the records - survey instructions, field notes, diaries, plans, etc. and the patents - and if 'high water mark' is not used, then the common law rule applies. The rule is clearly stated in *Attersley v. Blakely*, [1970] 3 O.R. 303 at 308:

It would seem, therefore, that the old common law rule as to the boundary between land and water placing it at the water's lowest mark is the law as it stands at the moment: *Stover v. Lavoia* (1906), 8 O.W.R. 398; affirmed 9 O.W.R. 117 (C.A.).

The Court of Appeal, at 313, fully agreed.

Mr. Justice Stark in *Re Walker and Attorney-General for Ontario*, [1971] 1 O.R. 151, at 178-181 dealt with "Such phrases as occur in the patents . . . ." and concluded:

It appears to me . . . that any Crown patent which indicates that one of the boundaries of the lands granted is to be a boundary of water . . . establishes that boundary as at the water's edge and not upon any bank or high water unless [two exceptions stated].

The Court of Appeal concurred and so also did the Supreme Court of Canada. In the Court of Appeal, [1972] 2 O.R. 558, at 560, Aylesworth, J.A., giving the decision of the court, gave a further solution:

Before leaving the case, it is desirable, we think, to make specific mention of one aspect of the case as put for the Crown, upon which argument from Crown counsel was heard at length. That argument may be summarized in this way. It is said that the provisions of the *Beds of Navigable Waters Act*, R.S.O. 1970, c. 41 . . . preclude the respondents from succeeding inasmuch, it is submitted, as the bed of a body of water, such as Lake Erie, extends on land beyond low water mark to a line denoting a change in the soil from marine to land soil, a question of fact in each case, and that, therefore, the Crown patents . . . must be construed accordingly. True, there is a proviso in that provision of that statute with respect to an express grant of the bed. Assuming, without at all agreeing, that the bed of Lake Erie extends from low water mark as contended, it is our view that the

words respectively used in the two patents, as judicially determined and interpreted in this Province, constitute express grants in the patents of the lands to the water's edge and that, hence, the provisions of the *Beds of Navigable Waters Act* do not stand in the way of the respondents in any manner whatsoever in these proceedings.

On tidal shores the space between the lines of low tide level and high tide level is known in lay and legal terms as the 'foreshore'. By the case law, there is no foreshore on the inland non-tidal waters. The space between the low water and the "line denoting a change in the soil from marine to land soil" would appear to be, the "line of the bank", if the latter line is the normal, ordinary, usual higher level of water. The argument of the Crown recited above was upon the same basis as the amending provisions of the *Beds of Navigable Waters Act*,<sup>29</sup> in force between 1940 and 1951, wherein the 'high water mark' was defined as the upper limit of the 'bed' and a feature to be found by observation, thus:

"high water mark" shall mean the level at which the water on a navigable body of water has been held for a period sufficient to leave a water mark along the bank of such navigable body of water.

By this definition, there would be no 'bank' in the water-related sense of all prior decisions. The definition, and the Crown's argument, were, we conclude, an attempt to change the meaning of the terms 'bank' and 'shore' from the traditional legal meanings. The 1951 repeal of these provisions of 1940, and the above conclusions of the Court of Appeal, have brought the Ontario terminology back to the simplicity of the common law. It brought the end of this bit of unnecessary confusion in Ontario; the case law continues with a clean thread of meaning that is precisely the meaning that was put into statute law in the Australian states. The 'bed' is the bottom and the 'banks' or 'shores' are the sides of the containing vessel of the waters, both navigable and non-navigable; the top of the 'bank' or 'shore' is the 'line of the bank' or 'line of the shore'. Means of identification can be arrived at from due consideration of the case law applied to the observed facts in any particular instance.

In those cases noted above, about lands abutting the Great Lakes, the extent of the parcel is to the water's edge at low water. With respect to the courts, and their consistent interpretation of the extent of the upland title, there is a real surveying problem. Low water is variable in position and there cannot be a *mark* since each next higher level erases it. "Low water mark" is a fiction. The surveyor has to show something that is real and there is nothing more real than the water's edge at the time of the survey. This should always be shown. However, if the water line has been disturbed due to storms or other perceptible changes, or there has been filling, then the surveyor should report upon these observed facts and demonstrate his opinion of the proper boundaries of the parcel. No survey plan fixes the position of a natural ambulatory boundary, hence the line on a plan does not limit the parcel nor restrict the riparian right.

Since the Crown, and private grantors, have used the term 'high water mark' on many grants of lands abutting the Great Lakes, and for water lots, this indefinable term on inland non-tidal waters has somehow to be reconciled with the reality on the ground. There is a large number of surveys which are in the records with improper representation of the natural boundaries. The graph of Figure 9 forces the question: What is the meaning of 'high water mark' on such bodies of water? The whole thrust of the common law would, we believe, put this 'high' at the variable high level of each

year and not at the extreme high levels of intermittent and erratic occurrence.

The definition, that is even still being considered by many surveyors and by the Crown, that the limit is the line of a water mark at a "level at which the water . . . has been held for a period sufficient to leave a water mark" continually raises the question: which water mark? On any body of water, many such marks can be seen. The proper identifier is the change from land to water environment identifiable by soil and vegetation change; unfortunately, many surveys were made for the natural water boundary, especially in this century, using only the land vegetation as the identifier. The inevitable result was to lift the 'high water mark' to the back of the beaches. Beaches are ecologically sensitive areas; they are substantially sterile - barren of nutrients - or, where used for recreation, devoid of vegetation from continued disturbance. A change from land vegetation to no vegetation is not the same thing as a change from land to marine conditions. It is the view of the writers that the amending sections of 1940-1951 failed from confusion of field interpretation of the term 'high water mark' as much as they appear to have failed from claims of confiscation, and of course, a natural boundary cannot be fixed.<sup>30</sup> Mr. Justice Stark was obviously not impressed by the arguments put forward in *Re Walker and Attorney-General for Ontario*, [1970] 1 O.R. 151, mainly at 170.

*It is many of these plans, representing a test for the boundary and not the boundary itself, that now form a body of records of doubtful merit for the resolution of the line of land/water interface.*

Finally, on these Great Lakes, in patents where the term 'high water mark' has been used, does it really have any meaning at all?

Along rivers, on the other hand, it appears that 'high water mark' has attained some status as a boundary line rather than as an identifier of the boundary which is still the 'line of the bank'. As earlier noted there is a general high level of flow, usually in the spring, that leaves a distinctive mark of scouring because the weather pattern is sufficiently repetitive year by year. A flood is recognized as a level when the river is 'out of its banks'. *Clarke v. Edmonton*, [1930] S.C.R. 137 (S.C.C.); *New Hamburg v. Waterloo* (1892), 20 O.A.R. 1, reversed on other grounds (1893), 22 S.C.R. 296 (S.C.C.); *Plumb v. McGannon* (1871), 32 U.C.Q.B. 8 (C.A.). Two other notable cases are: *Hindson v. Ashby*, [1896] 1 Ch. 78, reversed on the facts [1896] 2 Ch. 1 (C.A.) and *Kingdon v. Hutt River Board* (1904), 25 N.Z.L.R. 145 which latter case solved the issue to the same effect of normal high water level (the 'line of the bank') without using the term 'high water mark'. Whether reviewed in these decisions or not, so much of the logic of decisions is the principle expressed in *Callis on Sewers*.

In Ontario, a land of rivers and lakes tributary to the 'inland seas', there are grounds for considering many lakes as mere widenings and ponding along the rivers, and not as lakes in a legal sense.

*The boundaries of accretions, including wandering waters*

There is a curious aspect of accretion that reveals many of the uncertainties about title that were introduced in an earlier section: How are accretions properly dealt with in records of title? It seems to be a major problem for the land titles systems in Canada.

*Chuckry v. R.*, [1973] S.C.R. 694, reversing [1972] 3 W.W.R. 561, and upholding the dissenting views of Dickson, J.A., in the first appeal to the Manitoba Court of Appeal, covers the principles of accretion in a thorough manner, virtually providing a textbook, like Mr. Justice Stark did for water boundaries in the *Walker* case. After the decision came the problem of how to reflect the title in the land titles records; the solution was to enact new legislation. It appears as if this approach is a reflection of a notion that accretion gives rise to a new parcel, and a new root of title for the extended area must be created and recorded.

In a similar vein, it was the administrative practice in Ontario, until about 1970, that land deemed to be accreted to the upland parcel would require a Crown grant, and the land was usually described in such fashion as "part of the former bed" of the lake or river. In plain fact, a grant cannot be made as an accretion is the property of the upland owner. This approach appears to now be gone, but the titles administration requires a new application to bring the accreted land under either the *Land Titles Act* by which the upland riparian title is recorded or the *Certification of Titles Act*.<sup>31</sup> It is policy; whether it is reality is another matter. The principle of the accretion process is that it is natural, slow and imperceptible from moment to moment. It only becomes the subject of attention when its cumulative effect becomes big enough to make a difference. Once the fact of accretion is settled by the concurrence of the adjoining owner of the bed, or a court decision if it is in dispute as sudden change or filling, or if the change might have an effect on mining right, it is already part of the title, and it acquires the legal characteristics of the land to which it is added.

*Mercer v. Denne*, [1905] 2 Ch. 538, affirming [1904] 2 Ch. 534, stated the common law principle that "where imperceptible accretion has occurred, the piece of land is to be treated as having been as it is from the commencement of legal memory" - or, in our case, the original Crown grant. The case of *Eliason v. Registrar, North Alberta Land Registration District* (1980), 15 R.P.R. 232, arrived at the same conclusion from other sources.

In *Survey Law in Canada* (1989), we had occasion to summarize the matter thus at page 255:

6.92 The real problem of accretion is not one of registering the existence of new legal rights, but restatement of the limits. How this is achieved appears to be a matter of choice in each jurisdiction, but it is not improper or unfair to suggest that some of the solutions are based on faulty concepts and ponderous administrative precepts.

The same problem arises in the case of a change in the position of the middle thread of a stream where it forms the division line between parcel.

6.93 The administrative uncertainty of the effect of accretion and the consequent ambulatory nature of the natural boundary of a parcel of

guaranteed title is paralleled by the problem of acceptance of the *ad medium filum* rule as an operative but rebuttable presumption. The Australian writer, John Baalman, called it "the most clumsy doctrine of a legal system notorious for its obscurity, the English common law," and said further "that in any jurisdiction which aims to have an efficient conveyancing system the rule, (with perhaps other) should be sharing a common grave." There were, and are, opposing views. The rule is not inconsistent with the principle of a system of title by registration.<sup>32</sup>

By the very nature of the statutes, it is evident that a Torrens act is more sensitive than an English based titles act as applies in Ontario to elements of common law that should still apply. In *The Principles of the Australian Land Titles (Torrens) System* (Sydney: Law Book Co. of Australasia, 1927), Kerr noted at page 28, note 36:

*Auty v. Thompson* [(1903), 5 Gaz. L.R. 541 (N.Z.S.C.)] is also an authority that an accretion to land subject to the Torrens Act also becomes subject to the Torrens Act. In Western Australia in 1898 Dr. Smith, the then Commissioner of Titles for Western Australia, advised that where the shore or high-water mark [tidal] of the sea forms a boundary of any land under the Act and the sea has receded gradually, then the area of the land is enlarged so as to include the land between the old high-water mark [tidal] and the new; but if the sea has receded suddenly then there is no such enlargement.

No Torrens or English system of title by registration guarantees the *extent* of title, that is, the boundaries of parcels. Most, including the Ontario system, try to do their best to get the parcel right. The Ontario approach appears to have the same basic misconception, but adds to it the further erroneous notion that the *Surveys Act*, section 9, makes the natural boundaries fixed in position.

Other jurisdictions resolve the problem in a simple realistic manner by recognizing that the issue is not title but the shifting of the boundary of the parcel.

A modern parcel-based land information system should be most substantially based on mapping that is kept current by fairly regular maintenance, either spot notation of minor changes or remapping of sections. Shoreline changes will be reflected in the mapping before they need to become the subject of action or concern on the part of the owner. Owners seldom care about the slow change of accretion or erosion but with modern mapping the change no longer waits for the owner to do something about it. System administrators will discover it. Perhaps the system will take over and force property owners to take action to rectify, as a matter of title, what is really a matter of boundary.

Until the matter is resolved in Ontario, the current regulations and procedures that have evolved from policy and administrative objectives will undoubtedly prevail.

### *Responsibility of the surveyor.*

Bearing in mind that the surveyor does not make boundaries, the riparian parcel that does have a natural boundary is not held to a line fixed in position as some represented water line, whether high or low or somewhere in between. I suggest that there has to be some give and take in survey requirements; measure for measure needs to be balanced by dollar for dollar. The rights of title of riparian property should not be translated into an unrealistic and extremely costly exercise in futile measurements. There are exceptions; there always are. Sometimes they are better left to the future to resolve, as when a gas well is actually found in front of the parcel as in *Volcanic Oil & Gas v. Chaplin*, rather than attempting to cover all bases in pure speculation, especially if it has to be done by surveys. However, there is obviously a need for accuracy of location in cases where area, or clearance of boundaries, is a factor in meeting planning requirements for the development of shore properties.

An interesting situation came recently to our attention concerning a reservation of "a strip of land 66 feet in width from the water's edge for fishery purposes." The solicitor for the client asked that the reservation be shown on the plan. The request is reasonable enough but it did cause some thought about its representation (is it a reserve ambulatory with the natural boundary?) or whether it is an item best dealt with in a report.

This request is another indicator of a trend of clients and their counsel requiring that more information be shown on survey plans. As a body, surveyors have responded positively. It follows as a corollary that the surveyors will likely see the need to qualify their opinions where the source records are inadequate and a muddle is known, or suspected, to exist. For example, the navigable water question is one of title so how should the bed be designated on a plan when the title is not settled? Since the matter of potential natural severance arises it may be anticipated that the solution will only be worked by the cooperative venture of the surveyor and the lawyer. In this aspect there are interesting prospects in *Re Coleman and Attorney General for Ontario* (1983), 143 D.L.R. (3d) 608. As another example, the *Road Access Act*:<sup>35</sup> the surveyor must factually report what he finds of roads to lakefront property, but the lawyer would be wise to put the question on the list of items to be checked in terms of status.

## References

1. See, for example, *Williams v. Salter* (1912), 23 O.W.R. 34 (C.A.), where, on the appeal: "Their Lordships held, that they could not consider any intention on the part of Mr. Kirkpatrick [Director of Surveys], one of the subordinate officers of the Government, no matter how clearly shewn; that they had to construe the patents as they appeared . . . ." In this case the result was an amendment in 1913 to the *Surveys Act* to clear up the confusion and giving us the present section 13. See also *Re Walker and A.-G. for Ontario*, trial decision [1971] 1 O.R. 151, where Stark, J., comments frequently on the position taken by the Crown. See also *Boundaries Act* decision No. 168 of 4 October 1956 in which the tribunal stated: "In summation, I find no legal precedent to support the argument of the Objectors [one of which was the Department of Highways whose survey was basic to the issue] and no statute prescribing their method. The contentions and objections of the Objectors are disallowed. I find their arguments fail under Common Law, Statute Law and normal survey practice . . . ." Or, better still, consider the wise words: "The question of the Boundary of Lots described as running to the waters edge or high-water or low-water mark must be considered in a strictly legal point of view, and the Council would respectfully recommend the Surveyor General to take the opinion of the law officers of the Crown and to act according to their opinion." (Minutes of Council of Upper Canada of 26 October 1837 commenting on a report of the Surveyor General dated 24 October 1837.)
2. Farnham, H.P. *The Law of Waters and Water Rights*. (Rochester: The Lawyers' Co-Operative Publishing Company, 1904). Vol. I, s. 45, p.17.
3. *Surveys Act*, R.S.O. 1980, c. 493.
4. *An act to repeal an Ordinance of the Province of Quebec, passed in the twenty-fifth year of His Majesty's reign, intituled, "An Ordinance concerning Land Surveyors, and the Admeasurement of Lands," and also to extend the provisions of an Act passed in the thirty-eight year of His Majesty's reign, intituled, "An Act to ascertain and establish on a permanent footing the Boundary Lines of the different Townships of this Province," and further to regulate the manner which Lands are hereafter to be surveyed.* S.U.C. 1818, 59 Geo. III, c. 14.
5. The settlers had firm notions of law, order and government. See Chapter 1, "The Law and the Empty Land", in *Cornerstones of Order* by Marion MacRae (Toronto: The Osgoode Society, 1983). An overview of early surveys is given by D.W. Lambden in Chapter 4, "Boundaries", in *Survey Law in Canada* (Toronto: The Carswell Co. Ltd., 1989). The three volumes of *Men and Meridians* by Don Thomson (Ottawa: Queen's Printer, 1966-69) is comprehensive. The first instructions of civil government for surveys in the future Upper Canada were given by General Frederick Haldimand, Governor of the Province of Quebec, on 11 September 1783 to Deputy Surveyor John Collins. Some surveys prior to this date had been ordered by the military authority at Niagara: see R.M. Anderson, "The Development of Township Surveys in Ontario", *The Canadian Surveyor*, April, 1936, Vol. 5, No. 8.
6. *Dominion Lands Act*, S.C. 1872, 35 Vic., c. 23, succeeding statutes, and the *Manual of Instructions*, various editions since 1871.



7. In *Outline of the Method of Conducting a Trigonometrical Survey*. 2nd rev. ed. (London: John Weale, 1850), E.C. Frome, a Captain of the Royal Engineers and third Surveyor General of South Australia, wrote:

The rude and inaccurate mode in which land has been marked out in Canada by the chain and compass . . . renders the survey of that country not a fair point of comparison with that of more modern colonies.

This somewhat disparaging remark is balanced by the words of the Registrar-General of New Zealand in his report to the House of Representatives in 1872:

. . . immeasurable evil . . . is daily growing out of the sham system of public surveys, so long the disgrace of the Colony . . . [& etc.]

8. In this connection, the records of municipal and Crown resurveys made under the *Surveys Act* are a telling demonstration.
9. James Dickson, Inspector of Surveys for the Crown, presented the paper "Crown Surveys" at the 1891 meeting of the Association of Provincial Land Surveyors (Toronto: Association of Ontario Land Surveyor, 1891, page 63):

. . . to innaccuracy and ambiguity in original surveys are to be traced the beginnings of most of those long and expensive law suits touching the ownership of lots and parts of lots which are almost constantly before our Superior Courts. . . I cannot recall a single instance in which there would have been room for either doubt or dispute had the original survey been correctly made.

And further: "Perfect accuracy is neither expected nor looked for, but perfect truthfulness is."

On the matter of accuracy of surveys:

In some of what seemed the most worthless townships has been found the most valuable nickel and copper mines perhaps in the world, and the surveys of some of the townships where those minerals have been discovered - but which were made before the inauguration of the present system of inspection - have been performed in such a loose manner that I predict, at no distant day, to hear of some of our legal friends reaping a rich harvest.

Jefferys, C.W. *The Picture Gallery of Canadian History*. (Toronto: The Ryerson Press, 1942).

10. Order-in-Council of 27 March 1829 following on a letter of advice on the matter from Acting Surveyor General, W. Chewett, to the Lieutenant Governor, Sir John Colbourne.
11. The original plan of the Township of Smith, north of Peterborough, is dated 28 September 1818 and is entitled: "Plan of a Point of land (called the Township of Smith in the County of Newcastle) in the rear of the Township of Monaghan. Concession lines surveyed but waters are not traversed, only sketched".
12. *Land Titles Act*, R.S.O. 1980, c. 230.

13. Lamont, D.H.L. *Real Estate Conveyancing*. (Toronto: Law Society of Upper Canada, 1976).
14. Lambden, D.W. and I. de Rijcke. *Boundaries and Surveys. Canadian Encyclopedic Digest (Ont. 3rd), Title 19*. (Toronto: The Carswell Co. Ltd., 1985).
15. See note 4 above.
16. *Re Monashee Enterprises Ltd. v. Minister for Recreation and Conservation for B.C.* (1981), 28 B.C.L.R. 260, 21 R.P.R. 184, 124 D.L.R.(3d) 372, 23 L.C.R. 19 (B.C. C.A.).
17. The present statute is the *Lakes and Rivers Improvement Act*, R.S.O. 1980, c. 229. The predecessor acts, a number of decisions and a history of the logging operations in Ontario should be read at the same time.
18. See, for example, *Robertson v. Watson* (1874), 27 U.C.C.P. 579 (C.A.). There are many others.
19. *Statute Law Amendment Act*, S.O. 1940, c. 28, s. 3, amending the *Beds of Navigable Waters Act*, R.S.O. 1937, c. 44, with the provisions repealed by *Beds of Navigable Waters Amendment Act*, S.O. 1951, c. 5.
20. Villeneuve, O.F., Chairman. *Report of the Select Committee of the Ontario Legislature on Lake Levels of the Great Lakes*. (Toronto: Queen's Printer, 1953). Archives of Ontario, RG 18, Series D-I-51; includes briefs submitted by interested parties: "Brief Relating to the Ownership and Occupancy of Shoreline in Ontario for the Select Committee of the Legislative Assembly on Lake Levels", dated September 11, 1952, signed by F.W. Beatty, Surveyor-General and J.S. Yoerger, Departmental Solicitor (8 pages).
21. Forrester, W.D. *Canadian Tidal Manual*. (Ottawa: Department of Fisheries and Oceans, Canadian Hydrographic Service, 1983).
22. The leading case on tidal boundaries is undoubtedly *Attorney-General v. Chambers* (1854), 4 De G.M. & G. 206, 43 E.R. 486, [1843-60] All E.R. 941; additional reasons (*sub nom. A.G. v Chambers; A.G. v. Rees*) (1859), 4 De G.M. & G. 55, 45 E.R. 22, [1843-60] All E.R. 559. But *Attorney-General v. Chambers* was neither a House of Lords case nor a decision on appeal. See also *R. v. Yarborough (Lord)* (1824), 3 B. & C. 91, 107 E.R. 668 (K.B.), affirmed as *Gifford v. Yarborough (Lord)* (1828), 5 Bing. 163, 130 E.R. 1023 (H.L.).
23. *Bed of Navigable Waters Act*, S.O. 1911, c. 6.
24. Benedickson, J. "Private Rights and Public Purposes in the Lakes, Rivers and Streams of Ontario 1870-1930" in *Essays in the History of Canadian Law*. (D.H. Flaherty, editor). (Toronto: University of Toronto Press for the Osgoode Society, 1983).
25. The causes of tides primarily are the gravitational forces of the sun, the moon and the earth and the centrifugal forces and friction due to the turbulence caused by the rotation of the earth. The tides therefore are time related.

26. Sir William Herschel, Astronomer Royal, sometime President of the Royal Society. 1835.

Observing the tides is the greatest bore on earth or on the water, and the greatest exhaustion of a man's patience and trial of his temper.

27. Herman Melville had something to say about the Great Lakes in *Moby Dick* (New York: Grolier Inc., 1851). Ishmael was speaking to a group of South Americans at the Golden Inn. "Now gentlemen, in their interflowing aggregate, these grand fresh-water seas of ours - Erie, and Ontario, and Huron, and Superior, and Michigan - possess an ocean like expansiveness. They contain round archipelagoes of romantic isles. They have heard the fleet thunderings of naval victories. They know what shipwrecks are; for, out of sight of land, however inland, they have drowned many a midnight ship with all its shrieking crew."

28. See note 20 above. *Report of the Select Committee* at page 42:

The yearly mean levels vary irregularly and not in any discernible cycles. In general, years of high level follow years of high precipitation and years of low precipitation are followed by low levels.

Many attempts have been made to discover cycles in high and low years of lake levels, but in reviewing the studies which have been made by scientists on this subject, it does not appear to this Committee that the changes in yearly mean levels follow any regular pattern or are in any way predictable.

29. See note 19 above.
30. The confusion of the test to find the boundary is documented in Annual Reports of the Association of Ontario Land Surveyors and government correspondence both of which have been compiled and collated by the writers.
31. *Certification of Titles Act*, R.S.O. 1980, c. 61.
32. Baalman, J. in 25 *Australian Law Journal* (1951) 449-453, 538-541; Fox, P.M. also in 25 *A.L.J.* 678-680. See also Di Castri, V. *Thom's Canadian Torrens System*. 2nd ed. (Calgary: Burroughs & Co., 1962). See also *Auty v. Thompson* (1903), 5 Gaz. L.R. 541 (N.Z. S.C.):

If, by an alteration in the course of a stream, which is one of the boundaries of certain land under the Act, there have been accretions to the land as originally included in the certificate of title, such accretions follow the title to the land, of which they have become part. (Headnote.)

33. *Road Access Act*, R.S.O. 1980, c. 457, first enacted by S.O. 1978, c. 61.

*Table of cases*

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*Attorney-General for British Columbia v. Neilson*, [1956] S.C.R. 819, 5 D.L.R. (2d) 449, reversing on the evidence 16 W.W.R. 625, [1955] 5 D.L.R. 56, which affirmed 13 W.W.R. 241.

*Auty v. Thompson* (1903), 5 Gaz. L.R. 541 (N.Z.S.C.).

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*Clarke v. Edmonton*, [1930] S.C.R. 137 [1929] 4 D.L.R. 1010, reversing [1928] 1 W.W.R. 553, (1928). 2 D.L.R. 154, 23 Alta. L.R. 233.

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*Hindson v. Ashby*, [1896] 1 Ch. 78, reversed on the facts [1896] 2 Ch. 1 (C.A.)

*Keewatin Power Co. v. Kenora*, (1906) 13 O.L.R. 237 varied on appeal (1908), 16 O.L.R. 184, 11 O.W.R. 266 (C.A.)

*Kingdon v. Hutt River Board* (1905), 25 N.Z.L.R. 145, 7 G.L.R. 634 (S.C.).

*McGregor v. McMichael* (1877), 41 U.C.Q.B. 128 (C.A.).

*Merriman v. New Brunswick* (1974), 7 N.B.R. (2d) 612, 45 D.L.R. (3d) 464 (C.A.).

*Mulry v. Norton* (1885), 3 N.E. 581.

*New Hamburg v. Waterloo* (1892), 20 O.A.R. 1 (C.A.), reversed on other grounds (1893), 22 S.C.R. 296.

*North Shore Ry. v. Pion* (1889), 154 A.C. 612 (P.C.).

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*Walker and Attorney General for Ontario, Re*, [1971], 1 O.R. 151, 14 D.L.R. (3d) 643 (Ont. H.C.); [1972] 2 O.R. 558, 26 D.L.R. (3d) 162 (*sub nom.* Re R. and Walker) (Ont. C.A.); (*sub nom.* A.G. Ont. v. Walker), [1975] 1 S.C.R. 78, 42 D.L.R. (3d) 629, 1 N.R. 283 (*sub nom.* Re Walker) (S.C.C.).

*Stover v. Lavoia* (1906), 8. O.W.R. 398 (H.C.) [1972]; affirmed 9 O.W.R. 117 (C.A.)

*Volcanic Oil and Gas v. Chaplin* (1914), 31 O.L.R. 364, 6 O.W.N. 334, 19 D.L.R. 442 (Ont. C.A.); leave to appeal to P.C. refused, S.C.C., Fitzpatrick C.J.C., Dec. 20, 1915 (unreported).

*Welles v. Bailey* (1887), 10 Atl. 565 (Connecticut).