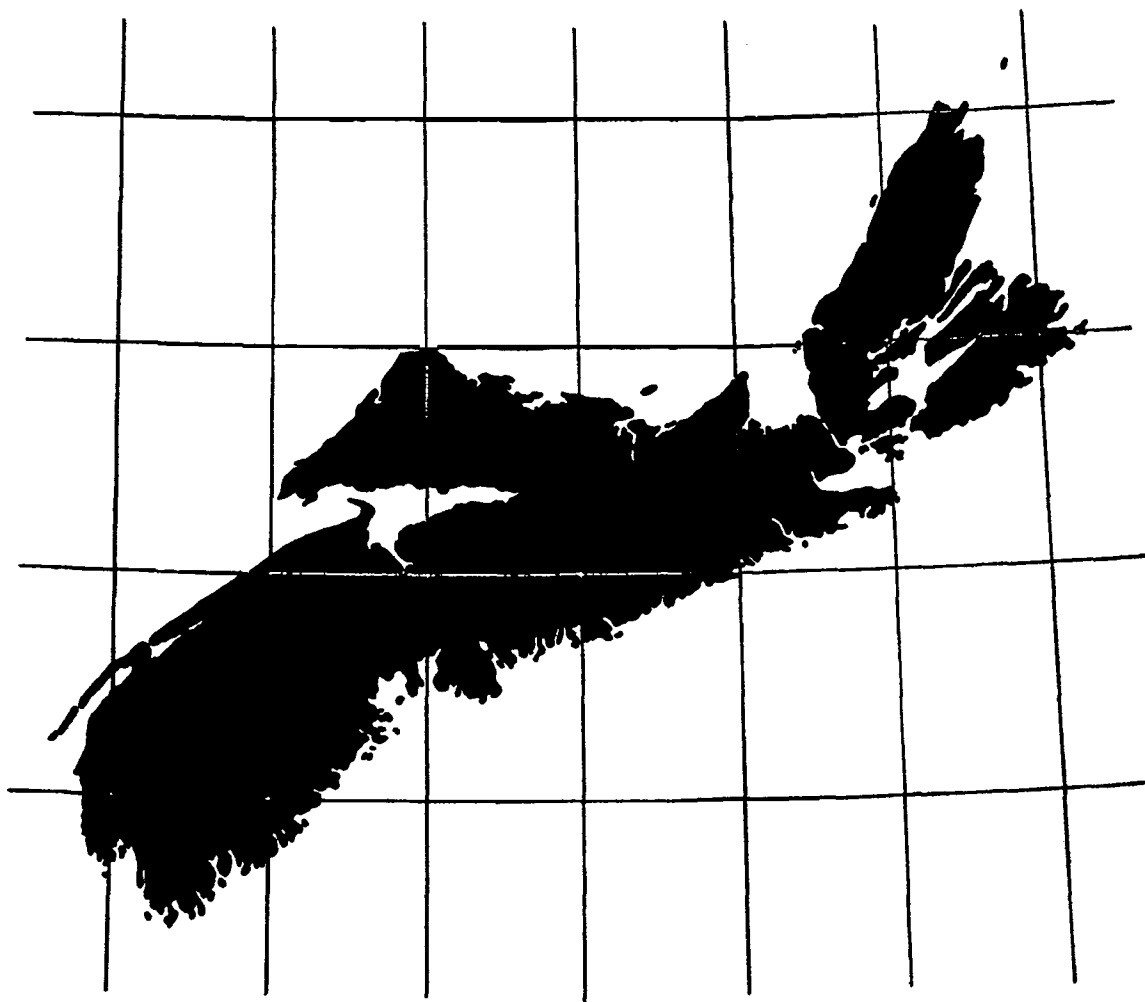


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R. E. MILLARD

Editor

Address all communications to P. O. Box 1541, Halifax, Nova Scotia

Tasks Of United Nations Survey Team

By Capt. R. Coldham

Formation of the State of Israel created a very touchy situation with Arab Nations. Hostilities broke out from time to time. The major conflicts being in 1948 when Israel expanded her territorial boundaries and again in 1956 when she launched an attack through the Sinai Peninsula to within 10 kilometers of the Suez Canal.

After the 1948 conflict the United Nations organization set up a Truce Supervisory Body. Their function was to investigate incidents along the borders of Israel and to control these small clashes in order to prevent them growing into open warfare. This organization has prevented further conflict with the exception of the SINAI Campaign.

This campaign was launched in the fall of 1956 and the reason given by the Israeli was that the Egyptians were concentrating an aggressive force in the Rafah-El Arish — Quesemia area. To anyone who has read the reports of this Campaign, the Egyptians encountered were anything but aggressive. Their whole force was put to rout and they fled leaving equipment and stores which were taken by the Israeli Forces to the estimated tune of \$17,000,000, thereby becoming the only country in recent times to make a profit by open aggression and this within a short space of a little more than four days.

The United Nations once more intervened and a truce was drawn up with the borders being re-established to their former positions. In order to prevent further aggression, in this area the U.N. formed the United Nations Expeditionary Force under the command of General Burns to patrol and police the boundaries between Israel and Egypt. These boundaries were the prime reasons for the requirement of a survey team in the UNEF. Once in the M.E. all UN survey problems were referred to them.

Almost immediately upon arrival in the M.E. we were called upon by Jerusalem to do a survey in the Hula Lake area on the Israel-Syrian border. When the truce in this area had been drawn up a line was established west of the International Boundary to form a Demilitarized zone. This line joined the shore of Hula Lake and the original intention was that the lake would form part of the DZ.

However the Israelis had other plans for this lake which was in fact little more than a slough. The deepest part of it being little over 7 feet in depth. By deepening the channel of the Jordan River it was not too great a task to drain this area and thereby gain some very valuable agricultural land. The west side of the lake drained and dried rapidly and the tilling of this area went ahead. The eastern half of the area had drainage flowing in from the hills on the Syrian side of the border. These streams are spring fed and in order to control this run-off a ditch was start-

ed to intercept them along the line of the old shore of Hula Lake. The Syrians objected to this work on the grounds that this ditch was for military purposes. On investigation by the UN the reason given by the Israelis was accepted. The Syrians still objected to this work and claims were made that the ditch was encroaching on the DZ. Work, however, continued until the excavating crane was fired on by Syrian guns and put out of action.

We came into the picture at this point and after a briefing in Jerusalem continued by road to Tiberias. On the road that night we encountered mobile columns of troops, tanks and guns which led one to believe that someone was taking this game seriously.

The following morning we met the Israeli Liaison Officer and the Israeli surveyor. The problem from the survey point of view was minor. We had to resect one point by plane table and then make offset measurements to the ditch as already dug. No co-ordinates of the points were available but we had a cadastral map compiled by the British at a scale of 1/2,400. It was found that one portion of the ditch had encroached on the DZ by a matter of a couple of metres. This portion was filled in and re-dug within the old lake area.

Several months elapsed before we were once more called upon to return to Hula Lake. The difficulty then was to define the shore line of Hula Lake as it had been prior to the draining of the Lake. In a country where seasonal rains occur and are followed by long periods of no precipitation which extend for 9 or 10 months, it is extremely difficult to identify the shore line even when the lake exists.

The British had possibly foreseen such an eventuality for they had constructed concrete pillars along the shore of the lake in the early thirties during their Mandate days. Four of twelve of the original pillars were still in existence. The position of these pillars were shown on the cadastral map at the scale of 1/2,400 and the Israeli authorities produced a co-ordinate list of all the pillars. (On our first visit no co-ordinate values were available.)

Prior to our entrance into this picture the Israeli surveyor had re-surveyed this area and placed iron pins embedded in concrete on each of the missing points. Our task was simply to check the Israeli figures and field work to verify their accuracy. On the face of it this was very simple but first of all, assurance had to be obtained from Israel and from Syria, to safeguard the UN survey party. Two days elapsed before assurance was obtained from both sides and preparations were completed for the survey to commence. The UN observers on both sides of the border were alerted and two UN observers were sent with the survey party. Communications were established by radio to all the UN observers and to the UN Headquarters in Tiberias. White flags were carried to identify the neutral status of the survey party. As the work progressed on the first day more and more interest was shown by the Syrians observing our movement from their side of the border. This interest built up to the point where the operation was called off by the UN HQ in Tiberias. The following day we continued the survey without undue incident. The results of our survey compared to the Israeli survey showed differences of up to 6 centimetres. This was considered negligible of course and I still admire the coolness of the Israeli surveyors who did not have the elaborate protection which had been afforded us by the UN personnel. To obtain accuracies of this standard when at any moment firing might commence with himself in the middle, with only a transit or chain for protection calls for nerves of a very high calibre. These conditions are accepted in Israel as part of a surveyors job.

Our main reason for service in the Middle East was to establish the borders of the Gaza Strip and to define the boundary between Israel and Egypt.

In the Truce the Eastern border of the Gaza Strip is defined as being three kilometres East of and parallel to the Gaza — El Majda road. When it came to placing this Armistice Demarkation Line on the ground other factors had to be tak-

en into consideration. Some areas were occupied by Arabs beyond this line and a compromise was reached by the Egyptian-Israel-UN party as the actual ditch was being dug on the ground. The digging was done by a mechanical digger and ground formations made it possible to operate over some stretches of ground. In other places the line was swung to one side or the other in order to facilitate this operation.

While the Israelis were in occupation of the Gaza Strip, during the Sinai Campaign of 1956, they re-dug the ditch and in places made some quite significant changes in the location of the line. One hill in particular was denied to the Arabs in the area of Khan Yunis. This hill had been used for observation purposes by the Arabs who had initiated night raid into Israeli territory causing loss of men and material. In other places no really significant reasons were apparent for the re-locating of the line. After the withdrawal of the Israeli Forces the Egyptians filed nine complaints with the UN over this stretch of border.

The survey aspects of this problem were really non-existent but it did however become our responsibility to have the line re-dug in its former position. During preliminary talks with the Israeli authorities it became quite apparent that they did not want to make the necessary changes. They were far more interested in having the UN survey the International Frontier between Israel and Egypt. It was therefore General Burns' decision to inform the Israelis that no work would be done on the International Frontier until such times as the ADL disputes were settled.

Considerable time elapsed before any further steps were taken on the ADL and during that time we occupied ourselves with the problem of the International Frontier.

The boundary had been surveyed originally in 1906 by the British and had at that time been the Egyptian-Turkish boundary. A copy of the Survey Report was obtained from the British Garrison in Cyprus and a study of this along with the accompanying maps showed us how it had been originally surveyed. The start point had been in Rafah and at points roughly 10 to 15 kilometers apart astronomical observations had been taken for position. It was interesting to note that telegraphy had been used for the first time in order to obtain observatory time signals from Cairo to Rafah to set the battery of chronometers used for the astro fixes. After computing these observations, points were established by offsets, to the line as described by International agreement. The main point of the report, where we were concerned, was the joining up of these astro fixes. To quote the report "A perfectly straight line was run." The two fixes one at Rafah and one at El Auja then had been joined by a perfectly straight line. Maps showing the boundary belied this statement and when for lack of other tangible points we produced a straight line to settle the location of a shooting incident which had taken place close to this border we raised violent objections from the Israelis.

For the most part this boundary ran through undulating sand dunes as far as El Auja. From El Auja South the country is hilly with complete lack of vegetation. Fortunately this area was still clearly marked by concrete pillars through its entire length to the Gulf of Aguaba and no problems were involved. Our problem then was one of sand.

The Canadian Recce Squadron in whose zone of responsibility this stretch of border ran, informed us that camels would have to be used for transportation. Funds were applied for and provided for the hire of these ships of the desert. The first reconnaissance trip was undertaken by personnel of the Recce Squadron and from their reports it was decided that jeeps would be able to negotiate this terrain. Their appreciation of camels was not very complimentary to this ancient mode of travel. They were unable to decide whether it was more comfortable to walk or to ride due to the ungainly gait of this odoriferous beast of burden. On one point they were in accord and that was that any other means of transport was desirable. Their trip bore fruit of value to us for their camel guides were able to

direct them to stones which they were informed marked the boundary over this particular stretch of sand.

After a few test runs with jeeps it was decided to make a run south along the line of the border. Our vehicles were checked and some spare parts, gasoline and oil were loaded; the tire pressures were dropped to 10 pounds and we were off. Travel by this means proved feasible once we knew what our limitations were. On this trip we examined the stones which had been pointed out as marking the frontier and by compass bearings we were able to establish that most of the old stone cairns which had marked this section of the Frontier could be located. At this point General Burns authorized us to carry out a survey and put values on these old cairns to prove that they did, in fact, mark the Frontier.

One triangulation Station existed, in a partially destroyed condition at Rafah but no second trig could be located to form a base to work from in the Northern section. An air search over the Southern portion disclosed another station but this too was found to be without a mate. The obvious answer was to occupy a trig station in Israel and thus form a base with Rafah trig. The Israel authorities were approached for permission to occupy one of the trigs in the vicinity of the border. After a matter of several days deliberation we were denied the request.

This left us with but one answer. Some form of electronic measuring device had to be used to solve our problem as chaining across undulating desert sand was out of the question. My request to Canada for the loan of tellurometers was granted and after a wait of six weeks we were operational once more.

The tellurometers worked very well and with the exception of having to replace one tube they operated without incident. The tellurometer traverse closed to four metres in the Eastings and eleven in the Northings. Having no knowledge of the absolute values of the trigs used to commence and end this traverse a straight line distribution of the closure error was used.

This survey was not without its moments however. The southerly portion of the line ran very close to the edge of known mine fields. In the immediate area of El Auja an extensive field of 8 kilo (17.8 lbs) plastic mines still exists. These mines have plastic containers and when emptied make a reasonable sewing basket. To obtain one in that area, one only has to ask any young bedouin boy and in exchange for two cigarettes he would run off into the minefield and presently return with the plastic container completely disarmed. One does not mind receiving these mines once they are disarmed but they have an uncanny habit of removing themselves from the minefield and just happen to bed themselves down once more in your wheel tracks. These incidents have been few but on two occasions scout cars have been blown-up, fortunately with no loss of life on either occasion. One game played by the bedouin boys along our route on the frontier was to make the track appear as though a mine had in fact been buried. All precautions had to be taken on these occasions as one never knew just when the game might become serious.

The Northern boundary of the Strip was our next consideration. This was a strip of sand from the railroad to the Mediterranean Coast, seven kilometers in length. Several incidents had taken place here and it was extremely difficult to say where the boundary really went. The Truce agreement gave the value of a point on the railroad and a point on the coast as being the boundary. We traversed from El Muntra trig to establish the point on the railroad and then by bearing and distance laid out a straight line to the point on the coast. Tellurometers were used for distance and we placed seven concrete filled steel drums along this line. These drums were lettered alphabetically and between the drums seven foot iron pickets were driven into the sand lettered and numbered alphabetically and numerically with the letter of the drum and the number of hundreds of metres distant from it in a North Westerly direction. The values of the drums were plotted on the

maps making it very simple to exactly position oneself anywhere along this stretch of boundary.

The rainy season had ended by this time and we were looking forward to our return to Canada and although we had defined the boundaries for purposes of patrolling by the UN no final agreements had been made with the Israeli authorities. A meeting was arranged to once more try for settlement of the disputed points along the ADL. At this meeting we let it be known that values were in hand for the International Frontier and that our tour of duty would soon end with little likelihood of a replacement survey team.

Our seed bore fruit and three consecutive days of meetings were arranged to take place along the ADL. Agreement was reached on all points with the exception of the disputed hill near Khan Yuhis. The evidence was plainly visible on the ground marking the line of the original furrow but the Israelis held firm to the position of the line as it presently exists.

On reporting to General Burns on the success of our meetings it was decided to go ahead with the finalizing of the International Frontier. Reinforced concrete pillars were placed on the site of the old stone cairns which for the most part were intervisible. The Israeli surveyors accompanied us along this line and using a T3 resected the positions of each pillar from trig points known to them in Israel. Some of their sightings being twenty miles. The results were very gratifying for the values agreed to within two metres with the exception of one pillar where the values differed by 9 metres in northings on the initial computations. This was not important as the direction of the line is mainly North South. Our final meeting took place in Tel Aviv on Friday, 13th of March and on Sunday the 15th we were winging our way westward to chillier climes but warmer fellowships.

General Burns being an old surveyor of very high standing and incidentally your speaker's first commanding officer, was formerly Officer Commanding Geographical Section General Staff from 1933 to 1936. In 1936 he received the Order of the British Empire for his research in developing a stereo plotter in conjunction with National Research Council. He served with distinction during the second world war and rose to the rank of Major General.

During his service with the UN he was the first Commander of the U. N. Truce Supervisory Organization and when UNEF was formed he was once more the first Commander.

At present he is once more serving Canada as the head of the Canadian Peace Mission in Geneva.

So it is with considerable pride that we recall that General Burns is a past president of the Canadian Institute of Surveying.

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P. O. Box 1541, Halifax, N. S.

THE LAW AND THE SURVEYOR

By W. Marsh Magwood, Q.C., in *The Canadian Surveyor*

PART FOUR: ALIQUOT PARTS IN ONTARIO

During pioneering times vast areas of land had to be opened rapidly and economically for settlement. As a framework for these operations, township lines, concession lines and some lot lines were surveyed in each township. As these townships were evolved over the years, projected systems were set up governing the methods by which the unsurveyed lots in each type of township should be surveyed when surveys became necessary. Land was then granted within this framework as lots of aliquot parts of lots in a concession, in many cases without survey. Where surveys were made of these grants, the plans were never, and are not today, ratified or confirmed by the Crown, nor were they made of public record. Subsequent conveyances were frequently made by the individual owners by the method of aliquot parts, specified only by area, again in many cases without survey, and, in those cases where the severance was the result of a survey, by plans not ratified or confirmed by the Crown (private surveys).

It follows then that the quantity or extent of an unsurveyed township lot, an aliquot part or a part specified only by area, must vary with the accuracy of the original township and concession outline.

Again, the disappearance of such a large portion of the evidence of these original outline surveys and the establishment over long periods of occupational lines of ownership tend also to increase the confusion regarding the already nebulous definition of lots and aliquot parts unsurveyed in the original township surveys.

Every practising land surveyor in Ontario knows this beyond argument and the practice of conveying land by such means should be avoided in the future.

All the conditions that attended the rapid development of the land and made this system necessary originally have now disappeared. The land is largely settled and has been for a long time, and we have a larger number of surveyors to carry out the necessary surveys.

Particular care should be taken in the Land Titles Office where title is guaranteed. Although area and extent are not the subject of the guarantee, it is well known that for an effective guarantee of title to be given, the extent at least of property must be known accurately, and this can only be attained by survey.

Obtaining a survey, however, is only part of the process. If the description continues to refer to the land as a lot, aliquot part or part by area you are in precisely the same position as before. A new definition of the lot or aliquot part must be made which divorces it from the vagaries of projected methods.

The ultimate requirement in survey, plan and description, to effect this separation efficiently, is the existing registered plan of subdivision, because:

- (a) It is surveyed and defined by monuments;
- (b) Any retracement of the limits thereon must be made entirely on the basis of evidence originally created and no part of the retracement is governed by any projected methods established in the Surveys Act;
- (c) The description of land is reduced to the best form of description, e.g. Lot 1 on plan M-800;
- (d) All land shown is re-identified from original lots and concessions into lots on a plan of record.

We must next examine the registration situation to find out what means are available to the surveyor and landowner to accomplish this separation in the most effective manner.

In the Registry Office there are only two types of plan that provide for the re-identification of land by survey and plan and they are Judge's Plans and Registered Plans for Subdivision.

Once plans of this type are registered, the original fabric of lots or concessions underlying the plans have no further legal effect on the areas within the plans, and whether or not the lots and concession exist in fact or in theory by Surveys Act projection is a matter of no importance, since separation from that system is now complete.

The usual conveyance of land by metes and bounds description, with or without a survey sketch attached to the instrument, achieves nothing with regard to re-identification.

The land conveyed is tied to the lot and concession fabric by usually a single tie. Should the evidence of the survey (if there was one) of the land conveyed be removed, re-identification of the parcel is dependent upon whether occupation fits the deed description, or, if it does not fit or there is no occupation, then upon the tie to the original lot and concession fabric. At this stage the surveyor making the re-definition survey is faced in many cases with the problem of defining a portion of the original fabric, which if done in accordance with the Surveys Act immediately lands him deep in a sea of "if so intended's", "if not so intended's" or a hundred other equally portentous phrases that govern the multitudinous systems of projection.

The land-owner of course is usually disinherited by the survey fees, and any attempt to justify the cost by explaining the operation of the Surveys Act merely lends credence to the current rumor that the terms "surveyor" and "highway robber" are synonymous.

Therefore the land in the description remains part of the original lot and its position is frequently dependent upon the position of the lot corner, which latter position is often variable.

There is little need to expound further the difficulties attendant upon re-definition of many descriptions of this nature existing in both Registry and Land Titles Offices, yet in this day and age we continue to convey land in this manner.

Since registered plans of subdivision provide the best vehicle for conveyancing, it was felt in the Land Titles Office that conveyances of parts of lots within registered plans and parcels of rural land should be made as the result of surveys and plans in a similar manner. Therefore the description reference plan was evolved and is now in constant use. The areas of land to be conveyed are designed as PART 1, PART 2, etc., and the plan is checked, approved and recorded under a number. The description of land thereon is similar to that of a registered plan and conveyancing is in every respect similar.

Separation from the original lot and concession fabric is achieved and resurvey is always a matter of evidence of the first survey rather than projected methods. While the description reference plan is in many instances tied only to adjacent or surrounding surveys of official record, there are times when it must be tied to an original lot and concession. When this occurs, the surveyor is required to show on the plan all the evidence he has found and used in connection with the location of the lot corner and that evidence is checked and approved and automatically becomes of public record with the recording of the plan.

In this manner the re-location of that lot corner becomes a matter of evidence of the previous recorded survey instead of a re-location in terms of projected methods.

The advantages of this plan system on re-survey is at once obvious as compared to the metes and bounds method of conveyancing in that the metes and bounds description cannot give a real picture of the evidence found and created by the surveyor and in practice seldom attempts to do so, while the plan shows all such evidence and is capable of more faithful re-location at a later date.

The situation existing today in this province resolves itself into this: all patented lands registered as lots or aliquot parts represent unknown quantities of land and are therefore potentially dangerous to any system of titles.

In the Land Titles Office our policy is directed at correcting this situation by observance of the following two principles:

(a) In future dealings in lots or aliquot parts, the lots or aliquot parts will whenever possible be surveyed and a new description will be made, reflecting the plan and survey only, thereby alienating the land from its original definition and recording its true extent.

(b) Registration of any further land patents described as lots or aliquot parts will be refused unless surveyed by modern approved methods and unless the descriptions reflect those surveys and plans.

PART FIVE: BOUNDARIES

Retracement of Boundaries

That aspect of survey law that deals with the retracement of boundaries shown on plans or described in deeds has always caused a certain amount of difficulty, possibly because rules have not been set up by any government agency charged with the administration of law, titles, or survey.

For guidance we must look to previous court decisions; we must analyze each according to the particular circumstances of the case, and formulate general rules to work by in similar circumstances.

A common question is "under what circumstances may courses in a deed be varied by extrinsic evidence?"

The question, of course, presupposes that the physical evidence on the ground does not conform to the courses in the deed, and the general rule is as follows: If the deed refers to (a) physical features, monuments, fences, or (b) plans attached to the deed, or a survey of the particular parcel concerned, the existence of whatever evidence remains to be found of those surveys, physical features, etc., will constitute the governing factors of a retracement of the boundaries of the deed.

The following extracts from the Canadian Encyclopaedic Digest will indicate the basis for this rule.

"**AMBIGUITY IN DESCRIPTION OF BOUNDARY.** The general rule to find the intent where there is any ambiguity in the grant, is to give most effect to those things about which men are least liable to mistake. On this principle, the things usually called for in a grant, that is, the things by which the land granted is described, have been thus marshalled; first, the highest regard had to natural boundaries; secondly, to lines actually run and corners actually marked at the time of the grant; thirdly, if the lines and courses of an adjoining tract are called for, the lines will be extended to them, if they are sufficiently established; fourthly, to courses and distances, giving preference to the one or the other according to circumstances."

"In an action of ejectment, it appeared that a certain beech tree mentioned in defendant's deed as a bound gave him about 11 chains more on his Eastern line than his grant mentioned, but it was found by the jury to be the natural boundary of his lot. Per Dodd, J.: 'Adopting the principle that the highest regard is to be had to natural boundaries, we must find some means, if the corner of the grant at the extent of 53 chains from the eastern corner of the lot will not strike the beech, either to alter the course or extend the line from the 53 chains until the course in the grant will go to the beech . . . Kent in his Comm. 4th vol. p. 466 says: 'In the description of the land conveyed, the rule is that known and fixed monuments control courses and distances, and where natural, and ascertained objects are wanting, and the courses and distances cannot be reconciled, the one or the other may be preferred according to circumstances.'"

Further extracts from the same source are of interest to surveyors.

"DESCRIPTIONS BY REFERENCE TO BOUNDARY MARKS. When plans and monuments as well, are mentioned in a grant, or the latter are marked on a plan attached to such grant, it is the duty of the Court in construing the same, to give full effect if possible to all that is so written or delineated. Having regard both to the description set out in a grant as well as to an attached plan in all its particulars, precedence is to be given to monuments laid down on the ground, if the plans and monuments mentioned or shown as aforesaid do not coincide in meaning. However, where no monuments are referred to, the limits of the land conveyed must be determined by the courses and distances stated in the grant."

"DESCRIPTIONS BY REFERENCE TO PLAN. Where reference is made in the description in a deed to a plan attached, the interpretation to be given to the description must be one that accurately fits and describes what is to be found in the plan."

NATURAL BOUNDARIES

Navigable Non-Tidal, Inland Waters

There is a great deal of doubt and uncertainty existing, in this province at least, as to the precise legal interpretation of the terms commonly applied to natural boundaries of navigable non-tidal bodies of water, viz: *shore, high water mark, bank, margin of the water and water's edge.*

The reason for this uncertainty may well be attributed to the fact that the case of *Parker v. Elliott* (1852) 1 U.C.C.P. 471, 491, (C.A.) has been widely quoted as defining the term "bank" to mean "high water mark" and that few people have bothered to find out what "high water mark" means.

Parker was the riparian owner of Lots 22, 23 & 24 in the 1st Concession of Pickering Township, which parcel was described in the Crown Grant as "Commencing within one chain of the S.E. angle of Lot 25 on the bank of Lake Ontario." Thence passing around the property and concluding "along the bank of the lake to the place of beginning."

In an action of trespass, while plaintiffs did not have a good paper title, it appeared their possessory title covered the land described in the Crown Grant as extending to Lake Ontario and along the bank of the lake.

The land in dispute was a strip of land about 4 chains wide which crosses in front of the lots and separates the waters of Lake Ontario from a sheet of water within, known as Frenchman's Bay, which strip, plaintiff contended, formed part of the lot. Chief Justice Macaulay, in delivering judgement, says inter alia, that "the bank as intended in the patent must be taken to mean the land line defined by the high water mark." Justices Sullivan and Maclean concurred in the judgement, although differing in opinion as to the employment of "high water mark" as the definition of "bank".

The following foot-note to the case correctly sums up the nature of the noted differences in opinion: "McLean, J., differed from Macaulay, C. J., as to the question of high and low water mark, he agreeing with Sullivan, J., that a *distinction of high or low water could only be drawn where tide exists, and not in inland waters of this province.*"

As opposed to the interpretation of "bank" as "high water mark", by Macaulay, C. J., in 1854, there are the following more recent cases which give a very clear interpretation of the terms commonly applied to natural boundaries:

(a) *Caroll v. Empire Limestone Co.*, (1919) 45 O.L.R., 121, 48 D.L.R. 44 (C.A.). "Held, the boundary of the land described in the Crown patent was the water's edge or the low water mark." "The land as granted by the Crown was described as extending to the bank of Lake Erie and as running along the bank."

(b) *Burke v. Niles*, (1870) 13 N.B.R. 166 (C.A.). The Crown grant was described as being bounded by a line running along the bank or edge of the lake. Held, "the intention of the Crown was that the lake should be one of the boundaries, and the word "bank" was equivalent to "margin of the lake," so that the grant extended to the water's edge and there was therefore no strip left ungranted between the margin of the lake and the top of the bank."

(c) *Williams v. Pickard* (1908) 17 O.L.R. 547, reserving 15 O.L.R. 655 (C.A.). The description in a grant of land adjacent to a river set out as one boundary a course running "along the bank with the stream." Held, "the description in the deed must be taken to include all the land to the water's edge." Per MacLaren, J. " 'Bank' is defined in the Oxford dictionary as the shelving or sloping margin of a river or stream; the ground bordering upon a river; in the standard dictionary as 'the land at the edge of a watercourse'; and by Callis on Statutes of Sewers (1824) p. 90, as 'the utmost border of dry land.' " In *Hindson v. Ashby* (1896) 1 Ch. 78, at p. 84, 65 L.J. Ch. 91, 21 Mews 615, Romer J. adopts the words used in an American case that "the banks of a river are those elevations of land which confine the waters when they rise out of the bed'.

(d) *Stover v. Lavoia* (1906) 8 O.W.R. 398, affirmed 1907, 9 O.W.R. 117 (C.A.). Held, "the limit of plaintiff's land was the edge of the water in its natural condition at low water mark," in the case where "the plaintiff's land extended to the shore of Lake St. Clair."

These cases indicate the synonymy of the terms, *line of the shore*, *line of the bank*, *margin of the water* and *water's edge*, which are one and the same in the legal interpretation of a line of demarcation.

Any of the above four terms may be found in the construction of a grant and it is to this construction that a surveyor must adhere and apply his knowledge and training in finding the physical limit on the ground that has been specified by the grant.

Since the courts have so clearly stated that in inland non-tidal waters all these terms have the same meaning legally, it behooves us to read the cases and find out which, if any, trouble to define the terms in those physical aspects that are familiar on the ground, to surveyors.

In *Stover v. Lavoia*, the judgement was, where plaintiff's land by grant extended to the shore of Lake St. Clair, that "the limit of plaintiff's land was the *edge of the water in its natural condition* at low water mark."

Callis on Statutes of Sewers defines "bank" as the "utmost border of dry land".

In *Howard v. Ingersoll*, 13 Howard 381, Curtiss, J. states, "The banks of a river are those elevations of land which confine the waters where they rise out of the bed; and the bed is that soil so usually covered by water as to be distinguishable from the banks, by the character of the soil, or vegetation, or both, produced by the common presence and action of flowing water. But neither the line of ordinary high water mark, nor of ordinary low water mark, nor of a middle stage of water can be assumed as a *line dividing the bed from the banks*. This line is to be found by examining the bed and the banks and ascertaining where the presence and action of water are so common and usual, and so long continued in ordinary years, as to mark upon the soil of the bed a character distinct from that of the banks, in respect to vegetation, as well as in respect to the nature of the soil itself."

It should be noted that the description of "bank" given in the opening phases of this judgement is the physical description of a bank, not the legal interpretation of that word as a boundary line. The legal line of demarcation is to be found in the words "*a line dividing the bed from the banks*" and Curtiss J. goes on to describe those physical evidences which are to be sought in defining that line.

In a grant of land the parcel was described as extending "to within one chain of the Niagara river," the strip so reserved being intended to be used as a road.

It was held, *the strip should be measured from the water's edge*, and not from the top of the river bank, even though such construction might have the result that the clear strip from the river bank was too narrow to serve adequately as a road allowance.

In summation therefore we find that the terms *shore, bank, margin of the water* and *water's edge*, applied to navigable, non-tidal bodies of water, are synonymous as lines of demarcation and that the physical evidence to be sought in defining these lines may be described as follows:

- (a) Edge of the water in its natural condition.
- (b) Utmost border of dry land.
- (c) A line dividing the bed from the banks.
- (d) The water's edge.

(e) An over-riding condition throughout that such lines of demarcation must be related to or governed by the water, (i) In its natural condition, (ii) Where its presence and action are common and usual in ordinary years.

Particular attention should be paid to (e) above, in view of the fifth term sometimes applied to a natural boundary, hitherto not mentioned, and now to be discussed. This is the term "high water mark", which, in the opinion of Justices McLean, J., and Sullivan, J., in *Parker v. Elliott*, should not have been employed in the inland waters of Ontario. Be that as it may, the provincial government does now employ this term in connection with the patenting of land, as a rule rather than as an exception, and we must know what is intended in its legal and physical sense.

Since no statute defines this term we must fall back upon precedent. A perusal of case-law in connection with littoral owners shows that land bounded by the tidal waters of the sea, river or harbour and variously described in grants as being bounded actually by the sea, river, harbour, shore of the river or the high water mark, the line of demarcation to be used is the *ordinary high water mark*. This line has been variously described in case-law as the *usual high water mark* and the *customary high water mark* and is to be taken as the "medium high tide line, between the spring and the neap tides.

Therefore the term high water mark is properly applied only where the lunar cycle of tidal action occurs with such regularity as to enable a continued and ever recurring difference between high and low water mark, and the courts have established that high water mark shall mean the *ordinary, customary or usual high water mark*.

On the other hand in inland non-tidal waters, while conditions of high and low water exist, the causes thereof are not the same. They are not regular nor are they the result of the lunar cycle. In fact they result from floods, freshets, storms and winds and are unpredictable beyond the cycle of such of them as may be endangered by the annual freeze-up and thaw.

In considering the term *high water mark* in inland, non-tidal navigable waters, the matter is put very clearly in *Plumb v. McGannon* (1871) (32 Q.B. 8) where Mr. Justice Wilson states, "The true limit would appear to be by analogy to tidal waters, the average height of the river after the great flow of the spring has abated, *and the river is in its ordinary state.*" He stated also that "the great flow caused by the melting of ice and snow, and by the spring rains, or by other unusual floods or causes, is to be excluded in the determining of high water mark."

If you will now refer back to where we determined the line of demarcation of shore, bank, margin of water and water's edge you will recall the conditions of the water were stated to be

- (i) In its natural condition,
- (ii) Where its presence and action are common and usual in ordinary years.

It is at once clear that the conditions there are the same as those stated by Mr. Justice Wilson as necessary to determine "high water mark".

To the four previous terms applied to natural boundaries we may now add "high water mark", which in its legal and physical interpretation is precisely one with the rest, and the judgement delivered by Chief Justice Macaulay in *Parker v. Elliott* thereby becomes understandable and in accordance with prior and subsequent judgements.

Non-Navigable, Non-Tidal Inland Waters

Under S. 1 of R.S.O. 1897, c 111, in all matters of controversy relative to property and civil rights, resort is to continue to be had to the laws of England as they stood on the 15th of October, 1792. By those laws where title to non-tidal rivers is in question there is a prima facie presumption that the grant of lands on the border of the stream carries with it the ownership of the bed to the middle thread of the stream unless there is something in the body of the grant which limits its boundary to the water's edge, and subject also to any public rights of navigation.

This common law presumption of ownership *usque ad medium filium aquae*, was upheld in the case of *Keewatin Power Co. v. Kenora* (1908) 16 O.L.R. 184, varying 13 O.L.R. 237, despite the fact that the river concerned was the Winnipeg river and navigable.

It was held "the presumption of the English Common law was only a presumption of fact, and might well be rebutted, for example, in the case of the Great Lakes and rivers forming part of the International boundary line, by reason of their size and extent; but the river in question was no larger than many rivers in England and Ireland to which the rule had been applied, and so the rule should here be applied."

As to this decision, legislation was brought into effect reversing the Court of Appeal. This legislation in 1911 is now known as the Bed of Navigable Waters Act and states that where land bordering on a navigable body of water or stream had been heretofore or might thereafter be granted by the Crown, it should be presumed, in the absence of an express grant of it, that the bed of such body of water or stream was not intended to pass to the grantee of the land and that the grant should be construed accordingly and not in accordance with the rules of English Common law.

This therefore leaves the application of the *ad medium filium* rule to inland, non-tidal, non-navigable bodies of water.

Navigable and Non-navigable Waters

Since riparian ownership is limited to the water's edge in navigable waters and extends to the centre thread of the stream in non-navigable waters, it is necessary to determine in many instances when a body of water is or is not navigable.

In such cases navigability is at times a matter of considerable difficulty to determine and there is no statute for guidance. It may be said to be a matter of fact and not of law. Where considerable doubt exists as to the de facto navigability of a body of water, resort must be had to the courts for a decision.

Inquiries have been instituted with the Federal Department of Public Works which administers the Navigable Waters Protection Act, but the officials charged with the administration of this Act declined to assume any responsibility whatsoever as to the navigability of any given body of water, other than those well known to be navigable.

Inquiries with the Department of Lands and Forests (Ont.), charged with administration of the Beds of Navigable Waters Act, elicited much the same response, although this department issues licenses of occupation or permits for the crossings of navigable waters by pipelines, etc. Presumably therefore this department will give decisions and issue permits for such crossings.

There are however certain interesting cases on navigability and they should be referred to.

In *Dixon v. Snetsinger*, 1873, 23 U.C.C.P. 235, Mr. Justice Gwynne decided that in order to determine whether a certain stream is navigable or not, we must consult the Civil law, and not the Common law of England.

This Civil law was the law in force before the conquest of Canada from the French, and was in general replaced by the Common law of England. The following is taken from a decision in *Gage v. Bates*, 1858, 7 U.C.C.P. 116: "Navigable rivers, in the language of the Civil law are not merely rivers in which the tide flows and re-flows, but rivers capable of being navigated; that is navigated in the common sense of the term."

In *Atty. General v. Harrison*, 12 Chy. 470, the Syderham River is decided to be a navigable stream, although at the time obstructed by fallen trees and sunken logs.

In *Dixon v. Snetsinger*, a channel of the river St. Lawrence was extremely rapid, but small Canadian boats, 25 feet long, used to pass up, being drawn through the rapids by men with cables. This was held to be a navigable river.

It would therefore seem that a navigable stream in Canada is one actually navigable by boats or vessels used in the prosecution of commerce.

Accretion and Erosion

It is a rule of law that, where an accretion or erosion takes place gradually and imperceptibly, the title to land is added to or diminished as the case may be.

Conversely, if the water suddenly recedes from or encroaches upon the land, the title is not affected.

It would be a comparatively simple matter to correct title for an accretion, but care should be exercised by surveyors in the case of rivers and streams. In certain cases where the accretion goes beyond the former middle line and indeed beyond the former opposite bank, the surveyor should show on his plan the position of the former middle line and the opposite bank, because it will be necessary to adjust the title also of the owner across the river. If this were not done, titles would be issued twice to the same area of land.

The application of the law of accretion and erosion is of particular interest where road reserves along the banks and shores of rivers and lakes are concerned.

In the case of *Doe d. McDonald v. Cobourg Harbour Commissioners* (1844) Rob. and Jas. Dig. 3936, Rob. & Har. Dig. 148, defendants were Harbour Commissioners for the Town of Cobourg, situated on Lake Ontario, and as such they had erected a wharf and completed other harbour works. As a result of this work, a considerable alluvial deposit had accumulated in front of plaintiff's land which was near to the end of the street.

It was held, on the question of accretion, that the alluvial deposit created an addition by so much to plaintiff's land.

Per Patterson J., "A lot which, in the original survey, is bounded on the lake, will have the lake for its boundary, though the water may have encroached upon it or gradually receded; and the same rule must apply to allowances for road which are parts of the territorial divisions of the country just as lots are."

Where land is conveyed by a grant which extends along the shore of Lake Ontario, and a beach is formed by accretion so that there is a strip of land between the line of the shore at the time of the grant and the line of the shore at a subsequent material time, the owner of the land granted is entitled to the strip of land.

With respect to the division of accreted land between adjoining riparian and littoral owners, there does not appear to be any case law, at least in this province.

However, in *Batchelder v. Keniston* (Amer. Rep. 12, p. 143) the following rule

was observed: "Give to each owner a share of the new shore line in proportion to what he held in the old shore line, and complete the division of the land by running a line from the bound between the parties on the old shore to the point thus ascertained on the new."

This rule was followed in *Riddiford v. Feist* (1902) 22 N.Z.L.R., 5 G.L.R. 43, and seems to be a just and equitable rule.

LEGAL CASES CITED

- 1 *Grasset vs. Carter* (1884) 10 S.C.R. 105, at 114 & 115.
- 2 *Wolverton vs. Clarke* (1825) N.B.R. 453 (CA). Canadian Abridgements, p. 1147.
- 3 *McIsaac vs. McKay* (1916) N.B.R. 476, 27, D.L.R. 184 (C.A.). Canadian Abridgements, p. 1198.
- 4 *Home Bank vs. Might Directories Ltd.* (1914) 31 O.L.R. 340, 20, D.L.R. 977 (CA).
- 5 *McPherson vs. Cameron* (1868) 7 N.S.R. 208 (C.A.) Canadian Encyclopedic Digest, p. 427, 428.
- 6 Canadian Abridgements, p. 1168.
- 7 *Landry vs Landry* (1920) 48 N.B.R. 47. Canadian Encyclopedic Digest, Vol 2, p. 431.
- 8 *Blank vs Romkey* (1913) 47 N.S.R. 127. Canadian Encyclopedic Digest, Vol. 2, p. 433.
- 9 *Stanton vs. Windeat* (1844) 1 U.C.Q.B. 30 (CA).
- 10 *Turnbull vs Saunders* (1921) 48 N.B.R. 666 (CA).
- 11 *Buck vs Cobourg & Peterborough Rly.* (1854) 5 U.C.C.P. 552 (CA).

PROFESSIONAL EXAMINATIONS FOR NOVA SCOTIA LAND SURVEYORS

By Major A. H. Church, P.L.S.

FORBEARANCE of many of our members is asked in advance for ideas contained in the paper and for the numerous omissions, errors, and the idiosyncrasy of the writer. Resulting from the incorporation of our Association in October of 1959 each member is faced with the inescapable obligation to consider and take part in the decision of how to improve our standards of work in the responsible position in which we have been placed by the Government of our Province and we must admit that only too many of us have left this onerous work to our Council, the several Committees, and the Board of Examiners appointed by the Council.

In the pre-incorporation period the administration of the body of Provincial Land Surveyors was left to the Board of Examiners which of course, as several of our members have pointed out, was an unworkable scheme but our mental outlook appears to be unchanged. In the initial stages it is important that members of Council and Committees be readily accessible and therefore members resident in the metropolitan area. This has thrown an intolerable burden on Council. Many members are serving on three or more Committees and one hears occasionally murmurs of cliques—this may be inevitable but surely it is unwise and without any warrant in fact.

The hope is that this paper be published in the Nova Scotian Surveyor prior to the Annual Meeting of 1961 and that it may occasion discussion and volunteering by members to serve on Committees so that members of Council do not have to serve on several Committees and adjudicate upon the findings which they have

already formulated; such procedure inevitably may occasion the criticism that the Association is ruled by cliques. After this preamble let us get down to the basic consideration of what sets the standard for national recognition of any Professional Association and that can be purely the standards of our field and office techniques and the content of our examination papers for admission to full membership in our Association.

Improvement in our field and office techniques would appear to be contingent upon the setting up of an adequate Land Title Registry system directed by a Master of Titles with power to check all plans, descriptions and, if necessary, Surveys submitted for registration; this vital need must await the setting up of a Co-ordinate System for the Province. This is a matter out of our jurisdiction. It can be done only by the Provincial Government, all we can do at the moment is to make representations to the Government and endeavour to arouse public opinion to the necessity for the change.

The second basic requirement, however, is within our power. Our avowed policy is to improve, over a period of from six to ten years, our standard of education and examination. If this be done we shall be in a better position to take advantage of the Land Title Registry system which we hope will be instituted to the profit of the Province in general and ourselves in particular.

EXAMINATIONS

Our Association has adopted the modified Holloway Report as the standard for training and examinations of our "Students-in-Training" but the Holloway Report envisaged a minimum articulated pupilship, or apprenticeship, which we have rejected. Under the Holloway Report there exists a moral obligation on the Land Surveyor to aid his articulated pupil in some degree, in his study of the theoretical aspects of his education. With us the Land Surveyor hires the Student-in-Training for such periods as may be requisite for the Land Surveyor — we envisage the student-in-training the requisite statutory period under one or more Land Survivors. It would appear to be the function of our Association to insist upon an examination in which all papers are of a strictly practical type — that means that instead of questions illustrative of the mathematical principles involved they should be practical examples encountered in the field, which can be solved only through knowledge of principle involved and should be so drafted that the method of solution conform to one susceptible of check and agreeable to good practice in the profession.

The next problem is where we can get some Provincial Land Surveyors Examination papers for guidance along these lines. One may concede that the three Prairie Provinces have a standard grid system and therefore their experience is somewhat different from ours. New Brunswick is only just emerging from the dark ages of survey, all honor and congratulations to them, so we are bound to look for guidance to British Columbia and Ontario for conditions in anyway comparable to our own. Quebec being bilingual and well organized is in a category of its own.

The examination papers which will set our standard of work and determine the status of our Association throughout Canada are those on Mensuration, Curves, Legal and Field Astronomy. In either of the two Provinces selected the questions set are from actual problems encountered in the field and can not be solved without a thorough grasp of the mathematical principles involved. In both Provinces great stress is placed upon method of presentation and the English used.

Once we have this vital problem of content of examination settled it is hoped a larger number of our members will be habituated to the idea of taking part in the business of the Association and we can then proceed to the preparation of such brochures as are necessary for the guidance of all of us along the path of progress determined by Council from the deliberation at the Annual Meetings.

Surveying Helps In Court Decision

Nova Scotia

S. C. No. 4863

IN THE SUPREME COURT

Between:

J. STANFORD FRASER

Plaintiff

SCOTT CANADIAN TIMBERLANDS LIMITED (a body corporate)

Defendant

Parker, J.

The plaintiff brings this action to recover damages from the defendant resulting from the partial demolition of a cabin belonging to the plaintiff. The cabin was located on an island in Governor's Lake, a fresh water lake in Halifax County, or on a peninsula surrounded on all sides by the water of Governor's Lake except where it is connected by a narrow isthmus some 12 or 15 feet in width with the mainland.

It is admitted that the plaintiff was at all material times the owner of the cabin which I find was personal property. It is also admitted by the defendant that it, by its servants and agents, partially demolished the cabin during the month of April 1959. It is also admitted that the plaintiff has no documentary title whatever to the land on which it stood. The location of the land on which the cabin stood is shown on two plans (Exhibits M/1 and M/B) which were placed in evidence primarily for the purpose of showing the general location of Governor's Lake, and they have little, if any, probative value for the determination of the issues which must be decided.

The plaintiff's contention is that the land on which the cabin stood was an island and that the island was Crown Land and that he had verbal permission from the Minister of Lands and Forests for the Province of Nova Scotia to enter on the island and erect and occupy the cabin, and that the defendant had no legal right whatever to demolish it or to interfere with his use of it.

The defendant's contention is that the land on which the cabin stood was a peninsula and was included in and formed a part of a tract of land containing 500 acres more or less that was granted by the Crown to one Thomas Rayne by Grant dated the 23rd day of August, 1864. It is admitted that by subsequent conveyances the land thereby granted was at all times material to this action vested in the defendant. The lands are described in that grant as follows:

"That certain lot of land in Halifax County described as follows:

BEGINNING at the southeastern angle of Thomas Bayne's land and Lake Mulgrave in the District of St. Mary's, THENCE running north twenty-seven degrees east seventy-five chains; THENCE south sixty three degrees east sixty chains; THENCE south forty-seven degrees west seventy-five chains; THENCE north seventy-three degrees west fifteen chains; THENCE south eighty-five chains; THENCE west twenty chains to a marked pine tree on the eastern shore of the Lake; THENCE northerly by the Lake to the place of beginning containing 500 acres more or less.

For the purpose of this action it is only necessary to consider the last two boundaries of the land there described, namely:

"THENCE west twenty chains to a marked pine tree on the eastern shore of the Lake; THENCE northerly by the Lake to the place of beginning containing 500 acres more or less."

The question I must first determine is whether the boundary from the "marked pine tree on the eastern shore of the Lake" to "the place of beginning" cuts across an isthmus, and thus excludes from the lands granted the area on which the cabin stood, or whether it follows the southern side of an isthmus and thence around a peninsula and the northern side of the isthmus thus including the area on which the cabin stood in the lands granted.

There was placed in evidence a number of photographs of the area between the "island" (as I shall hereafter call the area on which the cabin stood) and the mainland for the purpose of showing whether that area was in fact an "isthmus" or a shallow "channel". Some of these photographs were taken at various locations by the photographer standing on the ground; others are aerial photographs. All of them were taken quite recently and none of them purport to show the condition of the area between the island and the mainland as it existed on April 23, 1864, when the grant to Thomas Bayne was issued. I must construe the description in the grant in the light of the conditions as they existed at that time unaffected by the rise or fall of the level of the water in Governor's Lake as a result of two dams that were constructed in 1912 and in 1923 respectively at the southern outlet of the waters of the Lake.

The expression "to a marked pine tree on the eastern shore of the Lake" must be construed as to mean "to the edge of the Lake", that is to say, to the water at a point opposite the pine tree when the water would be at its lowest level, unaffected by any artificial obstruction to the natural outlet of the Lake. I am of the opinion and so find that the expression "thence northerly by the Lake" fixes that boundary along the water's edge at its lowest level. *Rush v. Niles*, 13 N.B.R. 166; *Carroll v. Empire Limestone Company*, 45 O.L.R. 121.

The defendant, in order to escape liability for the damage which it admits it did to the plaintiff's cabin, must show that the land on which the cabin stood was included in the Thomas Bayne grant and to do that it must show that the last boundary in the description of the land thereby granted did not cut across an "isthmus" or, in other words, that the cabin stood upon a "peninsula" which was included in the Thomas Bayne grant.

The plaintiff placed in evidence Exhibit M/1 which is an index sheet from the Crown Lands office and six photographs, Exhibit M/2 to M/7, both inclusive, and Exhibit M/11 — a record of measurements of water depths between the mainland and the island, and Exhibit M/2 — a record of measurements of water depths at 50 feet and 100 feet respectively above the dam which had been created at the southern end of the Lake in 1923 by the Nova Scotia Power Commission. The dam was erected at the same site of a previous dam which had been erected in 1912. These measurements were made and the depths were recorded on those Exhibits by Hugh Thomas MacDonald, a farmer and lumberman who was called as a witness on behalf of the plaintiff and who testified as to when and how the measurements were made. Another witness called on behalf of the plaintiff was James H. MacLean. His testimony is in my opinion of little, if any, value. The plaintiff also testified on his own behalf. He had been familiar with the area between the island and the mainland only since 1950 and had no knowledge of the conditions there prior to that date. He also testified that in 1957 before he erected the cabin, he applied in writing to the Department of Lands and Forests for permission to erect it and obtained from the then Minister of Lands and Forests verbal permission to do so. No witness who testified on behalf of either party purported to have any exact knowledge of the nature of the area in question at the time the Thomas Bayne grant was issued on August 23, 1864.

The defendant placed in evidence the following Exhibits: M/A, An abstract of defendant's title to the lands described in the Thomas Bayne grant; M/B to M/I (Both inclusive), Being letters to and from the plaintiff or his agent and officials or employees of the defendant. M/J to M/ (Both inclusive), Being photographs of the area between the island and the mainland. M/T to M/Z and M/AA, Being aerial photographs of the area in question. M/S, A statement of admitted qualifications or Professor H. L. Cameron, Professor of Geology at Acadia University, who testified as an expert witness on the interpretation of aerial photographs. M/BB, A profile of the area in question. M/CC, A sketch of the area in question. M/DD and M/EE, Photographs of the area in question.

In addition to Professor Cameron, the following witnesses were called on behalf of the defendant:

Vincent P. Harrison, Director of Crown Lands, who testified as to the construction of the two dams previously mentioned, and concerning the application made by the plaintiff for permission to erect the cabin.

Frederick A. Baird, Superintendent of the Sheet Harbour Division of the Nova Scotia Power Commission, who testified concerning the extent that the level of the water in the Lake was raised above its natural lowest level by reason of the construction of the two dams. Although he was unable to say how far the bottom of the dam was above or below the natural bed of the outlet, he expressed the opinion that the dam raised the general level of the water to at least 8 feet.

Vincent Clarke, a Provincial Land Surveyor and an employee as Forester of the defendant. He, accompanied by Charles Lawrence, a Forest Ranger employed by the defendant, proceeded to the area in question on December 17, 1958, when there was approximately 7 inches of ice covering the surface of the Lake. Together they measured the depth of water at various points within or near the area in question, as indicated on Exhibits M/BB and M/CC. The greatest depth of water, that is, the vertical distance from the top of the ice to where bottom was struck, was 42 inches. The depths at other points where measurements were taken varied from 42 inches to 8 inches.

Robert Murray, the Resident Manager of the defendant, who testified concerning his attempts to induce the plaintiff to sign a lease from the defendant to him of the area where the cabin was built and which the plaintiff refused to sign. He also testified as to the condition of the area in question when he went there on September 28, 1959 and took photographs of the area, which photographs include Exhibits M/J, M/K, M/M, M/DD, M/EE and M/Q.

I do not think it necessary to state in any greater detail the evidence before me, all of which I have carefully considered. Although there is no direct evidence before me as to the condition of the area in question at the time the Thomas Bayne grant was issued, there is a great preponderance of evidence from which I must infer that the general level of the water in the Lake was raised between 5.9 feet and 8 feet by reason of the construction of the dam by the Nova Scotia Power Commission in 1923. I am convinced that if the dam were removed and the water allowed to flow from the lake through the natural outlet, as it undoubtedly did at the time the Thomas Bayne grant was issued, the area in question would be an "isthmus" and not a "channel". It follows that I must and do construe the description of the land granted to Thomas Bayne as including the area on which the plaintiff erected the cabin. In erecting it and occupying it as he did, he was a trespasser on lands owned by the defendant and when the plaintiff refused to sign a lease from the defendant to him and refused to vacate the cabin, the defendant was justified in doing what he did.

The action will be dismissed with costs.

Objectives of Colloquium

Like most other associations dedicated to the advancement of knowledge, the Canadian Institute of Surveying has well defined objectives. These are:

(1) To promote professional interest in surveying (including photogrammetry) and to enhance the usefulness of this profession to the public.

Since a prime objective of our Institute is to advance survey knowledge amongst its members, it is surprising that for many years no effort was made to formalize an educational committee. A few years ago, however, it became evident that there was a need for such a group to study survey education. This committee has met with some success in promoting papers on the subject, a number of which have been published in our Journal, *The Canadian Surveyor*. Meanwhile studies of survey education have been made by a number of provincial survey associations. In my presidential address last January I made the following statement: "It is obvious that insufficient emphasis is being given to the training of surveyors and this is particularly unfortunate at a time of great expansion of our economy. A lack of properly trained surveyors has caused a number of delays and costly mistakes and will continue to do so until the training of surveyors catches up with the ever-increasing demand for their services". And later I said, "We should keep preaching the requirement for more emphasis on education for surveyors and try to resist the present trend of universities to reduce the amount of surveying taught in connection with engineering courses. More positive action than this is necessary, and I would suggest that all Canadian survey associations get together and form, say, an 'Educational Council'."

It was not too surprising that Mr. Armand Dumas appointed me chairman of the Educational Committee. My predecessor in this office, Mr. Angus Hamilton who, for the benefit of those who do not know him, is something of a live wire, had sparked the Educational Committee into taking rather more than a passing interest in their work. He had planned, in conjunction with our Editor, Mr. E. J. Jones to devote one issue of our Journal to articles dealing with survey education. On taking on this assignment I half promised Mr. Hamilton to carry through his suggestion. However, it did seem as though the readers of our Journal were already aware of the need for better survey training, and if we merely produced more papers having the same general theme we would accomplish but little. What we really wanted to do was to get together with our sister associations and the universities to discuss survey education with them, and so my Committee suggested a national colloquium on survey education. This proposal received an encouraging response from surveyors and educators and our Institute decided to proceed with the arrangements for this meeting.

The Committee is gratified with the excellent representation here today from the universities, the provincial survey association, the provincial governments, the Federal Government and industry. We are also pleased to have with us several prominent surveyors and educators of surveyors from the United States, and Professor Thompson of London, England. We hope that they will feel free to take part in our discussions and I know they will have much good advice to give us.

I am sure that the reasons for this Colloquium are well known to all of us gathered here today. I shall define them as follows:

(1) To examine the national need for surveyors and the type of work that they are at present doing and that they may be required to perform in the future.

(2) To carefully examine the training now being given at Canadian universities in order to determine whether Canadian undergraduates are being provided with the fundamental knowledge required to effectively pursue the survey profession.

(3) To attempt, should present training seem inadequate, to develop interest in progressively improving survey training at Canadian universities.

However, whether we accomplish much or little of these objectives, the very fact that we have been able to get together to consider survey education is an achievement of no small significance.

The first part of the meeting will be devoted to the study of the national requirements for properly trained surveyors. Mr. Angus Hamilton will be reporting his findings on this matter. His statements will be amplified by others reporting the needs of private practice, the provincial and federal governments, and private industry, and from these reports I am sure you will be able to get a picture of the type of training the surveyor should have, as well as an estimate of the numbers required. Later Colonel C. H. Smith will summarize the opinions expressed.

The second part of the meeting will be devoted to a review of surveying as at present taught in universities. I think I can already say that, by comparison with what is done in other countries, Canadian survey training does not have a very creditable rating, but this you will judge for yourselves. Following the discussion, Dr. L. E. Howlett will summarize and present some of his views on the surveyor and survey education.

In part three of our sessions, which commences Friday morning, we shall ask the representatives of universities to state their views. I hope they will take full advantage of this opportunity and I am sure that under the able chairmanship of Professor Thompson, assisted by Professor Jackson and Dr. Howlett, it will prove to be a very stimulating session.

We hope that, at the conclusion of these two days of study, we shall have a much clearer picture of the dimensions of the problem of properly educating the surveyor for the formidable role facing him in the orderly development of our country. We have a committee to summarize our findings and this summary will be presented at the final session. Anyone who does not agree with the findings may say so at that time.

It is not our intention to encourage every university to set up a four-year degree course in surveying. Frankly we do not think there will be enough students for such an ambitious educational program. We do, however, think that the time has come for some universities to plan a degree course in surveying. Just what the surveyor should be taught is for the universities to decide, for after all they are the experts in education. If we can arrive at the numbers needed and the type of work the graduates will be called upon to do, I am sure the university experts can design the course.

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