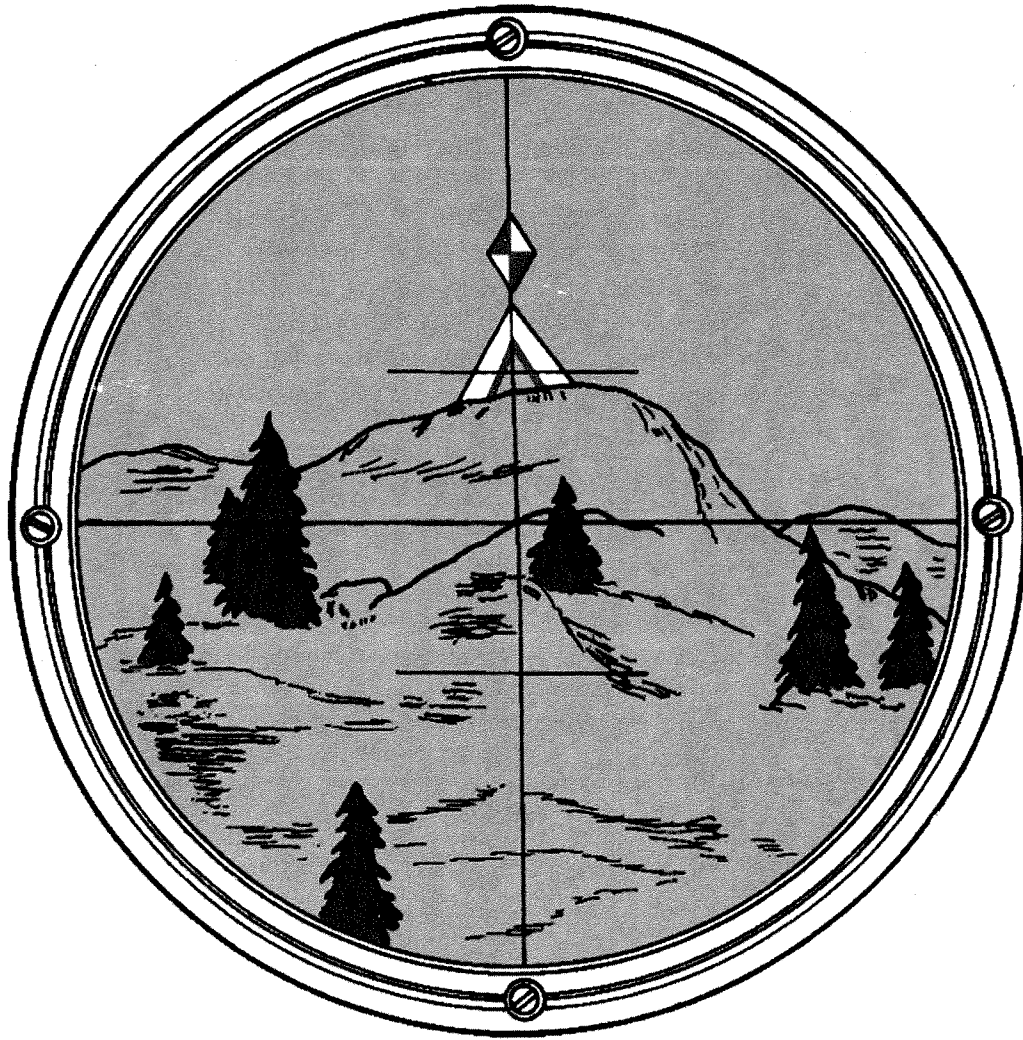


The Newfoundland Surveyor

History of Surveying in Newfoundland
and
History of the Association of Newfoundland
Land Surveyors to 1974



Association of Newfoundland
Land Surveyors
1953 to 2003

2002 - 2003

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The Newfoundland Surveyor

The History of Surveying in Newfoundland and the History of The Association of Newfoundland Land Surveyors

The Association of Newfoundland Land Surveyors was founded in 1953 by the Legislature by Act No. 38. The aims and objects being to improve the efficiency of the profession in the province, to assure the general public of the competency of those in the profession and to protect the interest of land surveyors and their clients. The office of the Association is located at 62 - 64 Pippy Place, Suite 204, NL, Canada A1B 4H7. Phone [709] 722 - 2031, or fax [709] 722 - 4104. Or email <info@surveyors.nf.ca>

There was a Historical Committee established in 1981 with Peter Brown as chair, and an Archives Committee established for 1997 - 1998 with Arnold King as Chair, and members, Eldred Chislett, James Martin, and Leslie A. Winsor. The current committee with Leslie A. Winsor as chair, and members Eldred Chislett, Arnold A. King, and Craig Nightingale first met in 2002 01 31 and has held monthly meetings since that time with a few exceptions. Both of the earlier committees left files behind for the current committee. The Archives Committee has researched the files, and publications at the Association's office, and elsewhere and has attempted to show a brief chronological history of surveying in Newfoundland, and of our Association. The Association is celebrating it's 50th Anniversary at this years Annual General Meeting and the Archives Committee has researched the events leading up to 1953 and then onward to 1974.

There are current and past members of our Association who deserve a thank you for writing articles over the years to preserve our history. Among them are Jack H. Burrridge O.B.E., Kevin McGrath, Alfred R. Penney, Dr.Alec McEwen, and the editors of *The Newfoundland Surveyor*: W.J. Walsh, James Canning, John. T. Power, Alva W. Reid, Jack Byrne, Gary Hughes, and maybe a few more that we have missed. Others

who deserve a thank you are the ones who contributed articles and sent them in for publication. Thanks also to The Canadian Institute of Geomatics for allowing us to reprint articles concerning Newfoundland that were published in *The Canadian Surveyor*.

TABLE OF CONTENTS

Early Surveys and Surveyors in Newfoundland	2
Jack Burrridge Report	10
1938 Letter to Minister of Natural Resources	12
Letter to Wilfred Verge	14
1952 Report	15
Board of Examiners Report 1952	16
1953	17
1954	21
1955	22
1956	23
1957	28
1958	42
1959	57
1960	61
1961	66
1962	67
1963	63
1964	68
1965	69
1966	69
1967	70
1968	70
1969	71
1970	72
1971	73
1972	74
1974	76
Councils of Management	77
Current Membership	83
Distance measuring equipment	86
Calculations	88
Observation Stone	88

SURVEYING HISTORY

Surveying is one of the oldest professions in Newfoundland. With the discovery of Newfoundland in 1000 the first attempt to draw a map was made. Then by the re-discovery in 1497 many map makers appeared in our waters, and many maps were made in those early days.

The navigation charts culminated with Captain James Cook who spent the years 1762 - 1767 in Newfoundland Waters. Commodore Hugh Palliser [Governor of Newfoundland] acted to place Captain James Cook on a firmer footing as "Surveyor of Newfoundland". In 1768 Cook was succeeded as "Surveyor of Newfoundland" by his assistance Michael Lane. Captain James Cook surveyed the Island for political reasons, military reasons, and in order to provide safe navigation for shipping and fishing. Prior to his charts only main coastal features were outlined on the charts available. He looked for places fortifications could be built, places available for the fishery, etc., and noted on his charts the vegetation of the surrounding country. A French copy of the Cook Charts are on display in the vault at Crown Lands in the Howley Building. They were acquired from the Rev. George Earle in 1979 and are currently owned by The Association of Newfoundland Land Surveyors. The Department of Forestry and Agriculture agreed to place them on display in 1979 at the Howley Building.

In the 1770's the various governors issued grants of land, mainly to Military personnel, Government Official, and Merchants. Most of these were in St. John's, but some were in outlying ports. While plans do not appear to exist there are descriptions in the Government records of that time. The descriptions are vague, but an area is reported. An example is "1771 09 26. Grant to Lieut. Robert Pringle, Sub. Engineer, now at St. John's has applied to me for the meadow below Dover's Hill on the North Side of the Harbour for the purpose of building a House upon and that he will clear and fence in the --- of Ground on the West and South by the River that bounds the meadow and on the North of East by a Line beginning about two hundred yards above the Cascade, and going round by Dover's hill to join the River where the Meadow Terminates, the whole containing about Twenty Acres. Signed Governor Byron." This was at least a one page

document and only the bare essentials are recorded above. This grant is in the area of Pringle Place bound by Rennie's River. Some grants gave measurement, or a frontage measured in yards. All of these grants must have been checked by a person who could measure the perimeter and calculate an area.

In 1777 11 27 Robert Carter J.P., surveyed a fishing room and plantation in Admirals Cove, Cape Broil. The document states the "Bearing and Distance of the said Roome where measured by us, the names are here unto Subscribed by us by the Mariners Compa's". The names were of five inhabitants, two constables one being one of the inhabitants of Cape Broil, and the other the constable of Ferryland, and Robert Carter. The distances were in feet and the bearings indicated as NNW, NWBS, etc. These measurements were entered into the book by Robert Carter.

By 1789 Major Brady, who was stationed with the military in St. John's and a land owner in the area of Major Path's left St. John's. He was reported to have laid out and surveyed Major's and Brady's Paths.

On 1804 08 21 Governor Erasmus Gower issued an order to the Surrogates of the several districts of Newfoundland, for them to make a survey of all the Rooms in their districts. These records would be kept to avoid future disputes that would arise in the various harbours respecting the rights and possession of Fishing rooms, Beaches, Flakes, etc. The Surrogates would take an exact account of all Rooms, etc. within 200 yards of the High Water Mark and register them in a book so the Register could be admitted as evidence in a dispute. The project was given a two year deadline. The register showed a number for the room, the name by which the room was normally known, extent of the room, or other erection, and how to ascertain the boundary where situated, name & residence of the claimant, nature of the claim, name & residence of the occupant, in what manner held, for what consideration, date of entry. Three known "Plantation Books" survive: the Conception Bay Plantation Book is available in Vol. 13 of Miscellaneous Wills and Deeds and held at The Registry of Deeds in St. John's and show measurements in yards. The Bonavista Bay Plantation Book, for various communities in Bonavista Bay, and the Twillingate Plantation

Book are available through various archives. Who actually did the measuring under the Surrogates is unknown at this time. All communities of Conception Bay are available, while only a few communities in Bonavista Bay are available. To undertake the project to measure all the rooms in Conception Bay was a monumental task as much of the Bay was occupied.

Thomas W. G. Eaststaff, 1772 - 1854 08 13 entered military service at the age of 14, as a cadet in the Royal Military College, at Woodstock, England where he pursued his studies for six years. On 1794, he was ordered to Newfoundland where he received his commission as a Lieutenant in 1795 in the Royal Newfoundland Regiment. He left the Regiment for a more lucrative position of Acting Surveyor General. Thomas W. G. Eaststaff had produced a plan of St. John's in 1806 and 1807, probably based on, or an expansion of an earlier plan of St. John's by James Bramham dating to 1751. The 1806/7 plans was probably produced due to Governor Erasmus Gower's success in getting the British Ministry to agree to a new arrangement where the land near St. John's Harbour would be reserved for the fishery and the land on the higher levels sold in lots for the erection of houses. St. John's was the principal town in Newfoundland. It was centre of commerce and had a population of over 5,000 with over half being permanent residents. The map show the occupied land and names of the occupier or owner. Crown Land records show that title for rental properties were issued as early as 1803 10 23 and grants were issued as early as 1813 10 01 under Volume A. These leases and grants were surveyed, as they have irregular areas shown in acres, roods and perches.

On 1811 06 22 Lionel Chancey made a survey of St. John's and was paid £25 [Colonial Office Records]. Whether this was an actual survey where measurement were taken is uncertain. He was also recorded as being a clerk at the High Sheriff's office and a school teacher for the Congregational Church.

In 1824 06 17 the Judicature Act was passed. This set up a registration system for land under the District Court System. The three judicial districts in which deeds were required to be registered, in accordance with Section 27 of the

Act, were established by proclamation dated 1825 12 10 [which defined the Limits of the Judicial Districts]. These were named the Central, Northern, and Southern Districts Courts. The respective Circuit Courts for were established at St. John's, Harbour Grace, and Ferryland on 1826 05 15. With the registration of private lands, and the granting of Crown Lands the need for surveyors became greater. Crown Grants were issued from the Surveyors General's Office. George Papps Holbrook came to Newfoundland in 1813 to commence Maritime Surveys. He resigned from the Royal Navy in 1821 when he was appointed Surveyor General of the Colony. George Papps Holbrook died in 1832 at age 63, and he was the ancestor of Newfoundland Land Surveyor, the late Robert J. Redmond. The surveys he did were measured in yards, and used the 32 points of the compass as a base for direction. He had land granted to himself that now includes the Holbrook Subdivision off Cowan Avenue, in St. John's West. An example of one of his surveys is found in Vol. 3 of the Northern District Court Grants Fol. 234 at the Registry of Deeds. The description refers to Grant No. 155 issued on 1830 11 20 to William Dalton of Carbonear in the Island of Newfoundland, Cooper " All and singular that piece and parcel of Land situate on the North side of Carbonear about ½ mile from high water mark bounded on the North by waste land W ½ S [S 84° 22' W] Two hundred and twenty yards and by Patrick Kilmartin W b S ¼ S [S 75° 56' 16" W] Ninety nine yards on the East by a road to the woods 100 feet wide ninety nine yards N b W ¼ W [N 14° 03' 45" W] by Patrick Kilmartin N b W ¼ W [N 14° 03' 45" W] one hundred and ninety eight yards and by the aforesaid road to the woods N b W ¼ W [N 14° 03' 45" W] one hundred and eighteen yards on the south by waste land S E ½ S [S 39° 22' 30" E] two hundred and twenty yards E b S [S 78° 45' E] Two hundred and eighty one yards E b N ¼ N [N 75° 56' 15" E] ninety four yards and on the N W by waste land S W b S [S 33° 45' W] one hundred and eighty two yards containing eighteen Acres two roods, etc". This survey had a misclosure of about six yards, or 1/233. Measurement were to the nearest yard and using the Mariners, 32 point compass with each point being read to the nearest quarter or nearest 2° 48' 45". The plan for this grant was not registered with the court at Harbour Grace. This Grant was possibly issued under Volume

"C" from the Crown and the Crowns' original copy and the index for Volume "C" are missing. Volume "D" started c.1833. One of the requirements at the time was the registering of a grant with the District Court within six months of the granting.

Rev. Bullock arrived in Newfoundland as a missionary and lived at Twillingate from 1820 - 1822. He then went to St. Pauls Anglican Church in Trinity and stayed there into the 1840's. He was previously with the Royal Navy and did some nautical charts during his navy service. He completed a plan of Trinity c. 1832 and the plan, his chain, and compass are in the museum at Trinity, Trinity Bay.

In 1832 Newfoundland was granted Representative Government. Shortly afterwards Joseph Noad succeeded George Papps Holbrook and is mentioned in 1833 10 14 as being the Surveyor General, a position he held to at least 1849. Many Crown Land surveys were done in the St. John's area and outlying areas under his department. Joseph Noad, Esq. died in 1873 05 28, age 75 yrs in Ontario. Page 6 shows an example of the surveys completed under Joseph Noad. This survey is from 1842 12 03 and being a grant issued under NDC Vol. 7 Fol. 233. The survey is in chains and bearings using degrees, while early surveys under George P. Holbrook were measured in yards, and used points of the compass.

By the 1830's surveyor Thomas Byrne was surveying the new road to Portugal Cove. He had land granted in the Donavans area and elsewhere. Thomas Byrne is listed in the Hutchinson's Directory of Newfoundland in 1864 as being a road surveyor. By 1835 there are lists of persons who are referred to as surveyor of highways. In the Journal of the House of Assembly Records occasionally there is listed the specifications for various road contracts, showing the width, slope of banks, etc. A surveyor would be involved in laying out the new roads or rerouting existing roads.

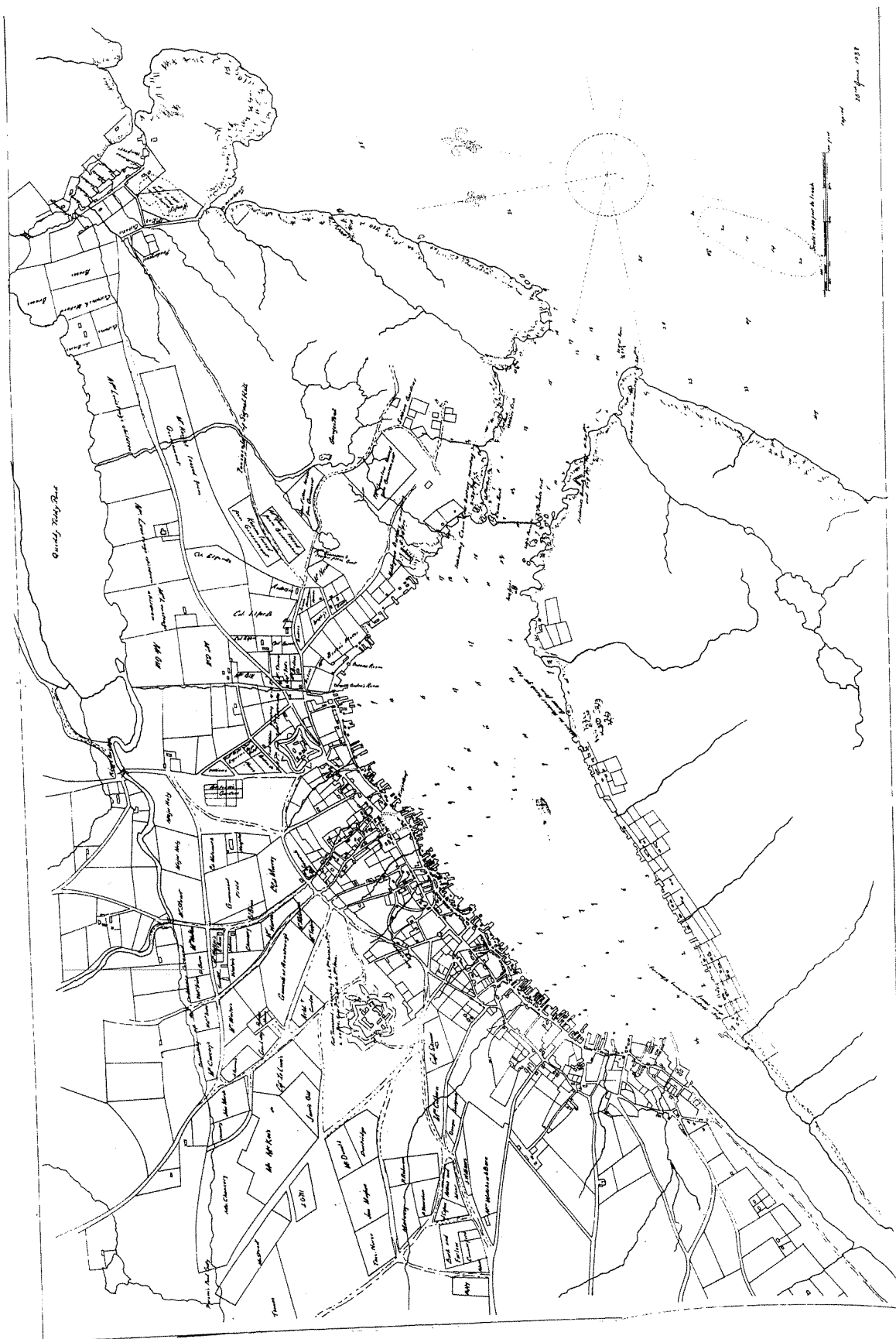
On 1839 04 11 J. B. Juke left Liverpool, England for St. John's, Newfoundland. By the end of May he had been regularly installed as Geological Surveyor, and instructed to examine into the structure of the country. The Legislature of Newfoundland had originally voted £350 towards the geological survey of the island. In

consequence, however, of Jukes report to the governor, the grant was increased to £600, in order that a coasting vessel could be used in which to survey the shore in detail from point to point. J.B. Juke also had excursions into the interior and his report shows that he carried his theodolite and barometer along with him.

In 1843 Frederick R. Page [1802 - 1870] arrived on the scene. He was an Englishman, and reported in a 1847 newspapers as a Land Surveyor and also listed in the 1864 St. John's Directory as a Land Surveyor. He was a brother to James Page who resided in London England and James Page was recorded as a Land Surveyor and Architect. In a Road Report [from the Journal of the House of Assembly] dated 1843 Frederick Page refers to the latest charts in the Hodge River area that he presumes to be that of Mr. Juke, the Geologist. The report goes on to talk about a route from Cat's Cove [now Avondale] to Ship Cove in Placentia Bay. Mr. Page walked the route and with his report in hand and topographic map 1N6 you can follow the route across country. Other roads being proposed in 1843 are New Harbour to South Dildo, South Dildo to Old Shop, and on to Chapel Arm by way of Spread Eagle Pond South, West Spread Eagle, Little Gut, and Western Cove. Mr. Page had a history book published in 1860 under *A Concise History and Description of Newfoundland*. In addition to land surveying he also did nautical charts.

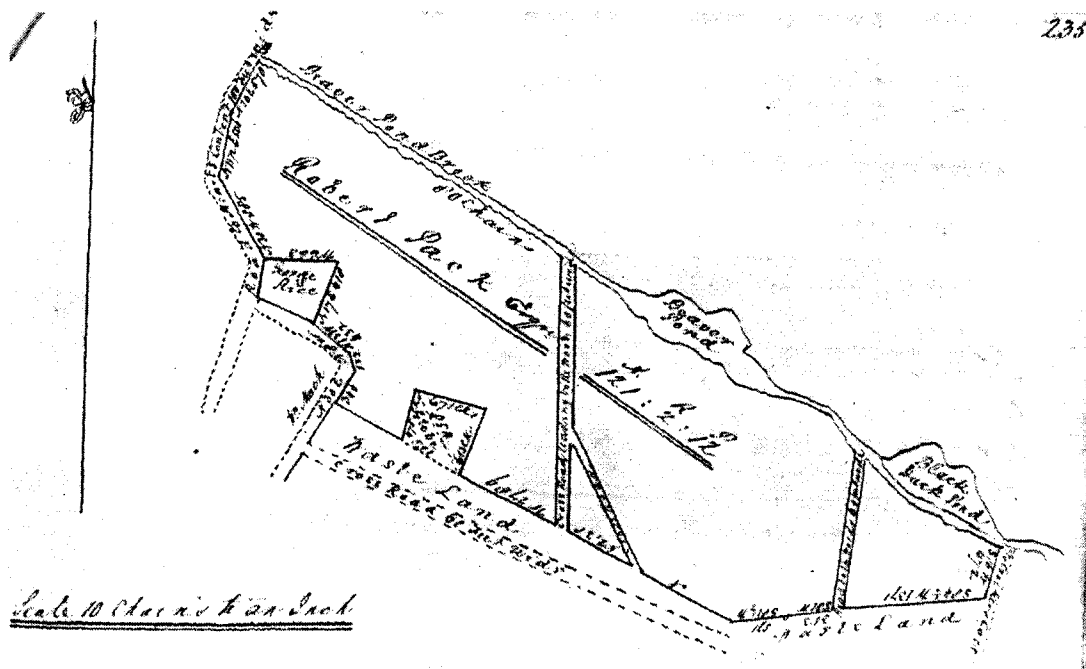
In 1849 William R. Noad, Surveyor did a detailed plan of St. John's. The plan ran from Patrick Street in the south west to the bottom of Signal Hill on the north and from the harbour to just past Le Marchant Road. All buildings were shown with the "Estate's" name. Each building had a number and there is a separate numerical index showing the name of owner and the nature of property, that is house, shed, forge, etc. The drawing was originally at the Crown Land Registry, Howley Building, Higgins Line, and was approximately six feet long and on canvas. After many years of use, the Provincial Archives of Newfoundland acquired it and restored it at a cost of \$5000. A reduced copy is available at the Howley Building. On 1852 09 28 W.R. Noad, Esq., was appointed Assistance Surveyor General for the Island of Ceylon and left a void in surveying in Newfoundland.

In 1854 Responsible Government was granted and a Survey - General's Department was created [Jack Burrridge, *The Canadian Surveyor* 1938].



Vault Plan 40, c. 1835. Possibly traced from T.W.G. Eaststaff's plan of 1806/07.

Example of Survey by Joseph Noad 1842.



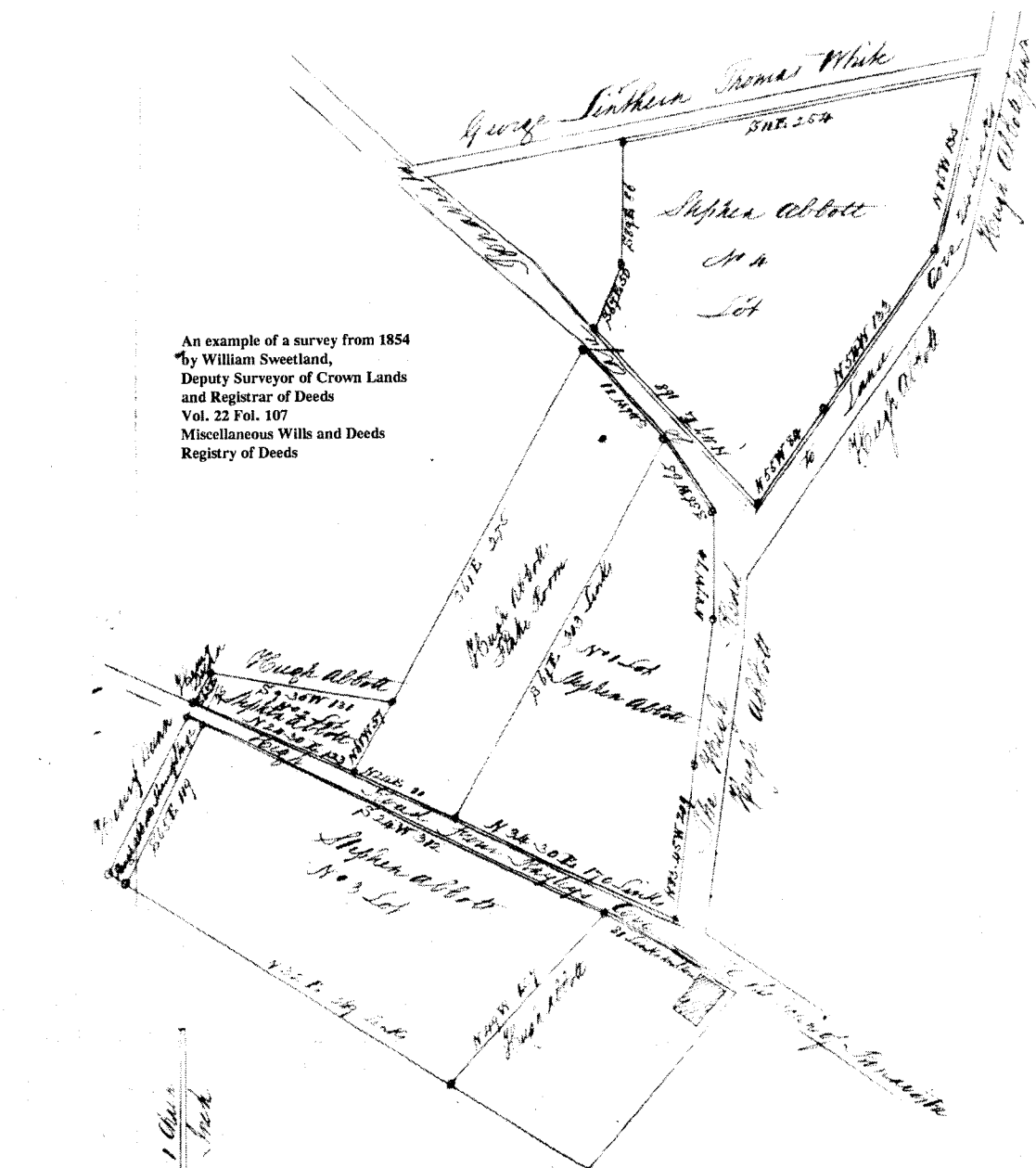
On 1858 08 05 the first telegraphic message across the Atlantic Ocean was sent and received. The submarine cable at Heart's Content also spurred further development across Newfoundland and beyond. The cable route shows on various maps, and surveys around Newfoundland.

In 1864 John H. Warren, Esq., was the Surveyor General, with Edward M. J. Delaney, C.E., Deputy Surveyor. In the Northern District the deputy surveyors were: Alexander O'Donovan - Carbonear, Patrick Brine - Brigus, Benjamin Sweetland - Trinity, John T. Oakley - Greenspond, William Sweetland - Bonavista, Eugene Hamilton and Thomas Hanrahan - King's Cove, G.W. Hierlihy - Harbor Grace, William Swansborough - New Perlican, William Christian - Bay-de-Verds. In the Southern District there was Thomas Mockler - Bay Bulls, Michael Kelly - Ferryland, John Simms - Trepassey, John W. English - St. Mary's and Placentia, Henry Camp - Burin and Fortune Bay - James Harney - Burin, Thomas Winter - Fortune Bay.

For the further encouragement of agriculture an Act passed in 1866, by which under rules to be adopted by the governor in council any poor

person desirous of settling upon crown lands and cultivating the soil is secured in the payment of a bounty of eight dollars for the first acre cleared, and six dollars for each succeeding acre until six acres are cleared, when a free grant is given of the amount reclaimed. "In no other colony is such a boon held out to the poor man--a free grant of land, the best that can be found, and from six to eight dollars for clearing it". The following are some of the rules and regulations adopted by the governor in council for the carrying out of the act just mentioned, 29 Vict., cap. 5, 1868.^{3rd} Licenses by the Surveyor General shall be issued, according to priority of application, to persons qualified by law to hold grants of land, who may desire the same for permanent settlement; which licenses shall be upon condition of the cultivation of at least two acres within five years: and on performance thereof a grant in fee may issue; and to a poor settler no charge shall be made for cost of survey, license, or grant. cultivated according to the meaning of the Act, the application for bonus shall give notice thereof to the Surveyor General or Deputy Crown Surveyor of the district who shall record and certify the same under his hand; and on the production of such certificate at the office of the Colonial Secretary the party shall,

An example of a survey from 1854
by William Sweetland,
Deputy Surveyor of Crown Lands
and Registrar of Deeds
Vol. 22 Fol. 107
Miscellaneous Wills and Deeds
Registry of Deeds



I certify that the above diagram is a true and correct
Plan of the Premises referred to in the foregoing Bill of Sale
the same having been carefully surveyed by myself in the
presence and with the assistance of the parties interested therein
and its division then agreed in by all Parties

Given under my Hand at St. John's this first day of June
in the year of our Lord one thousand eight hundred and
fifty four

William Sweetland
Deputy Surveyor of Crown Lands
and Registrar of Deeds

with the approbation of the Governor in Council, be estimated to receive the said bonus, as the case may be, and for every such certificate the officers granting the same, other than the Surveyor General, shall be titled to a fee of one dollar. [Lovells Directory 1871]. In addition to land being opened up for agriculture, mining was also a source of income and the Government of the day under Act. 23 Vict., cap. 3., made provisions for the disposal and sale of ungranted and unoccupied Crown Lands within the Island of Newfoundland, and to make provision for granting Mining Licenses, Leases, and Grants, &c.

In 1871 the Surveyor General's Department consisted of Major Henry Renouf, surveyor general; William M. H. Warren, assistant and draughtsman. The Deputy Surveyors in the Outports were: **Northern District** - Benjamin Sweetland, Trinity; Chas. E. Thompson, Bonavista; Daniel Murphy, King's Cove; Robert Strathie, Musgrave Town; John T. Oakely, Greenspond; Henry Miles, Open Hall; Thomas Payton, Twillingate; Robert G. Knight, North Shore of Notre Dame Bay; William Cassy, Carbonear; Geo. W.R. Hierlihy, Bay Roberts; John Hearn, Brigus; William Christian, Trinity Bay South; Moses Tilley, Random Sound; Pierce Hanrahan, North Shore Conception Bay; George Carter, South Shore Conception Bay; **Southern District** - John W. English, St. Mary's; Henry Camp, Fortune Bay; Albert Stirling, Fortune Bay; James Harney, Burin; - Grand Bank; Michael Kelly, Cape Broyle; Thomas Driscoll, Bay Bulls.

In 1875 the Newfoundland Legislature under the Prime Minister, Sir Frederick Carter voted to finance a preliminary survey for a railway route from St. John's to St. George's Bay. Sanford Fleming was commissioned to conduct the survey. There were three parties organized: one party under Thomas Ramsey, with W. A. Ramsay as transitman, and R.N. Light as leveller started at St. Georges and surveyed eastward to Red Indian Lake; the second party under W. A. Austin with William Quinn as transitman, and A. G. Morrison as leveller surveyed from Red Indian Lake to the Gander River; and the third party under Francis J. Lynch, J. Cadman as transitman and W.C. Mitchell as leveller surveyed westward from Come By Chance to the Gander River. The surveyed ran from June to September of 1875.

The three parties then commenced the survey from St. John's to Come By Chance and completed the task by early December. Wages were good with the party chiefs receiving \$160 a month and found, transitmen \$100, and levellers \$90, and the axeman and packers \$1.50 a day. By 1888 the English firm of Kinipple and Morris of London, England had a team of nineteen engineers and helpers in St. John's. Mr. Morris organized five survey parties to survey from St. John's to Whitbourne, starting at Job's Bridge, St. John's. Charles J. Harvey of St. John's surveyed from Job's Bridge to Manuels, Edmond B. Templer from Manuels to Holyrood, Carlos Forbes from Holyrood to Avondale, James B. Hegan from Avondale to Whitbourne, and G.B. Chadwick from Whitbourne to Harbour Grace. During the construction of the main line and after the main line was constructed, branch lines were run to Hearts Content, Bonavista, Placentia, Trespassey, and Terrenceville. One of the plans [on linen] for the survey to Harbour Grace by way of Whitbourne, to Trinity Bay and then cross country to Harbour Grace is at the Howley Building Vault. This plans shows the names of property owners along the way, ponds, rivers, township lines and other boundary lines as found along the route. For more information on the Newfoundland Railway, see the *Book of Newfoundland* Volume 3 for an article by the late Alfred R. Penney, N.L.S..

In a report by Alexander Murray, Esq, dated 1883 03 12 he stated that the Government resolved that a general system of survey of the whole Island should be adopted and to a limited extent carried out in 1875. In 1882 Murray was instructed to organize parties for that purpose. He mentions the scarcity of Surveyors competent to undertake the work, and he deputed Mr. James P. Howley, the Assistance Geologist to superintend the operation, while Mr. Charles J. Harvey was to direct a separate party, and a third party was organized by the Railroad Company under Mr. L. M. Cunningham, C.E.. Mr. Cunningham directed by Mr. Howley would connect with work done by C. McLeod, C.E. in the Gander Valley in 1875.

In the 1880's the blocking out of parcels of land under the township system began in Newfoundland. The system of blocking out the townships is the same as adopted in Canada Each township is known as belonging to such a tier and such a range. Thus the starting point is the south

eastern corner of the township known as Tier 18, south, Range 22, east. The townships are each six miles square, and thus contain thirty - six square miles. They are subdivided into square mile blocks, each having it's own number, the numbers thus ranging from one to thirty-six as arranged on the map. Each square mile in Canada is subdivided into four equal parts, each containing 160 acres, which is the amount granted as a farm, free of cost, to every settler on his fulfilling certain conditions. In a report to Alexander Murray dated 1883 03 05 Charles J. Harvey said he received instructions in 1882 07 08. He proceeded to Hall's Bay and started at Mansfield Cove. They started on a hill four miles south of Mansfield Head as shown on Maxwell's chart [this is possibly a hydrographic chart from the Royal Navy], and established a true meridian, They then related this to three fixed points of Maxwell's survey to establish the observation point which was found as nearly as possible on the 56th meridian. A base line was then run south ward towards the exploits River for over sixteen miles. At the same time J.P. Howley was engaged in running a base line westerly from a point near Bishop's Falls on the River Exploits to intersect the 56th meridian at a point near the junction of Badger Brook and the River Exploits. J. P. Howley also surveyed the line to the east of his starting point. In his report he mentions a possible route for the railway. J.P. Howley also submitted a report on the base line and refers to himself as being in this country in 1871, and also in 1875 - 76 when he surveyed Gander River and Lake. Howley also mentions a 1875 division of the Railway Survey to the Head of Red Indian Lake. During the survey of the baseline a Mr. Cunningham, C.E. joined Howley. He had been sent by the Railway Company to be employed by J.P. Howley. Mr. Cunningham ran a meridian line from Howley's starting point northward to the bay. After this he went to Gander Bay and continues on a line started by a Mr. McLeod. The Intersection of Howley's baseline with the 56th meridian was completed by October of that year with the lines being measured. James P. Howley [1847 - 1918] in addition to his surveying and geology career spent 40 years doing research on the native indians of Newfoundland and published the first edition of *The Beothucks or Red Indians* in 1915.

The Association of Dominion Land Surveyors

began in 1882 and held its first annual meeting in 1884. The Association of Dominion Land Surveyors held annual meetings from 1884 - 1894 in Ottawa. For the next twelve years it was inactive, but was revived in 1907. Annual Meetings were held each year since with the exception of 1916. In 1934 the name was changed to the Canadian Institute of Surveying and in 1950 it became The Canadian Institute of Surveying and Photogrammetry. By 1957 It reverted to the name of The Canadian institute of Surveying and since has been called The Canadian Institute of Surveying and Mapping and changed again in 1993 to the Canadian Institute of Geomatics.

The archives files contain an undated newspaper clipping on Off Beat History titled *Surveying in the Eighties*. The article is as follows: In the summer of 1884, C. F. Twining, Dominion Land Surveyor, was engaged in surveying a number of lots of land belonging to the New York, Newfoundland, and London Telegraph Company, the organization which had laid the Atlantic Cable to Heart's Content in 1866. Twining first went to Trinity Bay, near Rantem, and there located a block containing 1920 acres or three square miles on the north adjoining another block already granted the company in the same area and which contained the famous La Manche lead and silver mines. The surveyor said the country was very rocky and steep and unfit for cultivation except near - tide water. Its value to the company, he declared, lay only in the fact that their cable was laid across this land from Trinity to Placentia Bay. It contained little or no timber, only small stunted spruce. When they finished in that area, Twining and his party went to the head of Bull Arm, Trinity Bay, and there surveyed and located another block of land containing 2960 acres, the eastern boundary of which was the Come - By - Chance River. This area was only fit for grazing. When the work was done the surveyors went back to St. John's and took passage in the *Curlew*, the coastal steamer, sailing for the Bay of Islands.

C. F. Twinning probably did other work around Newfoundland as shown above he went to the Bay of Islands in 1884. Prior to this we know he was on Random Island in the June of 1883 as one of his note books survived. The book contains about 70 pages, and the index shows 66 names with a survey for each name, etc.

The Crown Lands Act of 1884 was passed opening up more opportunities with land for agriculture grants, timber licenses and mining grants.

The Twillingate Sun in 1888 published the following list of Surveyors: published by Authority. His Excellency the Governor in Council Has Been Pleased to Appoint the Following Persons to Be Surveyors under Agricultural Act, 1888:-- All Officers in the Surveyor General's Department, St. John's. C.S. Rowland, Tilt Cove; Jas. Strong, J.P., Little Bay Island; Charles W. Warr, Robert's Arm; J.M. Silk, Leading Tickles; Peter Moores, Fortune Harbor; Wm. M. Winsor, Exploits; J.B. Osmond, Morton's Harbor; J.D. Lockyer, Herring Neck; W. Cunningham, Nipper's Harbor; Secretary's Office, St. John's, June 26, 1888. J.B. Howson, N.W. Arm, Green Bay; H.M. Herbert, Nipper's Harbor; James White, Little Bay; Thomas Peyton, Twillingate; John T. Oakley, Greenspond; Henry Miles, Open Hall; Charles E. Thompson, Bonavista; Gilbert H. Cole, Trintiy; John T. Currie, Britannia Cove; William Christan, Old Perlican; Aubrey J. Crocker, Carbonear; G.W.R. Hiereliy, Bay Roberts; John Hearn, Brigus; John Haddon, St.John's; Allen F. Long, St. John's; William Swansborough, Topsail; Thomas Driscoll, Mobile; James Harney, St. Mary's; Thomas O'Reilly, Placentia; H.J. Haddon, Fortune; Henry Camp, Pushthrough; Philip Hubert, Harbor Briton; Robert T. Squarey, Channel; James L. Knight, Codroy; Lawrence Barron, Bay-of-islands; Donald Browne, Bonne Bay; R.C. Lawrence, Brigus; Philip Moore, Bay-de-verde; Richard Lawton, King's Cove, Bonavista Bay; Alfred O'Mears, Harbor Grace Junction; Jonathan Noseworthy, Alexander Bay; William Kent, Hermitage Cove; F.F. Ferneaux, Kelligrews; Nehemiah Frost, Northern Bight; Ruben Pippy, Hant's Harbor; William Badcock, Catalina; Uriah Cole, Collier's Bay, Trinity Bay; Joseph Lilly, Bay Bulls Arm, Trinity Bay; Benjamin Miller, Trinity. Secretary's Office, St.John's, June 19, 1888. Albert Gosse, Torbay Moses Clarkes, Pouch Cove Nathaniel Cross, Northern Bight Charles Rendell, Heart's Content, J.W. Webb, Fogo; Secretary's Office, St.john's, May 29th, 1888. W.H. Webber, Portugal Cove; William Bennett, Belle Isle; William Jackman, Belle Isle; James A. Hiscock, Lance Cove, Belle Isle; Si. Hanniford, Petty Harbor; Fred. Chafe,

Petty Harbor; C.R. Belbin, Broad Cove; Samuel Ruby, Goulds; Dennis Doyle, Harbor Main; John M. Keats, Clark's Beach; R. Simpson, Bay Roberts; Gosse, Spaniard's Bay and Tilton; Israel Smith, Upper Island Cove, Bishop's and Bryant's Cove; John Scully, Harbor Grace; J.E. Jarvis, Harbor Grace; J.L. Noel, Western Bay; J.C. Moors, Blackhead; A.G. Hudson, Lower Island Cove; William Gabriel, Salmon Cove, Trinity Bay; Benjamin Miller, Trinity; William Balsam, Little Heart's Ease; Thomas Parsons, Swains Island; James Cullen, Gooseberry Island; Menneth Burden, Salvage; Thomas Howe, Brooklyn; M.D. Stares, Brooklyn; J.B. Wheeler, Musgrave Harbor and Ladle Cove; William Whyatt, Alexander Bay; William Ledrew, Alexander Bay; Moses Davis, Fox Cove to Cape Freels; Harry Burt, Dominion Point, Exploits River; Edward Howlett, Toad's Cove; R.H. White, Ferryland; E.P. Currie, Salmonier; Hector Mcdonald, Sandy Point; H.H. Haliburton, Gravels, Port Au Port; Secretary's Office, St.John's, 1888 05 23.

On 1892 07 08 a raging fire destroyed much of St. John's leaving 25,000 homeless. Along with the devastation was a lost at the Crown Lands' Office. Grants contained in volume 1 to volume 7, and from volume 10 to volume 16 being the Crown's copy were destroyed in the fire. An effort was made to have the missing grants re-registered but a complete records of these grant does not exist. There are few existing plans dating prior to 1892. There are a few Vault Plans for St. John's, although not dated they must pre-date the fire as there is no record in the field books [from 1892 onward] for the survey of these areas. This tragedy, however kept the surveyors at Crown Lands and those in private practice who contracted to the Crown busy for decades preparing cadastral mapping.

J.[Jack]H. Burrridge, O.B.E, had a lot of titles over the years. He became a Deputy Crown Land Surveyor in 1932 while working with the Crown Lands Branch, and was a founding member of our association. When he retired he was the Director of Crown Lands. In January 1938 Jack Burrridge writes in *The Canadian Surveyor* that prior to 1934 survey work carried out by the Crown Lands Branch were confined exclusively to making connected surveys of the agriculture grants in the larger settlements. It was the practice for the

Minister of Agriculture and Mines to select two or more settlements each year where departmental survey parties were despatched and instructed to make connected surveys of granted land. He goes on to say that in 1934 the Geological Survey was re-established after a lapse of 25 years and the Surveys Branch of the Department of Agriculture and Mines was re-organized by the Secretary for Natural Resources embracing topographic, cadastral surveys, etc. It then became apparent that a geodetic standard of control was urgently needed. Dr. Snelgrove had been appointed the chief of the Geological Division of the Department and corresponded with the Dominion Geodist of Canada asking about the requirements for a basic geodetic system for Newfoundland. England made a grant of \$75,000 to complete a five year project. In another article printed in *The Canadian Surveyor* in October 1950 J. H. Burrige mentions under the 1884 Crown Lands Act surveyors were appointed by the Surveyor General and chiefly they were those who had received training while employed with the staff of the Surveyor General. He said the quality of the work performed ranged from fair to bad and some of the survey returns furnished in those days plague the staff of the present-day Department. He again refers to the Geodetic Survey and now states the first net was projected across the Cabot Straits in 1924 mainly for the better control of hydrographic surveys, and the 1934 basic triangulation project was completed in 1943. Then the basic project was expanded in 1944 with funding from the Department of Natural Resources. Mr. Burrige also writes about the first aerial photographic survey work carried out on the island in 1932. The photography was carried out by Princeton University in conjunction with the geological exploration of the Long Range Mountains on a section of the Blomidon Hills. In 1934 Canadian Pacific Airlines began photographic surveys of timber areas of Bowater's Newfoundland Pulp and Paper Mills Limited. This firm pursued a programme of aerial photographic surveys and eventually the Department of Natural Resources participated with them. The Anglo - Newfoundland Development Company later joined in the program. By the 1930's the then new Crown Lands Act of 1930 governs the disposal of Crown Land. Mr. Burrige said that it will be readily seen that in view of the costs involved, there is no pressing desire on the part of persons living outside the large communities to have

surveys made as a basis for acquiring security of ownership. In 1939 the Department of Natural Resources began taking topographic measurements. It was planned to provide sectional map sheets to cover the whole Island on a general scale of one inch to one mile. Then World War II came along and a shortage of staff brought about by enlistment. Several joined up with the first and second Survey Division. Then in 1941 topographers for the Federal services moved in to begin surveys of strategically importance areas. In some of the works surveyors from the Department of Natural Resources participated with them. The war thus stimulated the programme the Newfoundland Government in respect to its' mapping projects and sections of the Island were quickly covered by planimetric sheets. When Newfoundland became the tenth province the Department of Natural Resources relinquished several of its' survey services to the Dominion Government, and several of its' staff were transferred in accordance with the Terms of Union. [Archives Committee Note - Gerry Halley 1904 - 1974 was one of those who enlisted with the 1st Canadian Survey Regiment and saw service in The United Kingdom and the Central Mediterranean area, and continental Europe. Gerry Halley was inducted into the "Sport Hall of Fame" in 1976 04 24 as he was "Newfoundland's fastest human" having run the 100 yard dash at 9.8 seconds on turf in the mid 1930's].

In January of 1960 James D. Canning President of the Association of Newfoundland Land Surveyors noted in *The Newfoundland Surveyor* "The idea of an Association was born some twenty - seven years ago, but, because of some disagreement among the practicing surveyors of that time very little was accomplished and the idea fell into abeyance to crop up again about 1938. The war came and the idea lived on only in the minds of a few surveyors. With the advent of Union the necessity for a provincial association became very real indeed and the idea was re-born at that time not to die out again".

The Crown Lands Act of 1930 with amendments over the years remained in effect until 1971 when a new Act was legislated. The 1971 Crown Lands Act was replaced by the Lands Act in 1991.

There were a number of surveyors around in 1938 and the following letter was sent to the Department of Natural Resources in 1938.

"St. John's May 4th, 1938

The Honourable Commissioner for Natural Resources, Colonial Building, St. John's.

Dear Sir:

At a meeting of representative Land Surveyors held in St. John's on February 14th, a committee was selected for the purpose of forming an association, the object of which would be to weld the scattered members of the profession in this country into one body, to ensure uniformity of method in taking measurements, to promote the necessary standard of education and experience amongst its members, to provide for the keeping of their plans and records for future generations, and above all to protect the public from imposition and fraud by ensuring that all works involving the delimitation of property boundaries should be performed only by properly qualified men subject to disciplinary action.

This committee now submits some reasons why action is imperative and suggests suitable action might be the passing of Acts relating to both surveys and surveyors.

It is not necessary to give a long list of examples of the incompleteness and the inaccuracy of much of the old data of which the Crown Lands Office is the official repository, but for your information the following remarks are submitted: before the Commission of Government took control of the affairs of this country, and for many years previously, the Department of Agriculture and Mines licensed persons to act as Deputy Crown Land Surveyors and, in these appointments, in a number of instances personal or political expediency appeared to be the governing factor. Ability, experience, or knowledge of the elements of the science of surveying appeared to be very much of secondary importance. Such appointments were not made on the recommendations of the responsible officials of the Department, but were pushed forward in many instances in spite of protest from that quarter, generally for political reasons.

The standard of the profession which, in the long ago judging from the records was of a very fair order, began to be lowered and this at a time when areas of much greater extent than the ordinary plot of land were being acquired. The inability to bound properly an area either great or small, to write a correct description of such, or to tie-in a survey to some definite starting point which could eventually be used as a reference station led to a great deal of confusion in the departmental records and this confusion exists today.

The Deputy Crown Lands Surveyor, when once appointed, began to carry on his work without any general oversight. There was no Association to advise or assist him in any way. As long as he produced a plan of the work he was authorized to perform it was all that was required of him and so it followed that, in time, he became a law unto himself.

From plans and descriptions submitted, with errors perfectly obvious to a surveyor knowing his business, the officials of the Crown Lands Department were compelled to draft grants or licenses to blocks of land and these grants or licenses, signed by the Minister of Agriculture and Mines, Minister of Justice, and by the Governor, were issued to the applicants, stamped with the Seal of the Colony as being a correct and true representation and description of the plot of land granted by the Crown. Under such circumstances irregularities gradually crept in until plans, purporting to be founded upon surveys, had been submitted and accepted, and grants or licenses issued where no survey had been carried out. This is a fact well known to certain surveyors who have had occasion to re-locate such boundary lines on the ground, and it has been brought out in the Courts in certain litigations.

The heritage which is ours today through the attitude of past Governments in the appointment of incompetent men as surveyors, and their failure to realize the importance of accuracy in the delimiting of the boundaries of land to be granted is:

First, the issuing of title to land's already held, in part at least, by other parties resulting in tedious negotiation by the parties interested or in litigations, application to the Courts to decide ownership with its attendant expenses and

subsequent survey following the decision of the Court.

Secondly, endless worry and loss of time by the Survey Section of the Department of Natural Resources in endeavouring to co-ordinate the surveys submitted with the actual conditions as they may exist on the ground.

Thirdly, a feeling of insecurity at all times on the part of prospective purchasers and a suspicion, difficult to allay, that the Crown documents are not the reliable instruments that they should be.

A survey should be a legal process and a plan made from such survey with this description should be a legal document when and only when it has been made and signed by a person competent to carry out the undertaking and authorized to do so by the proper authority. To avoid disputes and to make for peace in a community every plot of land should be properly surveyed, its boundaries laid down and well and permanently marked, and the description of the same be made to close in direction and distance. The Crown Land Surveyors, when making surveys of settlements and roads, left behind them no base lines, no permanent monuments or reference stations to aid the local man in the making of surveys, and to act as a check on his work. Indifference and lack of vision in the Crown Lands Office led to a low standard of efficiency and the production of inferior work in the field, resulting in a great deal of inaccuracy in plans and records of surveys of Crown lands.

No criticism of the present Department is intended in these remarks. The blame falls upon the whole system of penny - wise, and pound - foolish, hand to mouth procedure in regard to surveys and qualifications of surveyors. Today an entirely different order prevails. The Natural Resources Department has an organized Survey Section with a Chief Surveyor at its head in whom is vested the powers pertaining to the office. A plan, based upon the requirements of the country in which is included a triangulation survey of the whole Island and to which will be eventually connected a series of control lines and base lines in every settlement and district has been or will be followed as time permits, or the need demands. To the base lines and control lines all future surveys will be referred and all past surveys if they can be

possibly co-ordinated with them.

Into such a scheme the Deputy Crown Land Surveyors must fit themselves, or the majority of them if they are to continue the practice of their profession, and in order to be better fitted for the changes which are bound to come, it is the desire of many members of the profession that an association of surveyors be formed and incorporated under the laws of Newfoundland.

For public and private purposes we require surveyors in the country. In future all applicants aspiring to practise surveying must have attained a certain standard of education, they must have field experience before receiving their appointments and they must be subject to disciplinary control.

A properly organized association of Surveyors established by Commission of Government and vested with the necessary authority can take over from the Department of Natural Resources the work of selecting applicants and the disciplining of its members, the training of future surveyors, the inspection of surveying instruments, the standardization of tapes, chains and units of measurements and the adoption of uniform procedures, records, etc. The fact that such an association exists will create in the minds of its members a desire to improve their methods and through discussions of surveying problems at its annual meetings and from papers submitted on matters of interest the standard of education and efficiency will be greatly raised.

In the process of time, and that not very far distant, such matters as road location with the surveys and grading required, town planning with its necessary contours and the laying out of roads, water supply for domestic purposes, and the study of rivers and their watersheds with a view to the development of water powers could be subjects for study, adding to the knowledge of the members and broadening the scope of their usefulness to the community.

Respectfully submitted,

[Signed S. J. Hayes and W. F. Canning
on behalf of Committee]"

Who were the surveyors who were practising during this time period? The surveyors listed below are on record as being appointed to survey Crown Land. Some had the designation of Crown Land Surveyor and others were Deputy Crown Land Surveyor. There may be others that had retired by 1938 and we have no record on them.

1903 [c.], W. F. Canning appointed Deputy Crown Land Surveyor.
 1924 Jim Thoms appointed c. 1924.
 1926 08 26 George Lawrence appointed Crown Land Surveyor.
 1927 Wallace McIsacc appointed Deputy Crown Land Surveyor.
 1928 Grant Patterson [worked for Reid Newfoundland Co.]
 1929 11 Stan Condon appointed Deputy Crown Land Surveyor.
 1930 10 A. R. Penney appointed Deputy Crown Land Surveyor.
 1931 01 06 Reg. H. Taylor appointed Deputy Crown Land Surveyor
 1931 01 09 W. W. Cossitt appointed Deputy Crown Land Surveyor.
 1932 Jack H. Burr ridge appointed Deputy Crown Land Surveyor.
 1932 06 James Canning appointed Deputy Crown Land Surveyor.
 1932 12 22 A. Rees File appointed Deputy Crown Land Surveyor.
 1934 05 28 D. A. Pointer appointed Deputy Crown Land Surveyor.

Shortly after the 1938 letter to Government World War II broke out on 1939 09 01 and the thoughts of an associations were replaced. Notes earlier in this article by J.H. Burr ridge talked about the lost of staff from the Department of Natural Resources and the survey work in certain area of the Island. The letter below from Jack Burr ridge to Mr. W. Verge probably covered the War years and into the late 1940's. Mr. W. Verge had previously written J.H. Burr ridge as Mr. Burr ridge was secretary of the proposed Surveyor's Union. Mr. Verge was concerned with. [1] The fee for a survey, which has been in practice for possibly centuries, is \$5.00. Mr. Verge said it was difficult to get more even for larger areas. He thought the fee should be stepped up, but unless the Department or the Union does the stepping up, it is very difficult for us to do so, especially where there are several surveyors in the field. [2] His second concern was being a witness at every

session of the Supreme Court concerning land disputes. He referred to waiting around for days at a time for \$2.50. He noted if he received regular pay like Nicholls or Cossett it would not matter, but time to him was a living, especially during the Summer months. This practice was not fair according to Mr. Verge and he wondered should he take the matter up with the Judge or the Department of Justice.

Mr. W. Verge, September 25, 1941
 Land Surveyor, CURLING.

Dear Wilfred:

With reference to yours of September 7th, I may say that the points raised by you were taken up at several meetings held by the Committee of representative and surveyors last year. Nothing, however was done about them.

At the present time the Association has fallen by the wayside and most of the men who attended the meetings are now away on survey undertakings and the question of survey fees is in all probability forgotten in view of the wages paid them today by the various contractors operating in the Island.

It would seem to me that you should make contact with the practicing deputy surveyor of the Island with the view to establishing survey fees. After you have come to reasonable rates for Crown Land application work, you might submit them to this Department. By this means the rates would be standard throughout the Island.

You mentioned the names of two Bowater's surveyors. They would, no doubt, be glad to co-operate with you.

Yours faithfully,
 Chief Surveyor.
 JHB/F.

There is on file an undated "constitution" that must be from the 1940's as it mentions country rather than province. The name of the association shall be known as The Newfoundland Land Surveyors Association, and the object was of this association shall be to weld the scattered members of the profession in this country into one body, to ensure uniformity of method in taking measurements, to promote the necessary standards.

Between 1942 and 1951 the following were appointed as Crown Land Surveyors and Deputy Crown Land Surveyors:

1942	Fred Newhook, approved.
1942 12 16	Wilfred Verge appointed Deputy Crown Land Surveyor.
1943 02	Ernest Owen Legg.
1944 08	George Way, Deputy Crown Land Surveyor. Member 1953.
1945/46	John Cunningham appointed Crown Land Surveyor.
1946	Sim H. Parsons appointed Deputy Crown Land Surveyor.
1950/51	G.E. Knight.
1951 03 13	M.K. James, appointed Crown Land Surveyor.

In the July, 1952 issue of *The Canadian Surveyor* J.H. Burrridge wrote the following:

"With a view to the formation of a Land Surveyors' Association, a meeting was convened by Major Willett, RC.E, on the 5th of April of the practising Crown Land Surveyors in St. John's and Vicinity. As a result of this meeting it was decided to canvass the land surveyors throughout the Province to obtain their views in respect to the setting up of such an organization.

As the idea was favourably accepted by the majority of land surveyors it was decided to form and organization. Mr. W. F. Canning and Major Willett were appointed chairman and secretary, respectively, pro tem.

After several subsequent meetings a committee was formed to take the matter in hand and to prepare the basis for an Act for submission to the House of Assembly. The committee consisted of W. F. Canning, Major Willett, T.H. Winter, A.R. Penney, James Canning, A. Rees, J.H. Burrridge and Kevin McGrath.

It was hoped to have an Act in shape to present to the last session of the Legislature but having held consultations with the Department of the Attorney - General, the committee was informed it was not possible for that Department to prepare a Bill in time for the last session of the House.

In the meantime before the opening of the next session of the House, the secretary of the committee was instructed to write to various

survey organization in the other Provinces and request copies of Provincial Acts which will be studied by the committee with the view to the incorporation of those parts of the Acts which will be applicable to an association in this Province.

Examinations for the Crown Land Surveyors were held on the 26th, 27th, and 28th of June.

New photography of the Avalon Peninsula at a scale of 1320 feet to the inch has now been received at the photo library in the Department of Mines and Technical Surveys and the photographs are available to be consulted by land surveyors and other interested persons.

Two survey parties left for the West Coast of the Island to resume work on the cadastral survey, one party will set up camp at Harry's River and the other one at Little River in the Codroy Valley.

Another survey party will be employed in the Avalon Peninsula in completing the cadastral survey as far as the Municipal Boundary of St. John's.

Survey parties from the Department of Mines and Technical Surveys are now operating in the Province and it is understood that an effort will be made to complete the topographic survey of the Island during the coming Summer. The topographic maps resulting from their work will be of great value to the surveyors in this Province."

J.H. Burrridge mentions briefly, the progress of the formation of the Association, at the end of the following report he sent to the Canadian Institute of Surveying in October of 1952.

Crown Lands and Surveys Division of the Department of Mines and Resources carried on cadastral surveys in three sections of the Province during the past Summer.

A party was employed in the Port-aux-Basques area where a new terminus Canadian National Railway is under construction. Port-aux-Basques the western end of the Newfoundland section of the Trans-Canada Highway. About thirty-five miles of the road which skirts the southern end of

the Long Range Mountains, noted for its scenic salmon rivers, have been completed with gravel surface.

The installation of a reservoir and pipe line to supply water to the Town of Port - aux - Basques was also carried out during the summer by a local survey firm. This work necessitated a contour survey of the watershed area adjacent to the town and a plan showing two - foot contours.

Another party from the Crown Lands and Surveys Division continued the survey northwardly from Stephenville Crossing towards Corner Brook in the Bay of Islands. Progress was also made with the cadastral survey of Avalon Peninsula which was begun four years ago at a point north of St. John's. The work has now been extended to the northern boundary of the city of St. John's. Cadastral plans resulting from the surveys will be plotted on sheets at a scale 500 feet to the inch.

A surveyor from the Division left for Labrador recently accompanied by the heads of the Agricultural and Forestry Divisions to lay out a village site at Port Hope Simpson in southeastern Labrador.

In view of the great demand for road maps of the Avalon, Burin, and Bonavista Peninsulas in the southeastern part of the Island it was necessary for the Division to compile ozalid prints of the road systems. The sheets have been exceedingly popular with motorists, campers, and fishermen.

Progress with the formation of a Land Surveyors' Association has been slow during the Summer owing to members of the Committee having been away on field work and vacations. The Committee has however, been able to hold two meetings recently and a draft Act has been drawn up.

Examinations for Crown Lands Surveyors were held at the Memorial University during this summer.

THE BOARD OF EXAMINERS REPORT FOR 31ST DECEMBER 1952

In accordance with Section 3 of the Crown Lands Act [of 1930] as amended by Act No. 56, the Lieutenant - Governor in Council is authorized to appoint such surveyors as he may deem necessary or desirable to facilitate the survey of Crown Land.

Under Section 3B-1 provision is made for the appointment of a Board consisting of two representatives of the Department and two other persons not connected with the Department whose duties it shall be to examine applicants for appointment as Crown Land Surveyors and to issue certificates to such applicants as satisfy the Board of their competence.

By a Minute of Council dated 26th January, 1952 the members of the Board appointed were Messrs. S. J. Carew and J. M. C. Facey, Professor of Engineering and Lecturer in Engineering respectively at the Memorial University of Newfoundland and Messrs. J. H. Burrige and K.P. McCrath, Director and Assistant Director of Crown Lands and Surveys Division.

Duties of Board

The first meeting of the Board was held on February 16th, at which Mr. Carew and Mr. Facey were elected Chairman and Secretary of the Board respectively. The Board's duties were outlined by the Chairman who pointed out that the object in setting up this Board was to endeavour to raise the standard of surveys of Crown Lands submitted by surveyors on behalf of applicants for such lands, but that the Board had no jurisdiction in respect to surveys of private properties.

Syllabus

In drawing up a syllabus the Board was governed by the consideration of providing always a survey service in isolated parts of the Province; accordingly it was decided that the standard should not be set too high at the outset, for example a knowledge of leveling has not been requisite in examinations held to date.

A syllabus, as appended, was subsequently drawn up dividing the work into three parts, namely:-

Section I - Field Work, Section II - Office Work, Section III - Crown Lands and Regulations, the applicants to be examined in each part as well as in the practical use of instruments in the field. Holders of Memorial University of Newfoundland, Engineering Diploma or equivalent or of Surveyor's Certificate from other provinces of Canada may be exempt from all except Section III of the examination.

Pamphlets, as appended, one containing relevant sections of the Crown Lands Act, 1930 and amendments thereto and Mines and Quarries Act 1951, and the other containing regulations and procedure for conducting surveys in the field, illustrated by a typical example of a survey, were prepared and mimeographed.

Applications

During the year 17 enquiries were received. It is interesting to note that one of these was from a Danish citizen working in Newfoundland and another from a Canadian citizen working in Iraq.

In dealing with applications the following procedure was adopted:-

- [i] Applicants were requested to furnish certified evidence of residential qualification and practical experience.
- [ii] On satisfactory reply to [i] a copy of syllabus, pamphlets and date of examinations were sent to the applicant.
- [iii] Application form for examination was sent out.

Of the 17 mentioned above 6 applied for, wrote and passed the examination, and received certificates. A copy of the certificate is appended.

Examinations were held in June and September and occupied three days on each occasion.

Meetings

The Board met formally 14 times during the year and had many informal discussions as well. The main work during the year was the setting up of the syllabus and standard. It is essential that the standard of surveying should be improved. To effect this either a course of instruction in Land Surveying and Mapping should be provided in the province or else an apprenticeship system should be instituted. In this connection an approach has been made to the Vocational Institute through Dr.

Frecker, the Deputy Minister of Education, with a view to their establishing such a course and it is intended to pursue this matter further in the ensuing year.

Certificates

The following were the successful candidates:-

A. E. M. Cameron	St. John's
Ellis W. Cumby	Grand Falls
A.J. Rendell	St. John's
J.C. Sherren	Grand Falls
F.C. Vivian	St. John's
Eric K. Yates	Corner Brook

Acknowledgments

The Board gratefully acknowledges the assistance given to it by the staff of the Memorial University and the Department of Mines and Resources.

In 1952 certificates were issued by the Provincial Government for Crown Land Surveyors. The Minister of Resources also paid \$10.00 per person to Mr. J. B. Ashley, Mr. W. J. Blundon, Miss Mary Casey, and Miss M. Mansfield in 1953 for services as Invigilators in connection with examination of applicants for Crown Land Surveyors Certificates, and Board Members received an honorarium of \$300.00. W.F. Haynes was the Assistance Deputy Minister of the Department of Mines & Resources and J.H. Burrridge was the Director of Crown Lands.

James D. Canning, President of the Association of Newfoundland Land Surveyors in 1960 noted in the *The Newfoundland Surveyor* "Long hard months of work were put into the preparation of the Act that was to become Act No. 38 of 1953. Cited as the Land Surveyors Act of 1953 it became law on the first day of July, 1953 and those persons named in Section 8, subsection 2 of that Act must go down in the history of the Association as being the fathers of the Association of Newfoundland Land Surveyors"

By the end of 1953 J.H. Burrridge, then secretary of the Association of Newfoundland Land Surveyors submitted the following report to The Canadian Institute of Surveyors, and it was printed in *The Canadian Surveyor* as follows:

A Newfoundland Land Surveyors' Association was legislated on the 1st of July, 1953, as the result of an Act passed previously by the Lieutenant - Governor and House of Assembly in Legislative Session. All persons holding appointment as land surveyors from the Crown are eligible for membership in the Association provided that applications are made by such persons within two years after the passing of the Act and that the fees of the Association are paid. For any other candidate seeking to enter the profession of land surveying in future provision is made for him to become articulated to a Newfoundland Land Surveyor.

The members of the first Council of the Association were appointed under the Act and are holding office until the first annual general meeting which will be held in January of 1954. The Council is now preparing the first By-laws of the Association for presentation to the general meeting.

The active membership of the Association is now twenty-five and ten other Crown Land Surveyors have expressed a desire to become members.

Examination of applicants for appointment as Crown Land Surveyors provided in Section 3B-(1) of the Crown Lands Act, 1930, as amended by Act No.86 of 1951 was held at the Memorial University on the 18th, 19th and 20th of November. Seven candidates presented themselves for examination.

Examinations are held by the Board of Examiners for Crown Land Surveyors each Spring and Fall under the auspices of the University. The examinations recently held are the last conducted under the old syllabus which was divided into three sections; namely, (1) field work and plotting; (2) theory of surveying; (3) Crown Lands Act, 1930, surveying regulations, descriptions of property boundaries. A new syllabus is now in course of preparation. It will include the elements of photogrammetry. Miniographed copies will be available to applicants before the next examinations which will be held in the Spring of 1954.

Eldred M. Chislett interviewed Alfred Rees in 2002. Mr. Rees said he was contacted in the 1930's by Jack Burridge asking if he was

interested in helping to form an Association of Surveyors. He said Jack Burridge and Kevin McGrath contacted other Deputy Crown Land Surveyors and for a couple of years corresponded with several Canadian Provincial Associations. During the war years the proposal was laid aside. Then in 1949 according to Mr. Rees, the corresponding started again with Jack Burridge and Kevin McGrath being the principal movers. They seemed to want to have a publicly recognized Professional Association. There were preliminary meetings with the drafting of an act. It took four years of correspondence with other associations combined with the changes to the draft as requested by Government to finally get the Act passed. Mr. Rees' diary shows that the first meeting was held on 1953 05 04 with the following who were founding members attending: Jack Burridge, Kevin McGrath, W. F. Canning, James Canning, Major S. F. Willett, A.R. Penney. T.H. Winter, Bill Walsh, Cyril Parsons, Ellis Cumby, and Alf Rees. The three officers elected were: President, W.F. Canning; Vice President, Cyril Parsons; Secretary, J. H. Burridge. All the remaining members became members of the Council of Management.

Land Surveyors, in 1953 when the Association was formed, were appointed by the Government, and at one time the appointment were placed in the Gazette. Under the Crown Lands Act as amended by Act No. 86 the Lieutenant - Governor in Council was authorized to appoint surveyors as he deemed necessary to facilitate the survey of Crown Land. The Provincial Government also appointed the Board of Examiners and paid them an honorarium up to 1963. The Government also paid the fee for invigilators who supervised the writing of the exams. The Board consisted of Dean S. J. Carew, Professor J.M.C. Facey, the Director of Crown Lands, and the Assistance Director of Crown Lands through out the 1950s and into the early 1960s. By 1958 Government was thinking of asking the Association to take over this duty as provided by the other Provincial Associations. By 1961 Gerry Halley, then Secretary of our Association was writing the Hon. W. J. Keough, Minister of Mines & Resources concerning Governments' wish. The Government wished that the Association would assume responsibility for the appointment of all Land Surveyors in the Province of Newfoundland and requested recommendations for same. The

Association had a number of recommendations as follows:

1. The Association of Newfoundland Surveyors was prepared to assume the responsibility for the examination and appointment of all Land Surveyors in the Province of Newfoundland.
2. The Government was to amend the Crown Lands Act, Mines & Quarries Act, Land Surveyors Act and any other related Acts requiring amendment as a result of Section 1. above.
3. The examination of the Association to be under the aegis of the Memorial University of Newfoundland and the examining board to consist of two members of the faculty of the Memorial University and two members of the Association of Newfoundland Land Surveyors.
4. The Government and the Association of Newfoundland Land Surveyors to defray the expenses of the examining board.
5. The Association suggests that Memorial University establish a diploma course in surveying leading to a degree.
6. The Association to accept any student with a diploma degree in Surveying provided;

[a] An apprenticeship of not less than 24 months with a qualified Newfoundland Land Surveyor has been completed; 12 months of which must be served after receipt of surveying diploma.

[b] Or, evidence can be produced to show 12 months field experience as required by the Land Surveyors Act.

[c] If he passes an examination in any subject required by the examining board and not covered by the diploma course.

The 1961 letter also included " The Association appreciates the problem of providing the services of Surveyors to applicants for Crown Land surveys in outlying settlements, as in many cases the total cost of the survey and expenses to the applicant is prohibitive, and suggest that the Government co-operate with Surveyors by providing sufficient work [necessary to the Government] in such areas where the land surveys are required. The applicant would be charged the standard rate of the Association for such survey and the work performed for the

Government would assist in defraying the heavy travelling expenses of the Surveyor.

The College of Trades and Technology [now called College of the North Atlantic] started classes in September of 1963 with a two year course in Surveying Technology. An applicant with a diploma in Surveying Technology was exempt from writing the examination from the Board of Examiners. A final written and oral exam was required. The new Board of Examiners was in place by 1963.

Member A. R. Penney was employed with the Canadian National Railways. When The Newfoundland Railway was taken over in 1949 by the Canadian National Railway all the property and the lines were re - surveyed. While an official out side the Province signed the plans, all the field work was done by surveyors in the Province. The detailed plans on linen are available at Crown Lands Registry and copies are at the Regional Offices. A.R. Penney in addition to the following report that he sent for publication in the October 1953 issue of *The Canadian Surveyor* also wrote various histories on the Newfoundland Railway and the Canadian National Railway in Newfoundland.

IN THE PROVINCE OF NEWFOUNDLAND

Upon the entry of Newfoundland into Confederation on the 1st of April, 1949, the Newfoundland Railway became a part of the Canadian National Railway System.

One of the first tasks of the C.N.R. on taking over the operations of the Newfoundland Railway was to take stock of the assets which it had acquired. The preparation of an inventory of rolling stock, equipment, structures and material stocks was a comparatively simple operation, but many problems arose when the time came to assess the right-of-way and properties.

The Newfoundland Railway maintained 547 miles of Main Line and 158 miles of Branch Line. It was built and operated by a private company which was originally paid in part by grants of land lying adjacent to the Railway.

The width of the right-of-way varies. Being one hundred feet wide through Crown Lands, it has no uniformity of width through villages and private lands where the lands were acquired by arbitration. Areas for station sites and sidings are also of varying widths according to the importance of the locality and its possibilities for development. Since the limits of the right - of - way and lands acquired were not delimited, encroachments were frequent and many persons were granted through the years permission to fence and erect structures on the Railway's property. Moreover the Railway changed hands several times and with each change some of the records and property plans were lost, thus making it difficult to define the boundaries of its land areas. Revisions of the line were also carried out over lands which were not formally acquired.

In view of the situation, the Real Estate Department of Canadian National Railways decided that a field survey of the railway properties was a necessity, and early in 1951 field work was initiated and a survey party was employed during the summer of that year establishing property boundaries in the St. John's Terminal area. A representative of the Canadian National Railway Survey Department accompanied this party to search through the records and plans of the Railway, to look up deeds and titles in the Registry of Deeds and Documents and to search at the Crown Lands Office and the Office of St. John's Municipal Council in order to make sure that nothing was overlooked in determining the boundaries of the St. John's Terminal.

In 1952 work was commenced by the party on the survey of the right - of - way from St. John's westward towards the Railway Terminal at Port-aux - Basques and another small party surveyed some of the larger towns and divisional points on the Railway Line.

Some thirty miles of right-of-way survey were completed during 1952. The track was traversed, curves established, mile posts defined and all topographical features noted and recorded. Astronomic observations were taken at frequent intervals and bearings of all property lines adjacent to the right - of - way boundary recorded. Monuments to mark property boundaries were

also erected.

It is estimated that it will take at least five years to complete the survey. The information obtained, besides being of great value to the Railway, will also lie of value to the Province.

Submitted by A. R. PENNEY, N.L.S.
Division Engineer, Canadian National Railways.

Reports By J. H. Burridge sent for publication in *The Canadian Surveyor* , Vol. XII No. 3,7 page 192 and Vol.XII No.9, page 599 shows the work done by Crown Lands in 1953 and 1954 around the Province and the advancement of surveying. These cadastrals were on linen and showed the latitude and longitude on the plans.

Report No. 1 by J.H. Burridge

During 1953 the cadastral survey operations were confined to the eastern part of the Province. The main survey work was carried out on the section of the Avalon Peninsula bounded by the Witless Bay Line, the Bay Bulls Highway and the northern part of the Old Placentia Road. All measurements were related to the geodetic framework of the area.

During the year twenty-two cadastral plans were compiled in the office from field work carried out in the season of 1952. These plans were drawn on a scale of 1 inch to 500 feet, which is the most satisfactory scale for land lots in this province with the exception of those in the larger towns and communities. The areas covered are Port-aux-Basques, Harry's River and St. John's East. The plans of the Port au Port section extend from the new ferry and railway terminus to a point near St. Andrew's at the lower end of the Codroy Valley. The Harry's River plans include the section bordering on the Trans Canada Highway and the railway between Main Gut and George's Lake. The St. John's East plans cover the section between Logy Bay and the Municipal boundary of St. John's.

Besides the work of the cadastral survey, the Division carried out during the summer some thirty miscellaneous surveys in various parts of

the province, several of these surveys having been made for sites for new industries. The work included re-location and measurement of property boundaries, setting grade for water and sewerage lines, and a preliminary survey for railway siding.

The boundaries of 12 cabin sites situated at Salmonier Park were also established and marked out. And twelve building lots were surveyed at Badger's Quay for persons who had moved there from nearby islands.

Report No. 2 by J.H. Burrridge

Field operations of the Crown Lands and Surveys Division of the Department of Mines and Resources for 1954 followed the same pattern as that of 1953.

Cadastral surveys were undertaken in two sections of Avalon Peninsula during the season of 1954, one being carried out in the North East Arm of Placentia and the other one in the District of St. John's West. The survey of North East Arm included the Village of Dunville and the layout of building lots adjacent thereto for personnel employed at Argentia Airport. And the survey of St. John's West covered an area bounded on the east by the highway extending from St. John's to Bay Bulls, the Heavy Tree Road and the Goulds Village on the south, Old Placentia Road on the west and Ryan's Road on north.

The survey of North East Arm of Placentia was begun at triangulation Station "Dunville" of the U.S. Base control network. All property boundaries within the area surveyed were related to closed traverses which were in turn tied-in to the triangulation control covering the section. Sufficient information resulted from the field measurements to compile seven new cadastral sheets of the area, which have been drawn on a scale of 1 inch to 200 feet.

The survey of St. John's West was a continuation of the work carried on by the Division the previous year. 104 lots described in Crown Grants were relocated and the boundaries of more than 200 occupied lots were tied-in to the surveyed lines.

During the course of the season's field operations

15 miles of boundary lines were run, 56 miles of road traverse were completed and 8 miles of railway line were surveyed.

The activities of Crown lands and Surveys Division in respect to field surveys are again for 1955 a resumption of the work carried on in 1954. Three parties are in the field taking measurements for the preparation of cadastral sheets and in this connection the field personnel continues to make practical use of the air photographs which are drawn from the library of air photographs which the Division maintains.

Besides carrying on field surveys the duties of the staff of the Division include the work of administering the Crown Lands of the province and also rights to water powers. This work entails keeping up to date records and volumes which comprise the Crown Land Registers and maintaining these records in good shape.

IN THE PROVINCE OF NEWFOUNDLAND

The Canadian Surveyor April 1954

Submitted by J.H. Burrridge

The Secretary of the Board for the examination of Crown Land Surveyors recently announced that five candidates had successfully completed the examinations which were held at Memorial University during November of last

The first General Meeting of the Association of Newfoundland Land Surveyors will be held on the 22nd of March. Resulting from a primary ballot, Messrs W. F. Canning, Cyril Parsons and J. H. Burrridge have been nominated for the offices of President, Vice-President and Secretary, respectively for the ensuing year.

The Honorable Minister of Mines and Resources announced recently that Crown Lands and Surveys Division of his Department had been working on the compilation of a new Ten Mile Map of the Island and that the work now reached a point where it was possible to hope that the map would be completed during the Summer. The preparation of this map has been a major undertaking. The map will indicate geographic features never before shown on general maps of Newfoundland and it will carry the complete

draining pattern of the Island. The exact positions of every community will be shown and all post offices, telegraph and telephone stations will be indicated. And in the event that the Legislature in its approaching session changes the boundaries of any of the electoral districts, the new boundaries will be shown.

The Minister also announced that as soon as the map of the Island of Newfoundland was completed, the Department would begin to prepare a new general map of Labrador.

Crown Lands and Surveys Division of the Department of Mines and Resources is preparing plans for next seasons field work. It is proposed to resume cadastral survey work along the West Coast of the Island and in the Avalon Peninsula.

-Submitted by J. H. Burridge

Jack H. Burridge also reports in the January Issue, 1955 as printed in *The Canadian Surveyor*:

Field operations of the Crown Lands and Surveys Division of the Department of Mines and Resources have closed down for the season. Sixteen cadastral plans will be prepared from the surveys carried on during the year. Each plan will be drawn on a scale of 500 feet to the inch and will cover two minutes of latitude and four minutes of longitude.

A preliminary survey for the purpose of locating a route for a land link in the Trans-Atlantic cable between England and the United States was completed on the 20th of September. The cable will be landed near Clarenville in Trinity Bay and will extend overland for a distance of fifty miles to Terrenceville on the southwest coast of Newfoundland. The survey was begun on the 15th of July by James Canning, N.L.S. and a party of twelve men. The work of laying the cable will be carried out next year.

The Mines Branch of the Department of Mines and Resources issued in September a geological map of the Island of Newfoundland on a scale of 1 inch to 12 miles. It is the first map showing the geological boundaries of the Island which has been published since 1905, and the second one

since the English Geologist J. B. Jukes published in 1842 a geological map of the Island which was one of the first such maps ever published in Canada.

Between the years 1910 and the early thirties little geological exploration or mapping was done in Newfoundland. But in the latter half of the thirties intensive investigations of the Island's mineral possibilities were conducted both by the Government and private parties resulting in much new information which was made available for the new map.

The original drawing for the map was made by W. J. Walsh of the Mines Branch and was based on published maps and in from aerial photographs. The geological data was compiled by D. M. Baird, Provincial Geologist, from Reports of the Geological Survey of Canada. Geological Survey of Newfoundland, mining companies operating in the Island and aerial reconnaissance.

The Association's Annual Report to the Canadian Institute for 1955 as published in *The Canadian Surveyor* Vol. XII No. 9 shows the 1954 year.

The Annual Meeting of the Association of Newfoundland Land Surveyors, which was incorporated by Act of the Legislature in 1953, was held on the 2nd of March and the following officers were elected for the ensuing year:

President; W. F. Canning;
Vice-President; T. O. Woods;
Secretary; J. H. Burridge
Councillors; Kevin McGrath
S. F. Willett, A. R. Penney
T. H. Winter James Canning

The Secretary in his report stated that the Association had for the year ending 31st of December, 1954, a balance at Royal Bank of Canada of \$744.26 and that six new members were admitted during the year.

The President set forth the work of the Council of Management of the Association for the year and gave a review of the activities of the various committees which had been set up to deal with the

Association's business and went on to say that the Association of Newfoundland Land Surveyors is now an established fact, complete with an Act of authorization to carry on the profession of land surveying in the province of Newfoundland and with a set of By-Laws approved by the Lieutenant-Governor in Council. He pointed out that we are now authorized members of a very ancient and honourable profession. And he emphasized that the Association looks to its members to do nothing that might bring it into disrepute, that there must be close co-operation among members and that, though members may at times differ in opinions upon some matters and may be diametrically opposed to others, the rule of the majority must hold for the good of the Association.

The President said moreover that at the present time the province needs more land surveyors. But they must be trained in the work. And with this view the examining committee are aiming at a syllabus that will meet the requirements of the profession. He intimated that the first aim of the Association is for a high moral standard in its members. And the second aim is for a high intellectual standard. Having attained these objects, the members of the Association could then look with confidence to their clients for adequate remuneration for services rendered.

The member ship for 1955 is as follows:

Members for 1955 were as follows:

V. Ross Batstone	J.H. Burridge, Sec.
James Canning	W.F. Canning, Pres.
Marston Cameron	L.C. Chaffey
Stan Condon	W.W. Cossitt
Ellis W. Cumby	John Cunningham
Gordon W. Dawe	D.H. Earle
G. T. Halley	Raymond Hunt
Kevin James	Harold E. Johnson
George Lawrence	E. Owen Legge
James Major	Kevin McGrath, Coun.
Wallace McIsaac	Edgar McNeil
Fred Newhook	W. J. Nugent
Cyril Parsons	S.H. Parsons
R.G. Patterson	A.R. Penney, Coun,
D.A. Poynter	Alfred Rees
Otto Ryan	J.D. Snow

N.R. Taylor	James E. Thoms
Wilfred Verge	George Way
W. J. Walsh	T.H. Winter, Coun.
T.O. Woods, Coun.	S.F. Willett, Coun.
Eric Yates	

THE NEWFOUNDLAND SURVEYOR

Vol. I March 1st, 1956 No. I

It is the intention of your Association to have a Pamphlet published, at least once a quarter, and to be known as *The Newfoundland Surveyor*. This Pamphlet will either be in mimeograph form or, if possible, and if the cost is not too great, in printed form. The Association of Nova Scotia Land Surveyors, incorporated in 1955, already have one and we feel that the same can be done here.

The Newfoundland Surveyor will endeavour to keep the members of the Association informed in all matters pertaining to land surveying throughout the Province. It will keep you informed concerning the working of your Council, and will also contain, it is hoped, items of interest to all Members of the Association.

We invite your comments in this undertaking and also any items of local interest to surveyors. Always remember that these items, no matter how short, are welcome. Some of the Members of the Association live in remote areas and these Members as well as those of your immediate locality evince an avid interest in any and all items. We also ask your address if the one now used is incorrect.

All correspondence can be addressed to the Association at Post Office Box H187, St. John's, or to James Canning, Secretary, who has, with the approval of your Council, assumed the Editorship for the time being, at Post Office Box E5039, St. John's

Proceedings of the Third Annual General Meeting

Meeting was attended by President, A. R. Penney, Wm. J. Nugent, Alfred Rees, George Way, W. J. Walsh, James Canning, Kevin McGrath, Lt. Col. Willett, J. H. Burridge.

The President called the meeting to order and asked for the Minutes of the Second Annual General Meeting. Minutes were accordingly read by Secretary and approved.

The President then presented his annual address to the Association which was well received by the members present.

The President then called upon the Secretary to read his report. The Secretary's report was read and adopted.

At the request of the President, Mr. McGrath read, in the absence of Mr. T. H. Winter who was unavoidably out of town, the report of the Chairman of the Examining Committee.

It is moved that a Minute of the Examining Committee be approved and that the Examining Board consist of Dean Carew, Mr. J.M.C. Facey, Mr. T. H. Winter and Kevin McGrath. Carried.

The President then asked the Secretary to read the names of members elected as officers for the ensuing year:-

For President - W. F. Canning, For Vice-President - T.O. Woods, For Secretary - James Canning

Councillors: J. H. Burrridge, R. G. Paterson, A. Penney, T. H. Winter, S. F. Willett

Motion: Mr. Penney moved that all members be notified that the books in the library are available to members of the Association on request to Mr. W. J. Walsh, Librarian. Carried.

Resolutions: -

Resolved that the Association endeavours towards and aims at supplying a survey service to our Province. This resolution was prompted by W. J. Walsh after a discussion on the shortage of surveyors throughout the Province, The meeting adjourned.

First Council Meeting

The first Council Meeting for 1956 was held on February 22nd, at 8.30 p.m. with the following

Councillors present:- President, W. F. Canning, J. H. Burrridge, A. H Penney, R. G. Paterson, T. H. Winter
James Canning, Secretary

Mr Winter presented a proposed syllabus for a course in surveying. This syllabus was recommended by the Examining Board.

It is proposed to integrate these subjects with the first two years in the Engineering Course at the Memorial University. It would then be possible for a student to obtain a Diploma in Surveying at the end of this two year course. Mr. Winter was authorized to carry on.

A magazine or pamphlet containing items of interest and news of Council doings was discussed and it was the general opinion of the meeting that one was very necessary and should be started without delay. The Secretary and Mr. Burrridge agreed to see what could be done in the matter and this is the first try.

Highlights of the recent Convention of the Canadian Institute of Surveying and Photogrammetry held in Ottawa were talked of before the Meeting was adjourned to meet in two weeks.

Canadian Institute of Surveying and Photogrammetry

Your Secretary recently attended the Convention of the Canadian Institute of Surveying and Photogrammetry which was held at Ottawa on February 1st, 2nd and 3rd. He was appointed the Newfoundland Member of the Council of the Institute at the Convention and he will hold that office for the next two years.

There were many subjects discussed at this Convention but the main one, in the opinion of your Secretary, was the matter of the standardization of Examinations for Surveyors in all Provinces. A full report of this discussion will be given in a future issue of *The Newfoundland Surveyor*. Other items of interest will also be reported upon in future issues.

Any member of our Association can become a

member of the Institute, upon application and payment of the annual fee of five dollars. The Institute has for its members, men who are top of their class in surveying profession throughout the Dominion. The Institute publishes quarterly a magazine "The Canadian Surveyor"²¹ which is free to its members and this magazine alone is worth the five dollar annual fee, containing as it does, many articles of interest to all Surveyors. And it is worthy of note that the present Editor of the "Canadian Surveyor" is a Newfoundlander, Mr. E. J. Jones. Applications for membership in the Institute can be obtained from your Secretary.

Magnetic bearings, or bearings that are derived from the Magnetic North Pole, should never, under any circumstances, be used in descriptions of land. On reason for this is that such bearings are incapable of being determined with a sufficient degree of precision --say within fifteen minutes. The chief reason, however, is that, for causes which have never been scientifically determined, the Magnetic North Pole is not constant, but varies from day to day and from year to year.

The Editor or Mr. Burrige would like to hear from every Member of the Association who has any constructive criticism to offer on this, the first issue of *The Newfoundland Surveyor*.

THE NEWFOUNDLAND SURVEYOR

Vol. 1 No.2 November 17th, 1956

The second edition of *The Newfoundland Surveyor* appears later than was originally planned. Because of the pressure of field work during the past season, many routine activities were deferred. We trust that this second edition will be interesting and informative.

The first Fall meeting of the Council was held Tuesday, November 6th at 7.30 p.m. The meeting was attended by all members of the Council with the exception of two who were out of town. A large volume of business which had accumulated during the past few months was attended to and many important matters were discussed.

At the end of this edition you will find a

questionnaire which we should be pleased if you would kindly complete and return in the stamped envelope. It is important that we keep our records and lists up - to - date and we are using this method to facilitate our efforts.

The primary ballots will be going out within a few days and members who have not paid their fees should do so. As the Constitution of the Association states that no member is eligible to vote unless his annual dues are paid, any member who has not paid his fee should do so.

Enquiries are received from time to time by the Secretary in reference to Articles of Agreement for articulated pupils. The necessary forms may be obtained from the Secretary by any member upon request.

It is very important that every student surveyor should be properly articulated and all members who have student surveyors should attend to this at once.

I am including a portion of a letter which I received a few days ago from a fellow member. I feel that this is the best way in which the matter can be brought to your attention.

I think everyone will agree that we have some responsibility here. The least we can do is to make sure that we can intelligently advise young men who are interested in a career in surveying, as to what is involved.

I have been in touch with the Crown Lands Board and have been promised copies of the Syllabus as soon as a fresh supply has been printed. If I can get enough copies I shall send one to each member of the Association.

Secretary.

Mr. James Canning,
Secretary,
Newfoundland Land Surveyors Association,
P.O. Box H-187,
St. John's.

Dear Jim,

You will recall that I spoke to you, last Spring, about the number of enquiries which had been received at the Crown Lands Office relating to the requirements and procedure governing the appointment of Land Surveyors.

A few of the young men who enquired had previously discussed the matter with a surveyor. The divergence of advice and opinion which they received was surprising.

Every member of the Association should be able to give an intelligent explanation of this matter to any person who may be interested in it. The person seeking the information should then be in a position to decide, whether he should prepare for the examinations of the Crown Lands Board, or become articled to a Newfoundland Land Surveyor, as provided in the Land Surveyors Act.

At present there are two avenues open to anyone with the basic qualifications who wishes to obtain a licence to practice land surveying in this Province. (1) The applicant may proceed to obtain a certificate as a Crown Lands Surveyor from the Board of Examiners for Crown Lands Surveyors or (2) he may become articled to a Newfoundland Land Surveyor with a view to take the examinations approved by the Association in conjunction with Memorial University. It should be borne in mind however that until the Association and the University have agreed on a Syllabus and arranged for the instruction of pupils, the applicant would be well advised to follow avenue (1) above. whatever the applicant decides it would also be well for him to become articled to a Newfoundland Land Surveyor. In addition to helping with his studies, the surveyor can act as an adviser and friend and assist the student to obtain employment in order to gain the necessary experience and credits.

The prerequisites to taking the examination of the Crown Lands Board of Examiners are:-

- (1) Grade XI Certificate.
- (2) Two years residence in Newfoundland.
- (3) minimum of 2 to 3 years field experience in various classes of survey work. Part of this time must have been spent in a position of

responsibility such as party chief.

The Syllabus for the examinations is divided into three sections:-7

Section 1. SURVEYING METHODS - FIELD.
Two tests - one written paper and one practical test.

Section 2. SURVEYING METHODS - OFFICE.
Two papers - one written paper and one test on drafting.

Section 3. LEGISLATION AND REGULATIONS FOR SURVEYS

The papers in Section 1 cover measurements of Length, Angles and Elevation and various field exercises such as Solar and Stellar observations. Section 2 deals with the reduction and adjustment of field notes and the plotting of same. The use of aerial photographs is included in this. Section 3 covers procedures under the Crown Lands Act and other Acts relating to lands as well as metes and bounds descriptions of properties.

The basic text books for the course are "Surveying" by Breed and "Higher Surveying Vol. 2" by Breed and Hosmer. The Secretary of the present Board of Examiners is J. N. Facey, Lecturer in Engineering, Memorial University. Letters may be addressed to the Secretary, % The Department of Mines and Resources, St. John's.

I think that any member of the Association should be able to supply the information outlined above. Until such time as the Association has established its own Board etc, the Crown Lands Board will continue to function. Under the present setup you will appreciate that it is important that the student surveyor should obtain employment at field work. while the Association has no direct obligation in this respect, as members and surveyors, we should be willing to do all possible to help a student surveyor obtain employment.

You may be interested to know that the number of enquiries received during the first half of the year was thirty-five. You may have received others in addition to this. I am sorry I could not write you before but I have been busy during the Summer

months. I hope however that you will see your way clear to bring this matter to the attention of members as I think that we have some responsibility in this respect.

Short Report of Examining Committee T.H. Winter.

Members will be interested in knowing what progress has been made in establishing a Syllabus for the qualifying examinations for admission to the Association. As some of you may know, copies were obtained of the Syllabus of seven of the Provinces, from which a proposed Syllabus for Newfoundland was drafted. This agreed almost identically with the revised draft of a "Suggested Basic Training Course and Syllabus of Examinations for Land Surveying Students", prepared by Mr. J. H. Holloway, Secretary of the Alberta Land Surveyors Association, and submitted to each Province for their approval as a standard unified course for Canada.

At a general meeting of survey officers at Ottawa on 31st January, 1956, which meeting was attended by our Secretary, the proposed Syllabus was approved in principle by each of the Provinces, with the exception of British Columbia and Manitoba, which are already governed by Provincial Statute, and Quebec. Two of the Provinces questioned the necessity of the preliminary examination for admission to articles; four of the Provinces were not in favour of including calculus, while one Province objected to physics. Meanwhile Newfoundland has been asked to give consideration to the adoption of Mr. Holloway's proposed Syllabus. Your Examining Committee has agreed on the subjects covered, but recommends that instead of the three examinations; namely, "preliminary" "intermediate" and "final", only two examinations should be required, a preliminary examination for admission to articles and final examination for admission to membership.

For the present, the Examining Committee for Newfoundland recommends the acceptance of Grade XI for admission to articles, provided a pass mark of 50% is obtained. Your Committee strongly recommends that the standard laid down by this Syllabus should be adopted by Newfoundland provided instruction in the various subjects

can be obtained. To this end, the Committee negotiated with the Memorial University, with a view to having this course provided in conjunction with the first two or three years of the pre-engineering course given by the University.

Up to the present the Committee has received no definite answer as to the University's agreement with your Committee's request for the provision of this course, but your Committee's proposal is being given consideration.

The Land Surveyor in the Community J. H. Burridge

Four centuries ago Sir Francis Bacon said: "I hold every man a debtor to his profession; from the which as men of course do seek to receive countenance and profit, so ought they of duty to endeavour themselves by way of amends to be help and ornament thereunto".

Every member of the Association of Newfoundland Land Surveyors should bear in mind that the Legislature of this Province has established and authorized our Association to perform certain functions. It is important therefore that each Newfoundland Land Surveyor should make himself familiar with the objects of the Association, which are incorporated in Our Charter.

Our Association exists primarily to improve the efficiency of land surveyors in the Province in matters relating to land surveying. Secondly our Association seeks to advance and protect professionally the interests of land surveyors. When we have created a general standard of efficiency, our Association will in time assure the general public of the competency of each one of its members in the work of carrying out land surveys in this Province. It is thus incumbent upon all members of the Association who are active in the practice of making land surveys to maintain amongst themselves the highest possible standards of technical, professional and ethical practices.

The functions of a land surveyor are generally considered as one who measures and delimits

property boundaries and computes acreages and prepares legal descriptions. A land surveyor is, however, generally called upon to carry out other jobs of surveying which do not fall within these categories but which are nevertheless regarded as part of the normal activities of land surveyors.

Many of the jobs which our land surveyors are asked to carry out these days form the background for the development of industrial projects, highly important defence operations, and public works where the highest degree of precision in the field operations is requisite. It is important therefor that they should be educated to the standards obtained in the surveying profession in any part of Canada.

Indeed it is also important that every Newfoundland Land Surveyor seek the prestige of a professional man and the first step in this direction is that he should take an active interest in the work of his Association which is striving to improve the general practice of land surveying throughout the Province.

Name

P.O. Address

Employer

Your position with Employer

If self-employed please give the following:

Office Address

Have you an articulated pupil?

If so, Name

Address

Have you received your Certificate yet?

HAVE YOU REMITTED YOUR FEES?

THE NEWFOUNDLAND SURVEYOR

Information Bulletin

Vol. 1 No. 3 January 23rd, 1957

EDITORIAL

The Annual General Meeting of the Association was held in the Lecture Theatre of the Memorial University on Tuesday, January 22nd. Twenty one members attended the meeting, twenty being from St. John's and vicinity and one member, J. B. Thoms, from Gambo.

The meeting was very successful from the aspect

of the reports submitted and business transacted. However, it would have been an exceedingly more auspicious occasion if, besides the East Coast, some other sections of the Province had been represented. We would have certainly welcomed the presence of, and rolled out the red carpet for, one or two members from the central and western parts of Newfoundland.

Our Solicitor, Mr. Don Dawe, Q.C. gave a very informative talk on the subject of adverse possession as it effects the status of properties and lands and Dean Carew submitted an interesting outline of the history and traditions of land surveying beginning from Babylonian times.

After adjournment of the meeting and before the members dispersed for a social hour, the incoming President, Mr. T. H. Winter made, on behalf of the Association, a presentation to the retiring President in the form of a Silver Caribou mounted on black marble which was suitably inscribed with the retiring President's name and term of service.

The members then proceeded to the office of W. F. and James Canning where, as the guests of the officers and council, a very enjoyable social hour was spent by them. Mrs. James Canning, the good wife of our Secretary, having very nicely laid out previously on the firm's drafting tables the usual refreshments. Everyone present seemed to have enjoyed themselves thoroughly.

The present issue of The Newfoundland Surveyor is devoted entirely to the proceedings of the Annual Meeting and we trust that it will be carefully perused by all members of the Association.

In accordance with the provisions of the Land Surveyors Act, a list of names of all persons appearing on the register of the Association will be published before the first of April in the Newfoundland Gazette and two other papers. Members are requested to take notice and kindly see that their fees for 1957 are paid before this date.

Proceedings of the Fourth Annual General Meeting of the Association of Newfoundland Land Surveyors held in the Lecture Theatre of the Newfoundland Memorial University on Tuesday,

January 22nd , 1957 at 8:00 p.m.

President called meeting to order at 8:10 p.m.
Minutes of last General Meeting read by Secretary.

Moved that the Minutes be adopted as read by Mr. McGrath and seconded by Mr. Paterson. Carried.

President's Address.

Secretary's report and financial statement.

Mr. D.W.K. Dawe, Q.C. Introduced by Mr. W. F. Canning.

Report of Board of Examiners by Mr. T. H. Winter

Dean S. J. Carew introduced by Mr. W. F. Canning.

Announcement of Officers for year 1957.

The result of the balloting was as follows:-

President - T. H. Winter
Vice-President - T. O. Woods
Secretary - James Canning
For Councilors

Mr. J. H. Burridge
Mr. A. R. Penney
Mr. R. G. Paterson
Mr. S. F. Willett
Mr. B. Cumby

Proposed by Mr. McGrath and seconded by Mr. Burridge that Mr. W.F. Haynes be asked to audit the books of the Association for the year 1957. Also that a vote of thanks be expressed to the Memorial University of Newfoundland the use of the Lecture Theatre for the General Meeting.

Installation of the new President.

Adjournment.

Presentation to W. F. Canning.

PRESIDENT'S ADDRESS

Gentlemen:

This is the last time that I shall have the honour to address you as the President of the Newfoundland Land Surveyors Association, and in presenting to you my retiring address, I wish to express my sincere thanks for the trust you have placed in me each year since 1953 in electing me to the highest office in this Association.

Throughout the years I have endeavoured at all times to carry out the functions of a Newfoundland Land Surveyor to the best of my ability and to raise the prestige of our profession in the community.

It is not my intention to review the activities of our Association during my tenure of office as your President, but I should like to dwell on a few aspects of work and the aims and objects we are striving for.

Looking back over the progress of our Association during the past four years, I feel there are three events which stand out as important monuments of our achievements. First, perhaps, was the enactment of a Land Surveyors Act in 1953. Secondly, there was the approval of the Bye Laws of our Association by the Executive Council in 1954, and lastly the meeting of the Examining Committee which resulted in the establishment of an Examining Board consisting of Dean Carew, Professor Facey, Mr. T. H. Winter and Mr. Kevin McGrath.

Gentlemen, prior to the establishment of this Examining Board these same persons acting as a committee strove assiduously during the past two years to bring to fruition a syllabus designed for the examination of pupils for the land surveyors profession which syllabus has been the hopes and aspirations of a small coterie of Newfoundland Land Surveyors for many years.

I would say that, having been associated for a period of fifty years with the work of land surveying, I am proud and privileged that I have had the opportunity to be associated in a small way with this important undertaking.

As I look ahead I realize that my personal contribution to the work of the Association can, in the future, be on a limited scale only. Very shortly you must however assume the complete responsibility for the training of articled pupils to carry on the work of land surveying in this province. This was the purpose for which the Association was formed. If we do not intend to carry out to the full our obligations in this respect, then there is no need or reason for the existence of this organization. And we shall have failed miserably in our obligations to those who will follow on and continue the important work in which we are engaged in our community.

I cannot let this occasion pass without expressing my sincere thanks to the officers and members of the Council who have served with me during my four terms as President. I think you will not find a more able group in any organization in the Province.

We have been fortunate, too, in the friends we have made outside the Association. The advice and assistance we have received from Don Dawe, Q.C. are not based solely on the relationship of solicitor and client. While I have no recollection of ever having seen a request for compensation for legal services, I do recall a lot of helpful advice and sound opinion which we have received during the past three years, and are still receiving.

We are most fortunate in the nomination of Dean Carew and Professor Facey to the Board of Examiners. The appointees to this Board may well have been justified in adopting a formal attitude without displaying any great concern for the many problems inherent in establishing a Board of this kind. Our representatives to the Board have informed me however that the gentlemen I refer to could display no keener interest in getting the Board off to a good beginning, if they were officers of the Association. To all these friends of the Association we are thankful. I can only infer that our efforts to improve the standards and service which we render to our communities are appreciated to an extent, greater than we realize.

The membership of the Association continues to increase. Our financial position is sound as you will appreciate when you hear the report of the

Secretary later in these proceedings. From the early days of the Association we have carefully managed our finances, not a dollar has been used for a purpose that was not necessary and for the benefit of the Association. We have always kept foremost in our minds the idea that we would some day require extra funds for the efficient operation of the Board of Examiners and the establishment of a scholarship or educational fund for student surveyors. That day is now at hand and for a period I believe we shall have to devote a substantial part of our income to these purposes.

If members feel that they are entitled to a scale of fees comparable to that in other provinces, they they must be prepared to see that our surveyors are equally qualified with those in other provinces and that the service given is as good. This is going to be a very important factor in the future. A whole field of activity is opening up to our members in Labrador. The large corporations now operating there must shortly begin to supply the Government with plans and surveys. Several thousand Square miles are involved, and many new problems of transportation, supply and weather have to be considered. Members will have to decide whether the work can be tackled on an individual bases or whether some cooperative form of operation can be worked out to the benefit of the operators and surveyors alike.

The fact that our members are scattered all over the province will always tend to limit the number who will be able to attend the annual meetings, and it often happens that some of us who reside in St. John's find that our work places us elsewhere at meeting time. Interest in the activities of the Association however remains high as evidenced by the heavy ballot in the annual election of officers. The vote this year was about 85% of membership.

May I offer my congratulations to the new officers. The President - elect Mr. Winter had a long experience in all phases of surveying both in this country, the United States and in England. I am sure the Association will benefit from his mature judgment, patience and proven organizing ability. I wish him a successful tenure of office.

SECRETARY'S REPORT FINANCIAL STATEMENT

1955 - 45 members
1956 - 53 members

The place of residence and a few other facts relating to the members of the Association may be of some interest at this time:-

West Coast	Corner Brook . .	11
	Curling	1
	Cartyville	1
	Stephenville . .	1
Central Newfoundland	Grand Falls . . .	2
	Buchans	1
	Gambo	1
Northern Newfoundland	St. Anthony . . .	1
	Burin Peninsula	
	St Lawrence . .	1
Avalon Peninsula	St. John's	27
	Freshwater, P.B.	1
	Wabana	2
Residing outside Province		3

Our members are employed as follows:

In private practice	18
Government Offices Federal and Provincial . .	12
Municipal Government	2
Paper Companies	7
American Bases	2
Other Companies, including mining	7
Not Active	2
Outside province	3

Memberships

The membership in the Association has been steadily increasing since it was incorporated in 1953. The figures for the various years are as follows:-

1953 - 29 members
1954 - 40 members

Of this figure of 53 members, 49 are fully paid up for 1956 and we have one delinquent for 1955.

Finances

The following is a statement of the financial standing of the Association, which has been audited by Mr. W. F. Haynes:

Receipts

Balance at Royal Bank of Canada (Freshwater Road Branch) 1st January, 1956 . .	\$1,111.80
Annual Membership Fees 1956	390.00
Sales of Bye Laws and Certificates	17.00
Registration of New Members	180.00
	\$1,698.8

Disbursements

Printing and Stationery	\$69.48
Stamps, miscellaneous expenses	36.44
P.O. Box Rental	6.00
Typing	40.00
Bank Charges	2.25
	154.17
Balance Petty Cash on hand	16.49
Total	170.66
Balance at Bank 31st December, 1956	1,528.14
	\$1,698.80

Canadian Institute of Surveying and Photogrammetry

Your Secretary attended the Convention of the Institute at Ottawa early last February (1956) and conveyed to the gathering the best wishes of the President, officers and members of the Newfoundland Land Surveyors Association, and was appointed Newfoundland Councillor, a position which he will hold for 1957. Membership in the Institute is open to any member of this Association. I can assure anyone joining that they will benefit greatly from such a membership. The Convention was both instructive and pleasant. I found that the whole Council of the Institute were eager to find out all they could about our Association and showed every interest and gave assurance of any assistance that we may at any time require. At the

present moment ten of our members are in the Institute and the applications of two others are pending.

The Newfoundland Surveyor

During the past year we have brought out two newsletters which we have given the name of *The Newfoundland Surveyor* and we trust that this effort has been well received. We asked our members for their comments but they were few and far between. We will endeavour to bring out four copies of this newsletter during the coming year.

If I may be excused a personal note I would like to thank all those who have assisted me in my duties as Secretary during the past year and I hope I can continue to expect such support. Especially would I like to thank Mr. Kevin McGrath who, although not a member of the Council, was very helpful whenever asked for assistance.

The thanks of the Association should also go out to Mr. W. F. Haynes for so kindly auditing the accounts, Miss Helen Rose and Miss Irene Knight for typing and Mr. William Coultas who looked after the mimeographing of the various letters etc. for us.

I move that this report be adopted.

James Canning, Secretary.

REPORT ON THE ADDRESS OF DONALD DAWE, Q. C.

Donald Dawe, Q.C. delivered an interesting and informative address on the subject of "Squatters Rights" This address was a concise explanation of an involved and troublesome problem with which all surveyors in this country are confronted at one time or another.

Mr. Dawe listed the factors which should be considered in determining the value of a title established by Adverse Possession. He described several cases where lands had been occupied for period in excess of 20 years but because of circumstances or a technicality no title had been established to the land. The speaker also explained the application of the 20 year and 40

year terms of possession.

In speaking of the cordial relations which exist between the members of the Law Society and our Association he expressed the hope that we would each continue to respect the rights of the other. We should be particularly careful in dealing with matters where our respective interests were likely to overlap; such as, in matters related to the transfer of lands. It was as unethical and improper for a lawyer to take measurements himself for description and title purposes, or to accept them from one who was not a surveyor, as it was for the surveyor to conduct a search of title for a client or to draft an assignment. Special training was required in each of these operations and the person for whom the service was being performed was entitled to the benefit of that special training. This was true apart from any consideration of the legal aspects of the matter.

Mr. Dawe expressed his pleasure and surprise at the progress which the Association had made in the past few years. He was pleased that the Association was taking so earnestly its responsibilities in the educational field. He felt that when an approach was made to the Government to have the Association assume the full responsibility for the training and examination of surveyors, the request should be favourably received.

As Mr. Dawe did not use a prepared text we can only supply the above report.

REPORT ON THE ADDRESS OF DEAN CAREW

Dean Carew referred to the advances which have been made in all branches of the Arts and Sciences through the centuries. What man has accomplished in recent years in the physical world has exceeded even his dreams of a few decades past. The need for proficiency in all vocations is greater today than it has ever been. The profession of surveying is no exception to this. As individuals or as members of an association or community we all have a part to play and a contribution to make to this progress.

The science of measurement has advanced a long way from the time when the first recorded measurements were made in ancient Babylon or along the banks of the Nile. To mention only one aspect namely, the advances in new techniques and Surveying instruments; it is evident to all that a great deal more basic knowledge is required today to cope with these advances than was required by our predecessors. If we have enlarged somewhat upon the general field of knowledge which our predecessors considered as basic, we have no place for complacency. The search for knowledge and improvement is never ending.

Dean Carew referred to what he considered to be the three mile-stones in the life of our Association. The first milestone was the Act of Incorporation of the Association; the second was the appointment of the Board of Examiners and the establishment of the new Syllabus; the third milestone was still ahead of us and our journey would not be complete until we reached it. This milestone, although it may be some distance away, would mark the introduction of a complete course in surveying which would be the equivalent of any four year college course. The day has come when a surveyor finds his future better furthered by a background of formal academic instruction and training than by a commendation based solely on practical experience.

In closing Dean Carew congratulated the Association upon the progress it had made in a short period and expressed the hope that it would continue its efforts to improve the standard of the service which it renders to the community.

As the above address was delivered without a prepared script, we can only furnish the above brief resume.

REPORT ON BOARD OF EXAMINERS

The first formal meeting of the Board of Examiners for Newfoundland Land Surveyors was held at Memorial University Building on December 17th, 1956. Mr. T. Winter was elected Chairman, the other members of the Board are Dean Carew and Professor Facey of Memorial

University and Kevin McGrath, Secretary of the Board.

As the Board has been functioning for only a month, it has not been possible to accomplish much beyond getting organized. Four meetings have been held during that period and a start has been made with the drafting in detail of a Syllabus for the admission of articled pupils to study and to practice as Newfoundland Land Surveyors.

Although the Board is new, a great amount of preliminary work has been done during the past two years. In June 1954 a small committee under the Chairmanship of Mr Winter was appointed by the Association to implement the provisions of the Land Surveyors Act in respect to the examination of candidates. The requirements of each of the other Provinces were examined by this committee and an outline of a course of studies was prepared. The necessary text books were purchased and examined in order to determine their suitability for the course.

At this stage it was realized that to cover, properly, a course along the lines proposed some form of sustained formal training would be necessary. It seemed doubtful that many surveyors in active practice today would have the inclination, time, or patience to apply themselves to the added problems involved in instructing an articled pupil in the subjects chosen.

That concern in this respect was not confined to our own organization is apparent from the nature of the Brief submitted a few weeks ago to the New Brunswick Development Commission. A recommendation of the New Brunswick Land Surveyors Association to the Commission is as follows quote "We recommend the participation of New Brunswick in the operation of the Nova Scotia Land Surveyors School as presently operated by the Province of Nova Scotia. This recommendation is made in the hope that land surveyors might procure adequate basic training etc, etc."

The Brief also states "Our neighbouring Province of Nova Scotia has an excellent technical school of land surveying affiliated with Nova Scotia Technical College; the students on graduation are entitled to write the Nova Scotia Land Surveyors

examinations and on successful completion, to practice".

I think that these quotations confirm the fact that our concern was justified and indicate a growing trend to provide more formal basic education and instruction for land surveyors in other Provinces of Canada.

When the preliminary work, which I mentioned previously, was completed discussions were held with Dean Carew and Professor Facey of the University. The subjects selected for the Board's examination were compared with the University syllabus. When some minor changes had been made in our original selection of subjects, it was possible to bring our course in line with the first two years of the Engineering Course of the University. It is realized that some special arrangement will be necessary in respect to a few subjects such as Town Planning, Photogrammetry, Forestry growth, Statutes, and Property descriptions. The Board now feels however, that a satisfactory solution to this problem can also be found.

The important thing is that should an articulated pupil of a Newfoundland Land Surveyor so desire, it may be possible for him to obtain about 85% of the required course by completing two years of the four year engineering course at the University. However, if a student feels that he can cover the prescribed course on his own by private study, he may of course do so. In the latter case he will receive all possible assistance from the Board and I assume also, from the surveyor to whom he is articulated.

In conclusion, I should like to express, on behalf of the Association, our thanks to Dr. Gushue, President of Memorial University, for his kindness and co-operation whenever we had occasion to refer any matter to him.

The nomination of Dean Carew and Professor Facey to the Board of Examiners was a fortunate event for us. At the sacrifice of their limited time they have taken on this work with enthusiasm, and have shown a sympathetic interest in our problems. If this interest was not as keen as it fortunately happens to be, I feel we would have a difficult task ahead of us.

We owe Dean Carew and Professor Facey a deep debt of gratitude.

I trust that this brief report will give member a better idea of what the Board has been doing during the past Couple of years and what our objectives are. It is now possible for our Association to begin to plan for the day when the question of the training and examination of Provincial land surveyor will be entirely its responsibility.

THE NEWFOUNDLAND SURVEYOR

Vol. 1 July 8th 1957 No. 4

A short while ago every member of the Association was mailed a list of the subjects contained in the new Syllabus, together with a letter of explanation and stamped addressed envelope for a reply. It was requested that we have the comments of every member on this important matter. We are receiving some replies but they are coming in slowly and we had hoped to have most of them in by this time. Our Board of Examiners have done an excellent job in compiling this Syllabus. The least the rest of us can do is to show our interest by getting our comments in as soon as possible.

The Canadian Institute of Surveying and Photogrammetry

The fiftieth Annual Convention of the Institute was held in the Chateau Laurier, at Ottawa, on February 6th, 7th, and 8th past, and was attended by some six hundred members from all over the Dominion. Your Secretary attended as the representative of the Newfoundland Association and also as Provincial Councillor for Newfoundland, and conveyed the best wishes of the Newfoundland Land Surveyors to the gathering.

A meeting of all representatives of the various Provinces was also held in the offices of the Surveyor General of Canada, Mr. R. Thistlethwaite. Matters of importance to surveying and surveyors were discussed. One topic on the agenda was the standardization of the qualifications of Land Surveyors and reciprocity

between the Provinces. It was felt that there was a greater need now for reciprocity than ever before but that it could not be very effective until the standardization of qualifications was completed. The time is approaching when these qualifications are becoming general in every Province throughout the Dominion. Newfoundland came in for congratulatory remarks from other provincial Delegates upon the progress made by our Association in this respect and especially for the progress made by our Examining Board.

The Convention was very successful and the various papers were well attended and enjoyed. The convention is Dominion wide and is attended by Institute Members from British Columbia to Newfoundland. Any member who could find the time to attend would find the value of the associations made during the Convention more than offset the few dollars and cents it cost to attend.

Any member of our Association can become a member of the Institute and your Secretary would be glad to forward anyone an application form upon request. The annual fee is five dollars and for this fee Members receive "The Canadian Surveyor", published quarterly by the Institute.

Labrador Surveys

As some of our members are aware, certain members of the Association were approached last Winter with a view to their submitting bids for survey work to be done in Labrador during the present Summer season. It is history now that no Newfoundland Land Surveyor received the contract for this work although it was to be done in Newfoundland Labrador. The Surveyors who submitted bids are disappointed to say the least. The job in question went to a firm of Quebec Land Surveyors and the work is being done under the supervision of a Newfoundland Land Surveyor who is in the employ of the Company having the work done.

The Newfoundland Land Surveyors were given to understand by a representative of the Company for which the work is being done that they could not expect assistance in any form from the Company and that all labour, supplies and equipment would

have to be brought from Newfoundland. The surveyors involved made a very careful study of the aerial photographs and maps of the areas to be surveyed and a study of all costs, including the cost of transportation in Labrador, in order to come up with a reasonable bid. One group of surveyors even sent a representative to Knob Lake, or Schefferville as it is now known, to get first hand information. The surveyors are satisfied that their bids were reasonable according to Newfoundland standards.

It has since been learned that most of the labour and all of the supplies and equipment could have been obtained in and around Seven Islands and all three commodities are cheaper there than they are in this Province, and if obtained in that area would have saved the expense of transportation from this Province to Seven Islands and return. Further there was no indication in the first place that bids would be asked for in Quebec.

The Newfoundland bids were higher than the bids from Quebec. Had the information since obtained been forthcoming in the first place, the Newfoundland bids might have been more on a par with the Quebec bids and some Newfoundland Land Surveyor might have obtained the work even though it meant going outside his own Province for any labour and materials required.

When all the facts were known, it was felt by the Council that the matter needed careful consideration in view of the fact that there will be more survey work in Newfoundland Labrador in the future and other Companies will be operating there. A meeting of the Council was called and held on Wednesday, May 5th, instant. This meeting was attended by the President, the Secretary and the following Councilors; Mr. J. B. Burridge, Mr. A.H. Penney, Col. S. F. Willett and Mr. R. G. Paterson.

The meeting discussed the matter of the Labrador surveys and the advisability of sending a delegation to the Annual Congress of the Corporation of Quebec Land Surveyors that was held at the Chateau Frontenac, in Quebec City, on May 23rd, 24th, and 25th past. As a result of the discussions it was decided that a stronger liaison between our Association and the Corporation was most essential.

Mr. A. R. Penney proposed and Mr. R.G. Paterson seconded the proposal that the President and the Secretary accept the invitations they had received from the Corporation to attend the Congress of the Corporation with the expenses being defrayed by the Association. Thus the President and the Secretary attended the Congress as the Newfoundland Delegation. At the meeting Col. Willett intimated that he would be attending the Congress as a private member.

Following you will find reports and information concerning the results of this visit to Quebec City.

The Quebec Trip - James Canning

This is an historical sketch rather than a report of the trip made by the Newfoundland Delegation to Quebec City to attend the Annual Congress of the "Corporation des Arpenteurs - Geometres de la Province de Quebec", to give the Corporation of Quebec Land Surveyors its correct title in French.

After a false start in the afternoon of Tuesday, May 21st., our plane finally got away from Torbay Airport on Wednesday at 10 a.m., Newfoundland Daylight Time. We arrived at Dorval Airport at 2:45 Montreal Time, leaving again at 4:35 p.m. and arriving at Quebec Airport at 5:25 p.m. We motored to the Chateau Frontenac where we found that our reservations were in order.

That night, after tea, we received a call from Mr. L.G. Gastonguay, the outgoing President of the Corporation, and we met in the Committee Room at the Chateau. There we found gathered the Officers and Directors of the Corporation, who were for the most part accompanied by their wives, and we received a royal welcome. We found that Ontario was well represented by Mr. Beatty, the Surveyor General for the Province of Ontario and his wife, and also by Mr. Williams and his wife. Mr. Williams is with the Ontario Hydro. Ontario was the only other Province besides Newfoundland represented at the Congress. Mr. Miller, Director of the Surveys and Mapping Branch of the Department of Mines and Technical Services, was also there with his wife.

After the meeting had disbursed we found that

Col. Willett had arrived, having made a direct connection from Moncton to Quebec City instead of having to go through Montreal.

On Thursday, May 23rd, the Congress officially opened at 9:30 am. with registration of those attending. The guests were welcomed to the Congress by L. G. Gastonguay and our President Mr. Winter made a suitable reply on behalf of Newfoundland. After this we saw the swearing in of new Quebec Land Surveyors. Other guests that we met for the first time included Mr. Phillips Bill, Chairman of the Connecticut Valley Survey Association, Mr. T. C. Blachut of the National Research Council of Canada, and Mr. Gordon Ainsworth, President of the Massachusetts Association of Surveyors. In the afternoon we listened to two interesting papers, both of which will be published in this Newsletter with kind permission of the Corporation, and the lecturers. The first of these papers was delivered by Dr. Georges Cote, F.R.I.C., Director of Cadastral Surveys for the Province of Quebec. His paper was given in French, but he gave certain sections in English for our benefit. It concerned the surveys and work done in the North. This paper will be translated in English and sent to us for publication. Mr. W.H. Miller gave a paper on "Progress in Surveying and Mapping in the last quarter century". This paper is re-printed in this issue of the Newfoundland Surveyor. Both were excellent papers and were well received.

At night we attended the Annual Dinner. The Minister of Mines and Forests for the Province of Quebec, representing Premier Maurice Duplessis, spoke in French and in English when he welcomed the representatives from the sister Provinces. The special speaker was a Surveyor from France, who spoke in French.

The next day we were informed that, as all the papers were in French, a tour of the City and environs had been arranged for us, and I can assure you that it was heartily enjoyed by the three of us. The survey firm of Belanger and Bourget loaned us a station wagon and a driver for the tour and he conducted it in a most excellent manner. Quebec is an old City full of points of historical interest and very like our own City of St. John's in that respect. We saw the Heights of Abraham, the old forts and guns, the old walls and ramparts,

and this in a setting of trees in full leaf with green lawns and colourful beds of flowers make a very beautiful sight.

That afternoon I attended the reception given at the Survey and Forestry School at Laval University. I had the pleasure of going over the School and I saw many interesting items used in the instruction of Surveyors and Foresters. At night I attended a Buffet and Dance at the Chateau du Lac at Lac Beauport, some ten miles to the northward of the City of Quebec.

On Saturday there was a general discussion meeting which we attended and in the afternoon I attended a picnic at Petit Cap, some forty miles down river from Quebec. I left Quebec at 6 p.m. for Montreal and caught the 9 p.m. flight out of Montreal arriving at Torbay Sunday morning at 7:30 a.m.

The weather for the entire trip was most enjoyable and warm and it was quite a contrast to disembark at Torbay Airport.

The main purpose of our trip was to set up a liaison with our brother surveyors in the Province of Quebec who have common interests with us in any surveys on Labrador in general and in particular with any surveys that are in close proximity of the Provincial Boundary. There will be many such surveys by other companies in the future and we were given to understand by all we met that there would be no infringement on the rights of Newfoundland Land Surveyors. The Quebec Surveyors are as jealous of their rights as we are. However there is nothing to prevent Quebec Surveyors from coming into Newfoundland Labrador any more than there is anything to prevent Newfoundlanders from going into Quebec, provided there is the proper supervision of surveys by either the Provincial groups within their own territory. In Quebec they have the same problem as faces the surveyor in private practice in Newfoundland, that of Provincial Land Surveyors being employed by private companies to supervise any surveys made by them and if this supervision is properly carried out there is nothing that either their Corporation or our Association can do about it, at least not at the present time. The President and I held a talk with the President of the Corporation, Mr. Bourget of

Belanger and Bourget, and he assured us that the Corporation would use every means at their disposal to prevent infringements on the rights of other surveyors.

As far as I can see it, there is one solution to the problem, and that is for the surveyors of each Province to work in close harmony with one another, either side bearing in mind the rights of the other, especially when some of these surveys are and will be in close proximity to the Provincial Boundary.

We went to Quebec in a spirit of friendship and we received a most cordial reception and I feel sure that I can safely say that our trip was a successful one as far as the Newfoundland Land Surveyors Association is concerned.

After attending this Congress and also two Conventions at Ottawa, there is one fact that appears to me to stand out quite plainly and that is, that the more there is an interchange of representatives at these annual affairs the less likely hood there is of any misunderstanding by anyone. I feel sure that our Association has made good friends in the Corporation that will stand us in good stead in the future.

I would like to close this purely informal sketch by quoting Georges Cote, who so aptly closed his paper to the Congress by saying, "The Provincial Boundary must be a line of welding and not an iron curtain".

If any member of the Association would like to become a member of the American Society of Photogrammetry, which is incorporated with the American Congress of Surveying, he can apply to your Secretary and an application form will be forwarded him by return post.

The Community Planning Association of Canada publish some very interesting and informative booklets about sub-divisions and other related subjects. These booklets are available to anyone who would like to get them at the cost price. Your Secretary will forward any information that is requested of him.

**PROGRESS IN
SURVEYING AND MAPPING
IN THE LAST QUARTER CENTURY**

W. H. Miller

Director of Surveys and Mapping Branch,
Department of Mines and Technical Services,
Ottawa.

As I am speaking to a group of Land Surveyors, I will confine my remarks to field surveys and the closely allied portions of map compilation, omitting reference to improvements which have taken place generally in compilation and reproduction technique - though these also have been notable.

My belief is that the period 1932 to date has seen astonishing changes in the fields with which I am dealing. It is not unusual for one to feel that there have been great changes, mostly improvements, in any field of endeavour with which he has been associated. However, as I held my first surveying job in 1912 I have twenty years before the period covered by the last quarter century with which to make a comparison. As I can make no possible claim for the improvements which have been taken place I can let myself be as enthusiastic as I wish.

I will first deal with the changes in equipment and methods used and then give a brief comparative statement of the results obtained. Throughout the paper the references are to Canadian practice, under Canadian conditions, and do not include certain techniques developed and used for land surveying in some European countries, and other parts of the world.

The greatest changes have probably been brought about by the use of the air photograph. In 1932 it was just coming into general use as an aid to Surveying and mapping. If it did nothing else it allowed the Surveyor to have a preview of the country in which he was going to operate. The value of this is apparent, particularly if it was an area well removed from the developed parts of the country. Basically the air photograph was and remains just that, a picture of the country. Given an absolutely flat terrain and a perfectly levelled camera the air photograph would be a true map. Unfortunately such conditions do not exist. However, as a stereoscopic pair of photographs

enables one to see the terrain in relief it did not take very long to devise a means of measuring and correcting for distortions due to ground elevations and camera tilt.

Since the early days there has been a steady improvement in camera equipment, including lenses and in negative materials which have made possible the production of better photographs at smaller scales, thus decreasing very greatly the time spent in compilation of maps and hence in the costs. The tremendous developments in plotting equipment, from the simple stereoscope to the present day great variety of precise and semi-precise plotters have improved the quality of work turned out and make it possible for the compilation to keep up with the much greater areas for which control can be supplied.

To utilize these various plotting devices and keep control of the vertical and horizontal scale of the photographs, it is necessary to have ground surveys. In the beginning and with the simpler plotting devices it was necessary to establish control points in each photograph. Developments soon permitted this control to be spread out, and for a considerable period of time ground surveys to establish control points in every fourth or fifth photograph along the line of each flight were considered necessary. At the scale of photography then in use this meant a traverse across the lines of flight every six to eight miles.

As new aerial triangulation and bridging equipment and techniques became available the control points were spread further and further apart and it was found advisable to use smaller scale photographs where each picture covered a much larger area. Today it is possible, with the use of radar altimetry to control scale, and oblique infra-red photographs to control direction, to carry a good control survey for 1:50,000 mapping over one hundred miles without intervening ground points. On the other hand it is possible with the proper selection of photographic scales and the use of good equipment to plot two foot contours and measure distances of less than one foot.

So much for the air photography. Another major item which has made possible these extensive surveys in the last twenty-five years is the change

which has taken place in surveying instruments. The new internal reading or optical transits are much lighter and with them angles can be read to seconds or even parts of seconds with greater ease and assurance. The self-levelling levels certainly speed up this phase of the work. We have better barometers and better and lighter photo-theodolites.

The introduction of electronics to surveying practices is another major advance. Since 1949 an electronic system of length measurement has been used in Canada to extend geodetic control quickly and with sufficient accuracy for mapping over the northern areas. This control is now being used in vertical photography, whereby each photo on selected flight lines is positioned to a relatively high accuracy.

The shoran system requires the measuring equipment to be placed in an aircraft, which passes across the centre of the line 16 times. The time intervals required for pulses to travel from the plane to the antenna placed at the line terminals are received. These are converted to miles and, with corrections, are reduced to the sea-level length of the line itself.

The accuracy of line measurement is of the order of 1 inch in 1 mile. The network in 1957 will cover all northern Canada and will be composed of some 500 lines of average length of 230 miles with a maximum length measured of 367 miles. While the accuracy of placement cannot be compared with first-order triangulation, the net provides an overall-co-ordination, on a uniform basis, with the control in the southern areas.

Shoran supplies, to the mapping organizations, a superior system of control and eliminates the necessity of extending the existent exploratory astronomic fixation.

This task could not have been carried out by any of the previously known methods within the foreseeable future. The previously mentioned radar altimeter or profile recorder is an airborne electronic device which continually measures the clearance between the aircraft and the ground. If the aircraft deviates from a constant flight altitude the altimeter also measures the amount of the deviation, and it adjusts the ground-clearance

measurement accordingly. These measurements are recorded in the form of a continuous line which automatically presents the profile of the ground directly beneath the flight path of the aircraft.

Our Geodetic Survey Division have had in use for over a year a Bergstrand geodimeter for measuring base lines. This is an extremely high precision instrument giving an accuracy of one inch in five miles up to a working range of about thirty miles. It uses light rays which confine its use to the hours of darkness, and set up for working weighs about 280 lbs.

The production of hydrographic charts is a branch of surveying with which many of the members present may not be as familiar as they are with land surveying. In connection with this work I would like to mention the echo sounders. The recording type of echo sounder, which draws a continuous graph of the ocean bottom, was initially used on some ships and launches of the hydrographic fleet was established procedure by 1940.

Use of this instrument has doubled the amount of sounding mileage that can be completed in one season, and at the same time gives a much more detailed, comprehensive result. When sounding in deep water, the launch or ship formerly would have to stop for each lead line sounding. As a consequence, a great number of shoals and underwater banks were missed, and a loss of time was incurred.

I should also mention two-range Decca positioning equipment which permits fixing of the survey ship, in darkness or in fog, for distances up to 150 miles off shore. This method of fixing is much more precise than any previous methods used, especially when the ship is out of sight of land. In the old days, reliance had to be made on dead reckoning courses and astronomic fixes at sea, which required good weather conditions.

The average nautical mileages of sounding, in a normal season for one ship, would be approximately as follows:

- a) without echo sounder or Decca . 1,400 miles
- b) with echo sounder 2 to 3,000 miles
- c) with echo sounder and Decca . . 8,000 miles

As a final item on instruments I would like to mention the Tellurometer, This is a electronic device for measuring distance, which was developed in South Africa, and which I feel will eventually bring great changes in the practice of the profession. At the beginning of April our organization in Ottawa received from South Africa three of the first sets to be manufactured and at the time this paper was written were very busily engaged in testing them. We are very happy with the results we have been getting.

Two instruments are required, a master and a remote, each instrument weighs thirty odd pounds, can be set up on a tripod and seems very simple to operate. It can be used to measure distances from five hundred feet to over thirty miles. It requires line of sight, but not inter visibility. Tests in South Africa indicate an accuracy of two or three parts in a million, plus or minus two inches.

All our tests in Canada to date, which have been made between points easily reached from Ottawa, varying from a chained distance of about a thousand feet to the side of a primary geodetic triangle over thirteen miles in length, have given results within the known accuracy of the distance we were measuring.

I can see the day in the not too distant future when every surveyor will be equipped with a second reading transit and an electronic measuring device. I am sure every one of you who has spent a winter traversing our northern lakes and rivers will appreciate the possibilities of being able to run an accurate traverse with equipment which takes no account of the type of ground between the traverse points, be it water, swamp or broken ground.

One more item, most important to surveyors, should be mentioned - that is transportation. The aeroplane has made all parts of our country accessible within a very few days. No more months lost travelling to and from the job. The development of the Beaver aircraft and the helicopter have in a similar manner solved the transportation in the field. I recall the days when a party worked very hard all summer and if they were particularly successful completed one map sheet. A year or so ago one of our parties, slightly larger only, completed the control for

sixty sheets in less than two months. The answer was two helicopters.

When I commenced work in the west it was a common saying that a surveyor needed only a strong back; he had a weak head if he followed that line of work. What was required was a combination of a packhorse and a mountain goat or a bushwacker. Today he is a combination of an engineer and a scientist or he should be.

The above is a review of the improvements in methods and equipment. Have the results justified our calling them improvements?

I will close with a few statistics I have been able to gather regarding the amount of work being turned out in 1932 compared with the past year, and a comparison of the coverage available. I have already mentioned the coverage of Canada obtained by the use of shoran trilateration. The actual posting of legal boundary lines and the provision of control surveys for these purposes consists of so many unrelated jobs that I am not able to supply statistics covering this field.

In dealing with maps and charts I will refer only to those being turned out as a result of field surveys, and not include compiled maps at various scales,

In 1932 not more than twenty-four topographic maps in these categories were produced by the three mapping agencies of the Dominion Government existing at that time. During 1956 two hundred and fifty-five new maps at scales from 1:50,000 to 1:250,000 were turned out.

In 1931-32 seven first editions of nautical charts were published; in 1956 -57 twenty-first editions were published. In addition to the maps published we have accumulated within the past few years a back log of over 300 maps awaiting reproduction.

As recently as 1948 it was estimated that seventy field parties would be required by the Topographical Survey to provide control for the production of 120 map sheets per year. During the past season thirty field parties provided the necessary control for 233 sheets.

I believe you will agree with me that there has been great improvements in survey methods and equipment. I feel there will be equally great improvements in the future. Finally a word of advice to the young men of the profession. Keep an open and alert mind; nothing is necessarily better because it is an innovation, but no possible improvement should be ruled out just because it differs from the practice to which we are accustomed.

**Association of Newfoundland Land Surveyors
From *The Canadian Surveyor*
1957 Annual Report**

The third issue of the Association's publication, *The Newfoundland Surveyor*, is devoted entirely to the proceedings of the fourth annual meeting, held at Memorial University, St John's, on January 22nd, 1957. Following is a very brief account of some of the more important items in the programme.

The retiring President, Mr. W. F. Canning, who had been President since the incorporation of the Association, in his address stressed the responsibility of the Association to participate in an educational programme for surveyors and referred to the rapidly expanding field for Surveyors in Newfoundland, particularly in Labrador.

The secretary's report and financial statement showed that the membership and the finances of the Association were in a very healthy condition, indeed, considering the available potential.

An interesting and informative address was delivered by Mr. Donald Dawe, Q.C. Mr. Dawe's main subject was "Squatters' Rights", but he also briefly discussed the relationship between the legal and surveying professions.

A second address was given by Dean J. S. Carew, of the Memorial University Faculty of Engineering. Dean Carew traced developments in the surveying field from early times in such a way as to show that the surveyor is constantly faced with the necessity to expand his knowledge and widen his interests.

The report on the Board of Examiners, presented by Mr. T. H. Winters, President - elect, outlined the steps which had been taken in setting up a training syllabus for surveyors. In co - operation with the President and Engineering Faculty of Memorial University, the syllabus had been so arranged that an articulated pupil could qualify in about 85 per cent of the required course by completing two years of the four year engineering course at the University. (It must be inferred, however, that this is a temporary measure only, for Dean Carew, who is a member of the Board, referred in his address to future introduction of a course in surveying which will be the equivalent of any four year university course.)

At the end of the meeting Mr. T. H. Winters, on behalf of the Association, made a presentation to Mr. W. F. Canning, the retiring President, of a silver caribou mounted on black marble which was suitably inscribed with the name and term of office of the recipient.

**NEWFOUNDLAND
From *The Canadian Surveyor*
1957 Annual Report
SURVEY DIVISION
DEPT. OF MINES & RESOURCES**

During 1956 the Surveys Division of the Department of Mines and Resources carried out surveys in thirty sections of the Province.

At Lethbridge, in Bonavista Bay, the boundaries of twenty - two farm lots were established at the request of the Division of Agriculture. Some thirteen miles of boundary line were cut through fairly dense woods, one and a half miles of road traverse were run and twenty - four wooden corner posts were erected.

At Hare Bay, in Bonavista Bay, twenty - two resident lots were laid out and surveyed. These lots averaged about one acre in area and will be occupied by former residents of nearby islands. Costs of the two surveys mentioned above will eventually be borne by the new occupants.

During the autumn of 1956, a survey of the land ownerships along the route of the trans - island highway was begun at a point about twelve miles

west of St. John's. The works recently constructed in connection with the Manuels River Power Development were related to the survey and ties were made to the cadastral surveys carried out during the preceding two years to the south and east. This survey was controlled by the triangulation net covering the western approaches to St. John's.

The general nature of other surveys conducted by the Surveys Division ranged from a survey to establish a section of the eastern boundary of the new National Park to an attempt to re-locate the site of the plantation established by Lord Baltimore at Ferryland in the year 1621.

The various surveyors and firms in private practice were busy through the year on farm lot and other miscellaneous surveys and on work for the private and public utility companies and for the various provincial and federal government agencies. Sites for Decca Navigator Canada Limited were surveyed by Mr. Halley and sites for the United States Army Corps of Engineers along the Labrador Coast were done by Messrs. Newhook and Morgan. Messrs. W. F. and James Canning carried out surveys for power transmission lines and sites for micro-wave installations for Canadian National Telegraphs. Messrs. Yates and Woods were engaged on similar work. Willett Engineering and Surveying Company ran road location surveys for the Provincial Department of Public

THE NEWFOUNDLAND SURVEYOR

Information Bulletin March 24th, 1958 No.5

EDITORIAL

The Fifth Annual General Meeting of the Association was held in the Joint Services Officers Mess at Buckmaster's Field in St. John's on Tuesday night, January 21st, 1958. Eighteen members attended.

The Association was glad to welcome Dean Carew of the Faculty of Engineering at the Newfoundland Memorial University as a guest. Very welcome also was the Honourable E.S. Spencer, Minister of Finance, one time surveyor and honorary

member of the Association. He was seated with our only Life Member, Mr. W. F. Canning, First President of the Association.

The meeting was a very successful and enjoyable one. We had our only out of town member present, Mr. J. H. Thoms of Gambo, and he was made very welcome. We feel that more of our out of town members should attend the Annual Meeting. They can be assured of a cordial welcome. As it was so ably put by Mr. Thoms, five minutes of conversation is worth a year's correspondence. The Associations and contacts that are made through meeting other members of the Association, even if only once a year, at gatherings such as our Annual Meeting, cannot help but be a benefit to all concerned. This is borne out every year at Conventions held at other places and is an obvious fact.

Through the past four years your Councils have worked assiduously towards the goal of a syllabus for future members of the Association. Our Board of Examiners deserve all the praise and thanks that our Association can shower on them for it is the consensus of opinion that they have done a truly excellent job. Our work is not over yet, however, for we have before us other jobs that require earnest and immediate attention. To mention one, the matter of Articled Pupils. This matter will take the attention of your Councils through the coming year. There are other matters of importance and we propose to keep you informed through the pages of "The Newfoundland Surveyor".

The Association was incorporated in 1953 by Act No.36 of that year and had 29 members. At the end of 1957 our membership stood at 56, and is still growing and as it grows also grows the work of your Council and your Council would welcome any comments from the members. We would also like items of local interest from our members for publication in this paper and we stress that such items will make our task as editors much easier.

With best wishes to every member for the coming year we close this, our first effort for 1958.

Proceedings of the Fifth Annual General Meeting of the Association of Newfoundland Land Surveyors.

The Fifth Annual General Meeting was held in the Joint Services Officers Mess at Buckmaster's Field on Tuesday, January 21st, 1958 at 8 a.m. The President was in the Chair and called the meeting to order at 8:05 a.m. In a brief opening address he welcomed the Honourable E.S. Spencer, who is an Honorary Member of the Association, Mr. W. F. Canning, Past President and Life Member and Dean S.J. Carew of the Faculty of Engineering at the Newfoundland Memorial University. Eighteen members were present.

At the opening of the meeting Col. Willett moved that the President write a letter of thanks to the Area Commander and President of Joint Services Officers Mess for the use of the Mess for the Meeting. This motion was heartily approved by the meeting.

The Secretary read the Minutes of the Fourth Annual General Meeting and Mr. Thorns moved and Mr. Burrige seconded that the Minutes be adopted as read.

President T.H. Winter then addressed the meeting (address published in this issue) and he spoke briefly about the events of the year past. He spoke of the Syllabus which was completed and published during the year and also of the trip to Quebec by himself and the Secretary. He stressed the need for the Association to advance in membership and not to remain static or decrease.

The Secretary then read his report for the year and the financial statement. It was moved by Mr. Paterson and seconded by Mr. Halley that the report be adopted as read.

The President, who is also Chairman of the Examining Board, then read a report (which is presented in this issue) of the Board's activities since its inception. This report gives the history of the Syllabus just published and the need to follow it through in order to better the standards set. Mr. Halley moved that the report be adopted. This motion was seconded by Col. Willett and was well received by the entire meeting.

Some discussion took place concerning the publication of the list of surveyors. Mr. Burrige proposed that this list be published in the Newfoundland Gazette, the Western Star and the

Grand Falls Advertiser. His motion was seconded by Mr. Walsh and carried. Some discussion also took place concerning a fee to be charged for the new Syllabus. A fee of 25¢ per copy was proposed by Mr. Dawe and it was decided to leave this matter to the incoming Council.

Mr. Winter then read the Brief that was given to the Solicitor of the Association to be used when asking the Government to delete the "Grandfather Clause" from the Land Surveyors Act. Some discussion took place and the Honourable Mr. Spencer expressed his views on the matter. His comments were well received by the meeting. (this Brief will be published in full in our next issue).

The matter of Articled Pupils was then brought up and some discussion took place. It was felt by the meeting that it was essential that the question of articled pupils be given primary attention. Some of the members spoke from the floor. Mr. Spencer moved that the matter of articled pupils be left to the incoming Council and that they take up the matter as quickly as possible. This motion was seconded by Mr. W. J. Nugent.

Mr. Winter then announced the result of the ballot for officers for the coming year of 1958, which was as follows:-

For President - Mr. T. H. Winter	Unanimous
For Vice-President - Mr. T.O Woods	"
For Secretary - Mr. James Canning	"

For Councillors - Messrs. J. H. Burrige, A. B. Penney, R.G. Paterson, S. F. Willett and W J. Walsh.

Honourable E. S. Spencer then asked permission to address the meeting and he thanked the Association for his Honorary membership. He spoke of his old days as a surveyor and broached on other subjects pertaining to surveying. He congratulated the Association on the progress it had made and stressed that the standards set be carried through. He was glad that he had been of some help in getting matters off to a good start in the first place and he assured the Association of his continued support and wished it every success in the future.

It was moved by Mr. W.F. Canning and seconded by Mr. Paterson that the meeting be adjourned.

After the meeting a social hour was greatly enjoyed by the attending members, drinks, coffee, sandwiches and cakes being served by the Officers Mess. Mr. Winter read a paper to the gathering concerning the difference between a trade and a profession stressing that surveying was a profession and that it was up to every and all surveyors to bear this in mind when dealing with the public.

The Secretary's Report and Financial Statement for the Year ending December 31st, 1957

Gentlemen:

It is with a certain amount of pleasure that I present this report to you tonight. During the past year your Council has had a very busy time and a great deal of work has been accomplished. During the period your Council saw its realization of the hard and tedious work of its Examining Board in the publication of the Syllabus. While our finances are not in the same munificent condition as they were at the start of the year we still have a considerable amount left to our credit in the bank at the year end.

The following is a statement of the financial standing of the Association at 31st December, 1957.

Receipts

Balance at Royal Bank of Canada (Freshwater Road Branch 1st January, 1957 . . .	\$1,528.14
Cash short deposited 195650
Annual Membership Fees 1957	510.50
Arrear Fees	0.00
New Members	66.00
Sales of Bye Laws and Certificates	36.00
Unexpended Imprest	74.33
Bank Interest	10.31
Total	\$2,275.78

Petty Cash on Hand 1st January, 1957 . . .	16.49
Expenditure charged to Petty Cash and Orders returned	12.87
.	\$2305.14

Expenditures

Postage	\$54.98
Exchange on cheques	2.55
P. O. Box Rental	8.00
Telephone calls & telegrams	25.24
Printing of lists of surveyors	75.72
Printing of Certificates	39.66
Stationery	9.92
Printing of Booklet	299.11
Typing	28.50
Presentation Caribou	30.00

Examining Board Expenditure

fee	\$400.00
books	46.93 . . 446.93
Quebec Trip Transportation and Board Advance	565.40
Miscellaneous Expenditures	46.60
	\$ 1,632.61
Balance Petty Cash and Stamps on Hand . . .	27.45
	\$ 1,660.06
Book Balance at 31 December, 1957 . . .	645.08
	\$2,305.14
Unexpended and Deposited	\$ 74.33

A short resume of the statement can be given as follows and in round figures for clarification. We started the year with a balance of \$1,528 in the bank. Our revenue from fees, new memberships, and other Sources for the year was \$675. During the year we spent three large sums on three separate items, the Examining Board remunerations and books \$447.00, the Quebec trip \$491 and publication of the Booklet \$300.00, making a total of \$1,240 approximately. The balance of expenditure \$300. approximately was spent in the ordinary running of the Association. We have a balance of \$645.00. I do not see any heavy expenditures for the coming year except the cost of printing the syllabus which I understand is something under \$100.00. It is the intention of your Council to build up this balance again so that funds will be available for future scholarships or other advisable unforeseen expenditures.

PRESIDENT'S ADDRESS

Gentlemen,

I beg to submit my report which shall be very brief as I shall have occasion later to address you again.

The year 1957 just ended can be considered one of the landmarks in the history of our Association.

Firstly, it marks the completion and publication of a syllabus for the examination of surveyors applying for membership in our Association. I shall refer to this later in the report of the Board of Examiners.

Secondly, your President and your Secretary were invited to attend the 75th Anniversary meeting of the Corporation des Arpenteurs - Geometres de la Province of Quebec.

This is the first official recognition of our Association by a sister organization of another Province. The gesture was very much appreciated by your Council which, in view of the possibility of misunderstanding surveys in the vicinity of the Labrador boundary, unanimously decided to send your President and Secretary to the meeting at Quebec. Consequently Mr. James Canning and I, who were later joined by Lt. Col. Willett, left St. John's on 22nd May, arriving about 5.30 p.m. at

the Chateau Frontenac where the Congress was held on the 23rd, 24th and 25th of May,

On the evening of the 22nd we were received by the President and Officers of the Quebec Corporation and their wives. Incidentally with the exception of Ontario, we were the only Province represented.

We attended the opening session on the morning of the 23rd and were introduced to the meeting. I took the opportunity to convey our thanks for the invitation to attend the meeting and extended the good wishes of our Association. The morning was taken up with the nomination of scrutators, the President's Address, the swearing in of new members, minutes of the previous meeting, reports of various committees, motions etc. As these were all in French, we did not absorb too much of the subject matter, although a few periodic comments were made in English.

In the afternoon we heard an address in French by Dr. Cote, director of Surveys and the Cadastre of Quebec on Mapping of Northern Quebec. This was followed by a very interesting paper by Mr. A. H. Miller, Director of Surveys and Mapping of Ottawa on the progress of surveying in the last quarter century. A copy of which was published in the "Newfoundland Surveyor" of 8th July.

At night, we occupied seats at the head table at the Annual Dinner. We sat through a few bilingual speeches and a lengthily address in French which lasted three - quarters of an hour by a surveyor from France. This gave our food time to settle and us the opportunity to look over the pretty Mademoiselles in the banquet hall.

On the morning of the 24th, we were excused from two addresses in French, and instead were driven around the suburbs of Quebec and on the Island of Orleans. We visited the Heights of Abraham and I noted the ravine on the west by which General Wolfe scaled the Heights and he probably found, as I did, that the guns were pointing the other way, to the East. The last morning the meeting was thrown open to a forum, again mostly in French. While in the afternoon a picnic was held at Petit-Cap, which was attended by Mr. Canning, but I enplaned for Montreal to spend the weekend. It was all very enjoyable and

whilst we did not acquire much in the way of technical knowledge, we feel we did establish an "Entente Cordiale" and a friendly and sympathetic mutual understanding in the conduct of surveys on either side of the Labrador-Quebec boundary. An understanding was reached whereby a Newfoundland Land Surveyor would supervise a survey on the Labrador side and conversely a Quebec surveyor on the Quebec side.

During the year the Council of your Association held seven meetings and at the final meeting gave its unanimous approval to the adoption of the syllabus, the draft of which had been completed. Since then the syllabus has been published and you should all now have a copy.

These are the two events that highlighted our activities and these, with the publishing of two issues of the "Newfoundland Surveyor", which involved considerable extra work by our Secretary, represent the sum of our activities for 1957. Incidentally the burden of editing the "Surveyor" would be considerably lightened if members would contribute comments, notes or articles to our Secretary.

I note that our membership was about the same as the previous year, and I think it would be dangerous for it to remain static or decrease and to refresh your memories, I shall quote from the last address by our Past President, Mr. W. F. Canning, wherein he said: "Very shortly you must assume the complete responsibility for the training of articled pupils to carry on the work of land surveying in this Province. This was the purpose for which the Association was formed. If we do not intend to carry out to the full our obligations in this respect, then there is no need or reason for the existence of this organization. And we shall have failed miserably in our obligations to those who will follow on and continue the important work in which we are engaged in our community" and also "from the early days of the Association we have carefully managed our finances, not a dollar has been used for a purpose that was not necessary and for the benefit of the Association. We have always kept foremost in our minds the idea that we would some day require extra funds for the efficient operation of the Board of Examiners and the establishment of a scholarship or educational fund for student surveyors. That

day is now on hand and for a period I believe we shall have to devote a substantial part of our income to these purposes.

If members feel that they are entitled to a scale of fees comparable to that in other provinces, then they must be prepared to see that our surveyors are equally qualified with those in other provinces and that the service given is as good. This is going to be a very important factor in the future. A whole field of activity is opening up to our members in Labrador. The large Corporations now operating there must shortly begin to supply the Government with plans and surveys. Several thousand square miles are involved, and many new problems of transportation, supply and weather have to be considered. Members will have to decide whether the work can be tackled on an individual basis or whether some co-operative form of operation can be worked out to the benefit of the operators and surveyors alike".

Finally, I wish to take this opportunity of thanking you all for the honour you extended to me a year ago, in electing me President. I only hope I have proved worthy of it. I wish also to express my sincere appreciation to the members of the Council for their interest and advice in the administration of our Association and to one member in particular not on the Council, Mr. K. McGrath, who has given much thought and time to the consolidation of our Association.

We still have much to do to increase our membership and to publicize what our Association is now in a position to provide, by circulating information in the University and Colleges and elsewhere.

REPORT OF BOARD OF EXAMINERS

T. H. Winter, Chairman

Gentlemen,

It is with a sense of satisfaction and achievement that I now present to you the Report of the Board of Examiners. This will not be very lengthily, as the published syllabus of examinations for admission to membership and practice should speak for itself.

However, in order to give you an idea of the work involved in preparing and drafting the syllabus, I have to report that beginning in December 1956, the Board met nearly every Thursday afternoon and held 21 formal meetings and 7 informal discussions up to the end of 1957.

A great deal of considered care and analysis was given all facts we could think of and a debt of gratitude is due Dean Carew and Professor Facey for the time and patient thought they contributed to make the syllabus as comprehensive as possible and at the same time keep it within reach of any prospective surveyor.

For the present we have provided a modification of the scope of physics in the form of General Science. The only Provinces requiring physics for admission to practice are Quebec and Alberta. Although Saskatchewan and British Columbia make it a prerequisite for admission to articles.

Again we have excluded Calculus which is required for admission to practice by only Quebec and Alberta.

So in comparison with the Provinces west of the Maritimes, I would say that our syllabus approached very closely to their standards.

However, it is not sufficient merely to publish a syllabus to establish a standard. If we want to make it effective, every member of our Association must recognize and accept that standard and make an effort to provide the idea amongst prospective students and candidates for admission to practice and to encourage them to become articulated to what is now becoming a profession similar to and allied to the legal profession.

Memberships

We started the year with 53 members and during the year three new members were added making our total membership now at 56. Since 1958 has come in we have added another surveyor to our membership and application for membership was received from another.

During 1957 we had only one delinquent member of our total of 56 members. In accordance with the provisions of the Land Surveyors Act, a list of names of all persons appearing on the Register of the Association will be published at the proper time, approximately April 1st, 1958, in the Newfoundland Gazette and in one other daily paper, probably the "Western Star". Members are requested to take notice of this and kindly see that their fees are paid by this date,

The Canadian Institute of Surveying

The Institute has dropped the word "Photogrammetry" from its title and is now known as the "Canadian Institute of Surveying". Your Secretary attended the Annual Convention that was held last February and conveyed the best wishes of the Association and your Secretary is the Provincial Councillor for the Institute again for 1953. Eighteen active members of our Association are members of the Institute. Membership is open to any member of the Association and costs \$5.00 per year. For this they receive "The Canadian Surveyor" published quarterly by the Institute and this alone is worth the annual fee. A full description of the Convention was published in "The Newfoundland Surveyor" in the July 8th issue past. Application for membership in the Institute may be obtained from your Secretary.

The Newfoundland Surveyor

We have brought out this bulletin at irregular intervals in the past year but hope to produce four issues in 1958. We trust that it is well received and we would welcome news items from other centres throughout the Island for publication.

Syllabus

As I said before this syllabus has now been printed and is available to interested parties. Anyone desirous of becoming a Newfoundland Land Surveyor can have a copy on application to the Secretary of the Association.

The following article appears to be the first Syllabus of Examination published by the Association possibly c. 1957.

SYLLABUS OF EXAMINATION
Association of Newfoundland Land Surveyors
Published by The Board of Examiners for
Newfoundland Land Surveyors

PREFACE

This publication, was prepared by The Board of Examiners for Newfoundland Land Surveyors. It is published as a reference for students who wish to apply for admission to articles with a Newfoundland Land Surveyor and to take the final examinations for admission to practice.

The Board of Examiners is established by statute. Provision for its establishment is contained in Section 11 of The Land Surveyors Act, 1953.

A person who wishes to become a Newfoundland Land Surveyor must (a) serve as an Articled Pupil to a registered Newfoundland Land Surveyor for a period of three years; (b) pass the examinations as set forth in the Syllabus; (c) be admitted as a member by the Association of Newfoundland Land Surveyors.

Enquiries with respect to the procedure relating to the admission of applicants to articles, or requests for forms of articles, should be sent to The Secretary of The Newfoundland Land Surveyors Association St. John's. The Board of Examiners is concerned only with the examination of properly registered applicants and articled pupils whose names have been submitted to the Board by the Secretary of the Association.

Newfoundland

EXAMINATION OF CANDIDATES

THE BOARD

The examination of candidates for admission to study or to practice as Newfoundland Land Surveyors is under the control of the Board of Examiners. The Board is appointed by the Association of Newfoundland Land Surveyors on the joint nomination of the President of Memorial University of Newfoundland and the Association.

ARTICLED PUPIL

An Articled Pupil is one who has attached himself by a legal agreement to a practising Newfoundland Land Surveyor for the purpose of gaining experience and learning the practice of surveying.

Qualifications for Admission to Articles

No person can lawfully sign articles with a Newfoundland Land Surveyor until he

(a) Has passed the Grade XI examination or an equivalent with an average of not less than 55% and included English and Mathematics among the subjects passed.

(b) Has presented himself for interview by the Board.

NOTE: If an articled pupil intends to pursue his studies at the Memorial University, of Newfoundland, he is advised to consult the University Matriculation requirements as set forth in the University calendar when selecting his subjects for Grade XI.

ARTICLED PUPIL

Procedure for Admission to Articles:

The applicant for admission as an articled pupil shall

(a) Apply to the Secretary of the Association in writing at least a month before he wishes to present himself for admission.

(b) Furnish the Secretary of the Association with a certified transcript of his Grade XI marks or, if he has not taken the regular Grade XI, furnish certificates to show that an equivalent degree of attainment has been reached.

(a) Furnish the Secretary with references if and as requested.

(d) Pay to the Secretary the fee as prescribed by the Association.

(e) Present himself for interview by the Board as instructed by the Secretary.

LAND SURVEYOR

Qualifications:

No person may practice as a land surveyor in Newfoundland until he

- (a) Has attained the full age of 21 years.
- (b) Has passed an examination to the satisfaction of the Board in such subjects as the Board may prescribe.
- (c) Has previously served under Articles of Agreement for three successive years, of which at least twelve months has been in actual practice in the field, as an articulated pupil to a Newfoundland Land Surveyor, duly admitted and practising as such.
- (d) Has received from the Land Surveyor a certificate in the prescribed form of his having so served during the said period, and
- (e) Has deposited with the Secretary his own affidavit setting forth the period of his articles and the actual surveying in the field with the dates of such surveys.

NOTE: Any person serving as an articulated pupil may, with the permission of the Surveyor to whom he is articulated, attend Memorial University of Newfoundland or any Canadian School, College or University approved by the Board for the purpose of taking any course of study which includes any subjects required for the final examination for admission to practice as a land surveyor. Any credit for the work so completed by the articulated pupil will be at the discretion of the Board.

Procedure for Admission to Membership in the Association of Newfoundland Land Surveyors:

An applicant for admission as a Newfoundland Land Surveyor shall:-

- (a) Apply to the Secretary of the Association in writing at least a month before he proposes to present himself for examination.
- (b) Furnish the Secretary with evidence of having

attained the age of 21 years.

(c) Furnish the Secretary with the certificate and affidavit in (d) and (e) of previous paragraph.

(d) Furnish the Secretary with references if and as requested.

(e) Furnish the Secretary with a certified transcript of the marks attained in any courses taken at an approved University.

(f) Pay to the Secretary the fee as prescribed by the Association.

(g) Present himself for examination and/or interview by the Board as instructed by the Secretary of the Association.

SYLLABUS OF EXAMINATIONS

The syllabus covers the following ten subjects:-
Aerial Photography; Drawing; English; Forestry and Botany; General Science; Geology; Legislation and Regulations for Survey of Crown Lands; Mathematics; Surveying; Town Planning.

AERIAL PHOTOGRAPHY

Photographic equipment; optical principles; determination of scales; overlap; stereoscopy; ground control; determination of photo base line; secondary control; extension of control; radial line plotting.

DRAWING

Drafting Techniques:

The use of drafting equipment; the use of the planimeter; lettering; scales; inking; title blocks; symbols; reproductions of drawings.

Geometric Construction:

Applied geometry; layout of grid.

Drafting Theory:

Orthographic projection; multi view drawings; simple sectional views; single auxiliary views; dimensions; theory of map projections.

ENGLISH

Grammar; sentences; paragraphs; words; punctuation; composition; spelling; precis writing; letter and report writing.

FORESTRY AND BOTANY

Recognition and general knowledge of the characteristics of common Canadian trees and an elementary knowledge of Botany.

GENERAL SCIENCE

Air, water, matter, mechanics, heat, light, sound, electricity and magnetism.

GEOLOGY

Elementary physical geology.

Elementary historical geology.

Elementary mineralogy.

LEGISLATION AND REGULATIONS FOR SURVEYS

Acts:

The Crown Lands Act.

The Mines and Quarries Act.

The Land Surveyors Act.

Regulations for Survey of Crown Lands.

The whole of the Acts listed above with special emphasis on the sections contained in the publication "Extracts from the Statutes". The student should also be familiar with the sections of Acts as listed on pages 51 to 57 in the above mentioned publication.

Land Descriptions:

The student will be required to write a metes and bounds description from a survey diagram. He should also be familiar with the method of note-taking and angle measurement employed by the Cadastral Survey of The Crown Lands and Surveys Division of The Department of Mines and Resources.

MATHEMATICS

Algebra

The real number system and the fundamental operations; factoring; fractions, exponents; radicals and logarithms; equations both linear and quadratic including graphs; ratio; proportion and variation; progressions; permutations and combinations and binomial theorem.

Geometry

Ratio; proportion and similar figures; solid geometry.

Plane Trigonometry

The general angle and the definition of the trigonometric functions; reduction formulae; trigonometric identities and equations; sum and difference formulae; double and half angle formulae; transformations; sine and cosine rule; solution of plane triangles with and without logs.

Spherical Trigonometry

Definitions and properties of spherical triangles; polar triangles; solution of right spherical triangles by Napier's rule of circular parts and the rules of species; sine and cosine rule for spherical triangles; solution of oblique spherical triangles with and without logs; Napier's analogies and the half-angle formulae; terrestrial and celestial applications of spherical triangles.

SURVEYING

General Principles of Surveying:

Description, Use and Adjustment of Instruments: Compass; transit; level; clinometer; plane table; aneroid barometer; alidade; tape.

Levelling:

Bench Mark; profile, cross sections.

Triangulation and traverse.

Topography:

Contouring; stadia measurements.

Measurement of boundaries of land.

Solar and stellar observations: Azimuth, time,

latitude and longitude.

Computations as applied to traverses, triangulation levels and quantities, solar and stellar observations.

Relationship between geographic co-ordinates and plane coordinates.

Plotting of field work.

Layout of work or projects: Batter boards, grades, curves, alignments.

Measurement of quantities.

Elements of aerial surveying.

TOWN PLANNING

Introduction to Town Planning; scope and functions of Town Planning; planning laws.

TEXTBOOKS RECOMMENDED FOR THE EXAMINATIONS FOR ADMISSION TO PRACTICE AS A NEWFOUNDLAND LAND SURVEYOR

AERIAL PHOTOGRAPHY

Text-Higher Surveying, Vol.2 by Breed and Hosmer-published by John Wiley & Son, Inc.

Text-Plotting of Aerial Surveys-pam,phlet published by The Board of Examiners from Crown Land Surveyor.

DRAWING

Text-Basic Technical Drawing by Spencer-published by Brett McMillan Limited, Toronto.

ENGLISH

Text-The New Handbook of English by McLeod - Thompson-published by Thos. Nelson and Sons) New York.

FORESTRY AND BOTANY

Text - Native Trees of Canada (bulletin 61) - published by Department of Resources and Development, Ottawa.

Text - Fifty Trees of Canada (East of the Rockies) by J. L. Van Camp - published by The Book Society of Canada.

Text-Botany for High Schools by A. Cousins and T. J. Ivey - published by The Educational Book Company, Ltd., of Toronto.

GENERAL SCIENCE

Text - Understanding The Universe, First eight units, by Franklin B. Ca nol-published by John C. Winston Co., Philadelphia

GEOLOGY

Text - Elementary Geology for Canada by E. C. Moore-published by S. W. Dent & Sons.

Text - Prospectors Handbook-By W. L. Goodwin, D. Sc., Industrial and Educational Publisher & Co.

LEGISLATION AND REGULATIONS FOR SURVEYS OF CROWN LANDS

Text - Extracts from The Statutes-published by The Board of Examiners for Newfoundland Land Surveyors.

Text - Examples of Descriptions by F. H. Peters - published by Queen's Printer, Ottawa, Pamphlet by Crown Lands and Surveys Division, Department of Mines and Resources.

MATHEMATICS

Text - College Algebra by Rees and Sparkes-published by McGraw Hill.

Text - Intermediate Geometry by Crackmall & Perrott-published by University Tutorial Press.

Text - Plane and Spherical Trigonometry by Ballou and Steen - published by Ginn and Co., New York.

SURVEYING

Text - Elementary Surveying Vol.1 by Breed and Hosmer - published by John Wiley & Sons.

TOWN PLANNING

Text - How to Subdivide by H. Spence-Sales. Town and Country Planning, 1942, Sir Patrick Abercrombie-Oxford University Press. "City Planning, Why and How" 1939 by Harold McLean Lewis-Longmans Green & Co. Planning Residential Subdivisions 1954, V. Joseph Kostka, The Appraisal Institute of Canada.

BOOK PUBLISHERS - ADDRESSES

The Board of Examiners for Crown Land Surveyors, Department of Mines and Resources, St. John's.

The Book Society of Canada Ltd., 112 Richmond Street West. Toronto 1, Ontario..

Brett-MacMillan Limited, 25 Hollinger Rd., Toronto 16,. Ontario.

Community Planning Association of Canada, Ottawa, Ont.

J. M. Dent & Sons (Canada) Ltd.,
224 Bloor Street West,
Toronto, Ontario.

Educational Book Co., Ltd. Toronto, Ontario.

Department of Resources & Development,
Ottawa, Ontario.

Ginn & Company, Publishers, 1331 Yonge Street,
Toronto 5, Ontario.

Industrial and Educational Publishing Co.,
Gandenvale, Quebec.

Longmans Green & Co., 215 Victoria Street,
Toronto, Ontario.

Thomas Nelson & Sons (Canada) Ltd., 91
Wellington Street West, Toronto 1, Ontario.

McGraw-Hill Co. of Canada Ltd., 253 Spadina
Road, Toronto 4, Ontario.

Oxford University Press, 480 University Avenue,
Toronto 2, Ont.

Queen's Printer, Ottawa, Ontario.

University Tutorial Press, Euston Road N.W. 1,
London, England.

John Wiley & Sons Inc.,
440 Fourth Avenue,
New York 16, N.Y.,
U.S.A.

The John C. Winston Company Ltd., 292
Parliament Street Toronto, 2.

The following is the Syllabus for the Board of Examiners for Crown Land Surveyors printed in 1957.

NEWFOUNDLAND BOARD OF EXAMINERS FOR CROWN LAND SURVEYORS SYLLABUS

And REGULATIONS RELATING TO THE SURVEY OF GROWN LANDS BOARD OF EXAMINERS FOR CROWN LAND SURVEYORS

PART I BOARD OF EXAMINERS FOR CROWN LAND SURVEYORS SYLLABUS

The following outline covers the field of knowledge in surveying and the relevant Acts of the Legislature and Regulations in which the candidate will be examined to qualify him for a certificate. The Syllabus is divided into three sections, namely:

Section 1.

Surveying Methods - Field.

Section 2.

Two examination papers - one written and one practical test.

Surveying Methods - Office.

Section 3.

Two examination papers - one written and one drafting.

Legislation and Regulations with reference to land tenure and surveying in the Province of Newfoundland.

One written examination paper.

The applicant for a Crown Land Surveyor's Certificate must successfully pass each paper, the pass mark being 50%. The second paper in Section 1 may take the form of a practical field test in the use of instruments or an oral examination covering the same subject matter.

SECTION I

SURVEYING METHODS - FIELD

1. Measurement of Length.

Types of chain and tapes, auxiliary equipment, methods and corrections

2. Measurement of Angles.

(a) Horizontal angles with compass. Adjustments, limitations and corrections of the compass.

(b) Horizontal and vertical angles with the transit. Principles and adjustments of the transit and the principles of the vernier.

3. Measurement of Elevation.

Bench Mark and profile levelling. Use of barometer and level. Adjustments of instrument.

4. Field Exercises,
Planimetric survey with both compass and transit. Determination of true bearing by solar and stellar observation. Simple horizontal curves.

SECTION II

SURVEYING METHODS - OFFICE

1. Adjustment and reduction of field notes of a survey for plotting purposes and determination of area. Use of logarithms.

2. Reduction of field notes of solar and stellar observations for determination of true azimuth and magnetic declination.

3. Interpretation and use of aerial photographs in field work and mapping.

4. Plotting of reduced field notes by plane coordinates completing of the finished map in accordance with good drafting practice. Legal descriptions of properties including the metes and bounds.

SECTION III

LEGISLATION AND REGULATIONS

Candidates will be required to have a good knowledge of the whole of the Crown Lands Act and the Crown Lands (Mines and Quarries) Act and Regulations relating to surveys of Crown Lands and be familiar with the pertinent sections of the Acts listed below and any Regulations made thereunder.

Crown Lands Act - Chap. 174, Crown Lands (Mines and Quarries) Act - Chap. 175, Local Government Act - Chap. 66, Community Councils Act - Chap. 67, Local Area Planning Act - Chap. 68, Registration of Deeds Act - Chap. 141, Quieting of Titles Act - Chap. 157, Veterans' Land Settlement Act - Chap. 190, Abandoned Lands Act - Chap. 186, Public Utilities (Acquisition of Lands) Act - Chap. 250.

All the above from the Revised Statutes of Newfoundland of 1952. Also: Urban Rural Planning Act - Act 27 of 1953, Land Surveyor's Act - Act 28 of 1953.

RECOMMENDED TEXTBOOKS

General - Surveying BREED published by John Wiley.

Aerial Photography - Higher Surveying Vol.2 BREED and HOSMER published by John Wiley.

Following topics to be covered: BREED and HOSMER Vol.2

Following topics to be covered: BREED and HOSMER Vol.2

Photographic equipment, optical principles, determination of scales, stereoscopy, ground control for mapping and aerial photographs,

determination of photo base-line and extension of secondary control.

Lettering - Lessons in Lettering. Book 2. Inclined Single Stroke by French and Turnoull, published by McGrath - Hill.

Regulations relating to the surveys of Crown Lands can be obtained from the Department of Mines and Resources, Crown Lands Division.

Acts of Legislature are obtainable from the Queen's Printer.

Examples of Descriptions by F. H. Peters from Queen's Printer, Ottawa.

With respect to Office Surveying Methods Section 11 of the Syllabus, applicants must make themselves familiar with the systems of note-taking and angle-measurement employed by the Cadastral Survey of the Crown Lands and Surveys Division, Department of Mines and Resources.

PART II REGULATIONS

Relating to the Survey of Crown Lands

GENERAL

1. No survey of Crown Lands shall be made by any Crown Land Surveyor on behalf of an applicant for such lands until he has received approval to do so by the Minister of Mines and Resources.

2. The Crown Land Surveyor must give the applicant, at whose request a survey is to be made, a clear understanding that the fact of having a piece of Crown Land surveyed does not convey any title whatsoever to the land.

3. Before commencing field work in connection with any survey of Crown Land, the surveyor must obtain from the Registry of Crown Lands Office all the available information relating to the area to be surveyed, and he must also make careful enquiry in the locality to determine that there is no adverse claim or other reason why the land should not be leased or granted. Surveyors should in all reports covering survey returns

recommend the issue of a Crown title or state the reasons against - such issue.

PROCEDURE FOR MAKING SURVEYS

4. In commencing a survey, the surveyor shall refer the principal starting point to an identifiable point or object so that the boundaries of the land may be easily and accurately determined at any future time, such as, the centre or corner of a bridge, some well defined or well marked boundary line or other feature.

5. It should be borne in mind that, in cases with lands bordering on roads or rivers, the surveyor shall begin his survey in the limit of the reservation and shall use such limit as the basic line of the survey. There is no statutory limit to the width of a road or a river reservation, the surveyor shall consult the Department in respect to the width of it.

6. The surveyor shall mark out the boundaries of the Crown Land to be surveyed by cutting a clear line through the woods, or where there are no woods, by placing stakes at intervals so as to give evidence of a surveyed line. The surveyor shall plant at each angle of the land a substantial wooden post or a standard metal marker and shall mark on each post or marker the number of it.

SURVEY CONNECTIONS

7. Every survey of Crown Land shall be contiguous along the length with any adjacent private properties or previously surveyed land to avoid the occurrence of small irregular shaped portions of vacant land.

DIMENSIONS OF LOTS

The approved dimensions of lots are as follows:-

(a) For a Fishing Cabin lot: The area of a fishing cabin site shall not exceed 10,000 sq. feet on a frontage of 100 feet.

(b) For a Summer Cottage lot: The area of a summer cottage site shall not exceed 30,000 sq. feet on a frontage of 100 feet.

(c) For a Residence lot: Unless stated otherwise

on the application the area of a residence site shall not exceed one acre on a frontage of 100 feet.

(d) For an Agricultural lot: The acreage to be surveyed shall not exceed the area approved to the applicant. The cases of lots fronting on highways and secondary roads, the frontage to be surveyed shall be limited to the distance approved on the application form. A portion of the frontage of the area surveyed shall be so projected as to allow an area along the highway for building lots or for any other purposes which may be required.

(e) Suggested frontages and overall dimensions of areas for agriculture, are listed below.

8. Traverses of all ponds and rivers, situate within the limit of the area shall be made, and the locations of all natural and cultural (man made) features should be referenced to the surveyed lines.

AREA	FRONTAGES	OVERALL DIMENSIONS
10 Acres approx.	150 - 200 feet	1200x400
20 Acres	" 200 - 250 feet	1600x550
30 Acres	" 250 - 300 feet	2000x650
45 Acres	" 300 feet	2800x700

9. All measurements shall be horizontal distances and shall be made with a steel tape graduated in feet and decimals of a foot to the nearest tenth of a foot.

10. When measuring on sloping ground one end of the tape must be held close to the ground and the other end raised until the tape is level, a plumb line being used to fix the point vertically beneath the raised end. The procedure known as "breaking tape" may be employed if the slope is steep.

11. All tie-ins to natural and cultural features shall be made to the nearest foot.

BEARINGS

12. All surveys of Crown Lands are to be made with a transit in good condition and adjustment.

13. Angles must be measured to the nearest

minute by the azimuth method. If magnetic bearings *are* used the correct bearing of one line free from local magnetic attraction must be determined; other magnetic bearings can be calculated from this line. The allowable error in the angles of a closed traverse should not exceed the square root of the number of set - ups times one half of one minute.

14. If the error in the angles exceeds the amount stated above, then the field work of the survey must be checked until the required degree of accuracy is attained. If the error is within these limits, then the angles of the closed polygon shall be made to be mathematically correct.

PLANS AND REPORTS

15. Upon the completion of any survey, the surveyor shall prepare a plan according to specifications of and on the form furnished by the Crown Lands Office. It shall be dated and signed and on it shall be clearly shown in black ink the direction of the true or magnetic meridian, the bearings and lengths of all the boundary lines, the monuments erected at the corners with the witness or reference marks referring to the same, the outlines of the adjoining lots with the names of the grantee or lessee, or holder, thereof, the former and present bearings of all old lines (if any), the positions of brooks, rivers, ponds, roads, buildings, cleared or cultivated lands, and other topographical features. Features that are sketched in approximately shall be shown in dotted lines; full lines shall indicate that an accurate survey has been made of the object represented. Boundary lines shall be shown outlined in light red colour.

16. Every plan submitted by a surveyor shall be accompanied by a report signed by him. A copy of the notes taken in the field shall also be included so that the bearings and distances may be checked. The report shall include all information relating to the land together with the names of persons in the locality who have supplied any special knowledge of the land.

17. The surveyor shall prepare a metes and bounds description of the boundaries of, any lot of Crown Land surveyed by him which should be clearly worded. The point of beginning should be carefully chosen and the point of reference

carefully described. These points should be capable of being re-located at any time without doubt or uncertainty. The bearings and lengths of the boundary lines shall be clearly stated and the location of the corner monuments shall be fully described.

18. The surveyor must avoid describing conditions that are not possible of fulfilment; such as, describing the position of a boundary by giving only a distance measured along the seashore at high water mark or along the various courses of the bank of a river or lake or other irregular line. Natural boundaries shall be described as terminating at a point; no boundary shall be described as parallel to any irregular line.

19. A description shall be so written that a qualified surveyor may, by following it, mark out on the ground precisely the boundaries of the land which is described. It must, therefore, be perfectly clear and capable of only one interpretation.

20. Before the co-ordinates and areas are calculated from the data of the closed survey, the errors must be distributed by balancing the latitudes and departures by the transit rule.

21. The area of a piece of land shall be computed to square feet to one place of decimals by the double-meridian distance method and converted to acres, roods and perches.

PUBLISHED BY
THE BOARD OF EXAMINERS FOR GROWN
LAND SURVEYORS
St. John's, Newfoundland

Address enquiries to -

The Secretary
The Board of Examiners for
Crown Land Surveyors
% Department of Mines and Resources
St. John's, Newfoundland
1957

The Annual Report for The Canadian Institute of Surveying was published under Vol. XIV No.4 in *The Canadian Surveyor*. Contained in the report was a section on Newfoundland as follows:

"There was considerable activity in the Province during 1958 in respect to the surveying profession. The artificial boundaries of the Terra Nova National Park, which is located on the northeast coast of Newfoundland and is being developed by the Federal Park Authorities, were determined. In connection with the extension of live television to this Province, the boundary of 17 microwave sites together with access roads and power lines are in the course of being surveyed. Eastern Telephone and Telegraph Cables carried out some rerouting of it's cable lines and of course engaged a surveyor to locate the new routes.

Surveys have also been conducted over the properties contained within the area covered by the proposed St. John's Harbour Development Plan.

The boundaries of two large mineral concession areas were established on behalf of the concessionaires, one being located on the north east coast and the other on the Burin Peninsula.

The boundaries of Gander Airport were run during the year and considerable surveying was carried out in the City of Corner Brook in connection with street widening.

The Crown Lands and Surveys Division of the Dept. of Mines and Resources had a extremely busy field season. Some twelve overnight camping sites along the Trans Canada Highway were surveyed and the boundaries of the Provincial Park "Butter Pot" near Holyrood were established.

A cadastral survey is being carried out along the south shore of Conception Bay to ascertain the land ownerships extending back to the Trans Canada Highway. The area involved is approximately fifty square miles.

Farm lots comprising fifty acres each were layed out in the Robinsons area on the West Coast in the tract of land which has been opened up for agricultural development by the Trans Canada

Highway. Some residential lots were also laid out in the area. In addition miscellaneous surveys were carried out in widely separated places for various departments of the Provincial Government.

ANLS Archive Committee Note. The survey mentioned above for Terra Nova National Park was carried out by Willett Engineering & Survey Co. Robert J. Redmond was working on this survey and told the story on the specifications for the job saying the corners had to be mounded with an Irish spade. Of course our soil conditions and terrain did not allow for that condition.

In the 1958 03 24 issue of *The Newfoundland Surveyor* noted in the past year the bulletin was published at irregular intervals. The earliest issue on file at the Association Office is Vol. 1 No. 2. dated 1956 11 17. No. 1 is missing. Up to 1958 the newsletter was a typed written newsletter that was distributed to the membership. It did not have a cover and it did not contain any advertisement. By 1959 the newsletters was published four times a year and while still typed it had a different colour cover for each issue. The first advertisement appeared in the June 1959 issue with Norman Wade Co. Ltd., M. Francis Kelly, K&E [Wm. Noseworthy Limited], and Tellurometer Canada Limited. In addition to the above Willett Engineering & Survey Co., Newhook & Morgan Engineering Ltd., Gerry Halley Survey Ltd., and W.F. and James Canning Ltd. also shared a page. A story about Gerry Halley who lived at 90 Allandale Road is as follows: at one time he applied for a permit to erect a small office at the front of his property. The permit was refused. He then applied to erect a garage at the front of his property and permission was given. There was a side door for an entrance and a garage door placed at the front facing the street. The inside of the garage door however was sheeted over and Mr. Halley carried on his business. By 1960 Yates & Woods, The Hughes - Owens Company [Limited] and Atlantic Air Surveys Co. Ltd. out of Dartmouth, NS were also advertising, and the newsletter was published five times a year. There were five issues in 1962, but in 1963 there were only two issues. We have one surviving issue from 1964, Vol. VI, No.1 while there is a note saying published five times a

year. The editor of the early newsletters up to 1958 is unclear, but it was probably Jim Canning. For 1959 onward James Canning is shown as the editor, and in 1960 W. J. Walsh is shown as editor with J.H. Burrige as associate editor and 1963, 1964 shows W.J. Walsh as editor. There is a void then until October 1973 when an unnamed newsletter is published as Vol. No.1 with John T. Power as editor, and John continues into 1974.

The Newfoundland Surveyor reports in October of 1959 :

Yates and Woods were principally engaged at locating electric power lines on the West Coast

Newhook and Morgan had five parties in the field with seven Memorial University being employed.

W.F. & James Canning's top project was the delimiting a line for a new Trans - Atlantic - Cable from White Bay to Bay of Islands.

Gerry Halley Surveys were chiefly engaged at estate surveys - city subdivisions.

The Newfoundland Surveyor reports in December of 1959 *An Outline of the Establishment of Horizontal and Vertical Control over the St. John's Harbour Area* submitted by member Robert J. Morgan.

In the Spring of 1958, the Government of Canada gave authority for the proposed modernization of St. John's Harbour, using the plans prepared for the Department of Public Works of Canada by the Foundation of Canada Engineering Corporation Limited. At this time Newhook and Morgan Engineering Limited was approached by FENCO to establish horizontal and vertical control over the harbour area, with special reference to all buildings and coves between Water Street and the north shore of the harbour.

All preliminary work on this project had been based to date on the excellent plan of the City published by the Municipal authorities, and prepared for them by Canadian Aero Service Limited, Ottawa, by photogrammetric methods

from aerial photographs taken in 1955. However, these plans, at 1 inch to 200 feet, were not in sufficient detail to be of use in controlling a project of this nature, especially with regard to permanent control points in the area from which all phases of construction would be based. The necessity for accurate control is obvious when one considers the number of engineering projects to be carried out, the importance of their exact locations to one another, their interconnecting features, and the close proximity of all work to the somewhat erratic pattern of existing buildings on the north shore.

Control points were required from Harvey & Company on the north side down the harbour to the C. N. R. property and along the Southside to the Imperial Oil Limited wharf. Two control points were to be located in each cove, one at each end; with the one nearest the harbour being set back in the cove to prevent any disturbance during construction. In this manner both position and azimuth would be readily obtainable for construction layout. All control points had naturally to be located so as to be easily accessible during normal traffic conditions, and also during anticipated Construction conditions. All control points had to be located and positioned to each other to an overall accuracy not less than 1/10th of a foot. Also required was a detailed plan at a scale of 1 inch equals 20 feet, of all wharves, and all buildings between the harbour and Water Street, and the harbour and Jobs Bridge Crossing.

Because of the distances involved, and the difficult working conditions for accurate chaining, it was decided that any attempt to run a series of closed traverses encircling the harbour to establish the control points would prove uneconomical, especially to meet the accuracy requirements, as traffic congestion in this area from the surveying viewpoint was disastrous.

Under these conditions it was decided to triangulate all control points. It was not possible to triangulate directly from the permanent control points as their location in the coves allowed only very limited view on the south side and none on the north side, thus making them of no use for triangulation purposes. The only practical method remaining was the establishment of primary control points on roofs of buildings on the north

side, from which the permanent control points in the coves could be in turn located by triangulation.

The procedure of this operation commenced with the establishment of a base-line 1,643.625 feet long on the southside wharf. This naturally could not be a permanent base-line, but was measured repeatedly through out triangulation and no perceptible movement was noted. It was fortunate that this baseline could be used, because it would not be possible to locate a baseline of similar length anywhere else in the area, the Southside Hills being impractical due to curvature not apparent at first glance. The length possible in this baseline grounded all triangulation very well and enabled the use of strong triangles. It should be noted that to locate these primary triangulation points so that they were visible to each other across the harbour, visible to each other laterally along the roofs of the Water Street buildings, and at the same time visible to both permanent control points in the coves presented more of a problem than would at first seem possible. It might be added that the arrival, during this triangulation, of the whole of the Portugese fishing fleet did little, as far as the surveyors working on the project were concerned, to foster international goodwill.

However the primary triangulation grid was built up over the whole harbour, based on the southside baseline, and the primary control points on the roofs of the northside buildings, together with the stations in the lower end of the harbour, were placed.

It was decided to base all work on the City of St. John's official coordinate system. It is regrettable to state that the only "permanent" control point available in the entire area of the survey was located 2,000 feet west of the western limit of the harbour, and this was an iron pin, loose, with a 4 inch slack. However, its true location was established and its coordinates obtained from the City Engineering Office, forming the basis of the grid used on all work. It is further regrettable to state that because it was an isolated point azimuth, which for the City is based on the geodetic, had to be obtained from observations on geodetic stations "Signal" to Stations "Snelgrove" and "George", and that the station at "George" had been partially destroyed by vandals and had to be occupied to obtain sights. Both these points are minor, but for

the surveyor on a project time consuming and very frustrating and only far too common.

Once all coordinates had been calculated for the primary control stations, they were transferred again by triangulation to the permanent control points.

On the establishment of permanent control points, survey loops were run between each cove from which all buildings and other features were positioned. These closed traverses, based as they were on four permanent control points, allowed no possibility of error in position or azimuth. They ensured that the traverses themselves were accurate, they double checked the permanent control points in case of any error in triangulation from the primary control points or in their calculation, and of course prevented any cumulative errors which could be only too possible if these loops themselves had been used to establish the permanent control points. To ensure accuracy in the location of the buildings and other features from these closed traverses all corners and changes in direction were tied-in together with an intermediate point on line in each case, again eliminating the possibility of error in both field work, office calculation, and draughting.

Instruments used in this survey were standard. The base-line was measured with a K & B TAPE LOVAR of nickel steel, tension and temperature reading being taken during each measurement, and corrections used in all calculations. All triangulation angles were measured with a KERN DKM2 theodolite reading to 1/10 of a second. The remainder of the surveying was carried out with standard transit and chain.

Results obtained with the above instruments showed a satisfactory accuracy. Base-line chaining on separate measurements varied by less than 1/1000 of a foot. Angular measurements on triangulation were such that on straight field readings, before corrections were applied, totals for each separate triangle were from 0.0 seconds to 6.0 seconds from 180 degrees, 0 minutes, 0 seconds, with the majority being no more than 2 seconds out. These accuracies were limited only by the field conditions and the fact that greater accuracy, because unnecessary, would be

uneconomical to obtain. All permanent control points were plotted on the coordinate system, and all traverses between them with accuracies in the order of 1 in 10,000. As these closed traverses between permanent control points were carried out with standard transit and tape, we feel that the figures obtained were satisfactory as essentially they only served as a base for plotting intermediate buildings, and the differences, with the permanent control points of the order stated could, only be expected. Vertical control required was carried out using standard procedure, double checked, and referred to lowest normal tide established and based on geodetic bench marks. Plans were submitted to FENCO for the complete project, together with copies of all calculations, corrections and closures.

It should be noted that a great part of this survey was carried out by engineering students from Memorial University of Newfoundland. They performed their work steadily and efficiently, and their versatility is to be commended. It was for some the first time they worked on a complete project from start to finish, and it is suspected that they will agree in the old adage on surveying, "that the theory is simple but the application difficult". The cheerfulness, at any rate when the writer was present, with which they dodged trucks when chaining, shifted 150 drums of fuel oil to measure the base-line, clambered over derelict wharves, the roofs of buildings, and answered the innumerable questions of the waterfront boulevards, certainly bears well for the future of their professional lives. It is hoped that this article will prove of interest to surveyors in Newfoundland, it is merely the story of a survey which in itself was of a standard nature and certainly has no special theoretical or practical points of professional interest. The example of FENCO in having this project carried out by a Newfoundland company is one that we hope is followed. It is this support of local organizations, for all survey work big or small in this Province, that will enable the training of personnel, and the increase in size, efficiency and experience of surveying firms, thus ensuring that the future demands both in Labrador and Newfoundland can be met exclusively by local companies. The operation of surveyors from other Provinces in Newfoundland and Labrador is, for this Province with only far too few sources of permanent

employment, a state of affairs which must not be allowed to continue.

A brief report on the sixth annual meeting of the Association of Newfoundland Land Surveyors was published in *The Canadian Surveyor* VOL. XIV No.9 page 409. The report noted the meeting was held 1959 01 20 at the Joint Officers' Mess, Buckmasters's Field, St. John's. President T.H. Winter reported that Council had taken steps toward the amendment of two clauses in the Act incorporating the Association. One of these clauses is the so called "grandfather clause", and the other concerns the period of articling. It is thought desirable that the Council should be given discretionary powers to reduce the period of articling in cases where applicants for membership can produce evidence of sufficient academic qualification and field experience. For the year 1959 - 60 James Canning was the Provincial Council for The Canadian Institute of Surveying. The Annual Report dated 1959 08 showed 21 members were provincial land surveyors for Newfoundland.

LAND TENURE

The Newfoundland Surveyor December 1959.
Editor, James Canning

Land Tenure means the ownership of land. It also includes the right to use land without actually owning it. Rights to lands are of many kinds ranging from complete ownership in fee simple to a mere right of crossing a piece of land by vehicle or on foot given by an owner of land to another person. There are also rights which are given respecting, either separately or together, the trees growing on land and the minerals beneath.

Lands are held in the Province of Newfoundland either by Crown grant, lease or licence, by adverse Possession against the Crown, or against another person, or by purchase of the beneficial ownership of a predecessor in title to another party.

We shall endeavour with this and future issues to give short-sketches of the land ownerships of the Province, and we shall begin with the holdings of the Anglo-Newfoundland Development Company.

Under the provisions of an Act to encourage the manufacture of pulp and paper passed by the Legislature on the 15th of June, 1905, the Anglo-Newfoundland Development Company Limited, was granted for a period of ninety-nine years a lease of a large part of the watershed of the Exploits River. This area is commonly known as the A.N.D. Charter land. It comprises about 2,000 square miles and includes the entire natural drainage system of the Exploits River extending from King George IV Lake on the south west to a point near Red Indian Falls about 20 miles west of the Town of Badger. The lease to the Company conveys, in addition to rights to surface land, the ownership of all the timber and trees being on the land, the land covered by waters and mines and minerals. There is, however, a Space twenty-five feet wide around and adjoining all lakes and ponds in the leased area reserved for public use to give the necessary access to the hinter land. The Company pays the Government for its Charter land an annual rental calculated at the rate of two dollars a square mile.

Besides the Charter land the Company, which began making pulp and paper in 1909, has since acquired about 4,800 Square miles of licensed timber lands from private holders, The Company's rights to these areas differ however from those of its original holding in that only property rights in the trees growing on the areas are involved, In addition it has acquired 17 Reid Lots and 5 Telegraph lots which are fee simple ownerships.

In 1925 the Company purchased the premises of the Terra Nova Sulphite Company and the Alexander Bay Pulp and Lumber Company. These holdings included 900 square miles of licensed timber lands together with the water power rights to the Terra Nova River. In lieu of the mill which was required to be erected at Terra Nova under the Terra Nova Sulphite Company's Act, the Company was granted permission to make an extension to an existing mill.

In 1929 certain lands and rights to water power were acquired by the Anglo-Newfoundland Development Company at Bishop's Falls, Great Rattling Brook and Badger Brook. These lands were originally granted in 1905 to George J. Barker who transferred his rights to the

Newfoundland Pine and Pulp Company in 1907. The Anglo-Newfoundland Development Company also purchased rights held by A. E. Reed Company and Bishop's Falls Pulp and Paper Company, Limited at Bishop's Falls.

In 1933 the Anglo-Newfoundland Development Company also acquired from Mines and Forests Limited over 1,000 square miles of licensed timber lands situate at Orange Bay and Harbour Deep and in 1940 obtained confirmation of a title to land and water power at 3. W. Arm, New Bay. follows: -

A Summary of the A.N.D. Company holdings are as follows:

Charter land	2,000 sq. miles
Licensed timber land	3,300 sq. miles
Reid lots	412,461 acres
Telegraph lots	7,920 acres
Agricultural grants	1,660 acres

In our next issue we shall discuss the holdings of Messrs. Bowater's Newfoundland Pulp and Paper Mills Limited.

LAND TENURE

The Newfoundland Surveyor March 1960.

Associate editor, J. H. Burridge

Editor, W.J. Walsh

(PART II)

The land holdings of Messrs. Bowater's Newfoundland Pulp and Paper Mills Limited have their roots in the rights granted to the Newfoundland Products Corporation under an Act of the Legislature passed in 1915. The original proposals of the Newfoundland Products Corporation envisaged the development of hydro - electric power by utilizing the waters of the Humber River drainage system for the manufacture of fertilizers and cement in a plant which was to be built near the mouth of the River.

The plant did not materialize and the rights and privileges of the Newfoundland Products Corporation passed to a new company, The Newfoundland Power and Paper Company Limited in the year 1923. This Company undertook, addition to the manufacture of

fertilizers and cement, to make pulp and paper. Having acquired the rights to licensed timber lands in the Humber drainage area, the Company was relieved by the Government of the obligations contained in the licences in respect to the erection of saw mills. Besides these timber lands the Company also acquired sixty-one Reid Lots and the power potential of the Humber River.

In 1927 the International Paper Company Limited of Newfoundland which name was later changed to International Power and Paper Company Limited assumed all the assets and obligations of the Newfoundland Power and Paper Company Limited including the new paper mill at Corner Brook and the hydro - electric plant at Deer Lake, both of which began operation in 1925. This Company having planned to increase its output in 1933 was permitted to export one half cord of wood for each ton of paper produced in excess of 120,000 tons a year. The 99 year timber licences owned by its predecessors in title and acquired by the International Power and Paper Company Limited were dated from 1927 and conditions contained in the titles relating to the operation of saw mills were repealed. Similarly, conditions contained in all water power licences held by the Company in the Humber drainage were deemed to have been full filled.

Messrs. Bowater's Newfoundland Pulp and Paper Mills Limited acquired in 1938 the lands and operations of the International Paper Company Limited in Newfoundland and the holdings and properties of the Gander Valley Power and Paper Company Limited in the Gander River drainage.

The Company under the Bowater's Newfoundland Act 1938 was relieved from the payment of any royalty under or in relation to any grant, lease or licence in the Island of Newfoundland and all licences held by the Company, were extended for 99 years commencing from the date of the Act.

In the year 1955 the Bowater Power Company Limited took over the control of the Bowaters hydro development and a new plant was erected at Corner Brook.

A summary of the Bowaters's holdings are as follows:

Licensed Timber Lands 8988.6 sq. miles
 Reid Lots, Surface Land
 and Timber Rights . . . 1486.74 sq. miles
 Granted Lands 3607A, 2 R, 7 P

The Newfoundland Surveyor June 1960
Editor W.J. Walsh, Co- editor J.H. Burrridge
LAND TENURE PART III

An Act respecting the Newfoundland Railway was passed on the 7th of May, 1881. The first move towards the construction of the railway was made in that year by the Newfoundland Railway Company which was incorporated under the Act. This Company undertook to build the railway from St. John's to Notre Dame Bay with a branch to Harbour Grace, the total mileage being 340 miles, and it agreed to take 5,000 acres of land and a mail subsidy for each mile of line constructed. Having constructed 70 miles of line the Company defaulted but the bondholders completed the 54 mile section to Harbour Grace by November 1884.

In 1887 the Government began construction of 26 miles of line from Whitbourne to Placentia. The undertaking being exceedingly costly, the Government was forced to abandon the venture. It was then decided to invite an outside contractor to complete the job.

Mr. R.G. Reid of Montreal was awarded a contract in 1890 for the construction of railway line at \$15,600 a mile. He completed the Placentia Branch and built 230 miles of line towards the original goal at Notre Dame Bay. In 1893 it was decided to extend the main line to Port-aux-Basques. Reid obtained this contract as well as the contract to operate the line for a period of ten years. In return he was to receive a grant of 5,000 acres for each mile of track and was obliged to complete the main line within three years.

In 1895 Reid undertook, among other things, to operate the entire railway system of the Island for a period of fifty years for a further grant of 2,500 acres for each mile of line. In 1901 a further contract was signed with Mr. Reid under which he surrendered 2,550,000 acres which had accrued to him in 1895. He was paid the sum of \$850,000

and permitted to form a limited liability company.

Under the provisions of the Newfoundland Railway Amendment Act and in consideration of the fulfillment of the covenants of the grantee in connection with the construction and operation of the Island's railway system, there was granted to the Reid Newfoundland Company, a total of 145 fee simple lots comprising 3,910 square miles. These lots were designated by numbers ranging from 3 to 247 and are commonly referred to by these numbers. The grants convey all rights to surface land, woods, watercourses and minerals of every kind.

The Transportation of Timber Act of 1904 made certain modifications in the Reid grants and provided that timber for the purpose of shipbuilding, the fishery or for firewood could be cut without hindrance upon certain designated portions of the Reid lots (i.e., within 3 miles of the Coast), and that a space 25 feet wide was provided along the shores of all lakes and the banks of rivers running through the lots for public use.

In addition to the 145 Reid lots mentioned above, there are 6 lots of land containing 87.4 square miles which are usually classified with the Reid lots. The rights conveyed in the grants are similar to those of the Reid lots and the properties were transferred to the Reid Newfoundland Company Limited.

The Reid Newfoundland Company did not develop its own holdings. The major part of the acreage granted in the Reid lots are now held by Bowater's and the A.N.D. Company. Bowater's owns or operates 2,545 square miles and the A.N.D. Company owns or operates 645 square miles. The Reid Company retains most of the remaining 695 miles and still retains the minerals rights to many of the lots under lease to Bowater's and A.N.D. Companies.

The Newfoundland Surveyor October 1960
Editor W.J. Walsh, Co - editor J.H. Burrridge
LAND TENURE PART IV

The lands Granted to the New York,
 Newfoundland and London Telegraph Company

The New York, Newfoundland and London Telegraph Company was incorporated by an Act of the Legislature in 1854. This Company was organized for the purpose of constructing electric telegraph lines between St. John's and Cape Ray and St. John's and Cape Race. It was authorized to complete and keep in order the above mentioned lines and to construct, complete and operate any other lines from any point in Newfoundland to any other point in the Island or elsewhere and was given an exclusive franchise for a period of fifty years to operate its cable lines. Telegraph lines were constructed from St. John's to Cape Race, from St. John's to Cape Ray. A submarine line was also laid connecting Cape Ray with Cape Breton from which point land lines radiated the large cities of Canada and the U. S. A.

The Governor was empowered to issue, as soon as the telegraph lines were installed, grants to the Company of any ungranted land or unoccupied wilderness land in Newfoundland in lots, the contents of which shall not be less than three square miles and in all not exceeding fifty square miles. The Company obtained under the Act, 13 grants comprising 62,122 acres (97 square miles) which were issued without charge for surveys or otherwise. The grants are registered in Volume 39 of the Registry of Crown Grants.

The Company was obliged under the provisions of the Act to settle one person on each 500 acres granted and to pay 5% on the produce of all mines. The returns from the lead mining operations which were carried on between the years 1857 and 1873 helped Cyrus Field and Frederick Gisborne to finance the laying of the cables.

Before the first Atlantic cable was laid, ships crossing the Atlantic from Europe touched in towards Cape Race to drop in the sea watertight packages which contained the latest news from Europe. These packages were retrieved by "news boats" operating from Cape Race. The latest news was thus relayed by telegraph to the U. S. A. and usually reached New York three or four days ahead of the ships. Similarly ships returning from the U. S. A. picked up near Cape Race packages containing the latest items of news from the New World and transported them to the West Coast of Ireland from where the news was

telegraphed to the Continent of Europe.

The first submarine cable extending from Ireland to Newfoundland was completed in 1858. Difficulties however developed within a few days and eight years elapsed before the first transatlantic cable was in operation. In 1904 four cables were in operation and other Companies which later entered the field of communication, were unable to land cables in the Island because of the exclusive franchise held by the New York, Newfoundland and London Telegraph Company.

The rights and privileges given and vested in the New York, Newfoundland and London Telegraph Company of Newfoundland were passed by Act in 1898 to the Anglo American Telegraph Company but the lands described in the original grants were transferred to the Newfoundland Colonization and Mining Company of London, England.

It is interesting to note that the large lake situated to the eastward of Long Harbour, Fortune, is named after Gisborne. The first transatlantic cable skirted the shore of this lake. It is regrettable that the name of Cyrus Field has not been perpetuated in the nomenclature of Newfoundland.

The March Issue, 1960 of *The Newfoundland Surveyor* contains the presentation by D.W. Johnson, M.Sc, Director of Mineral Resources, Dept. of Mines & Resources, possibly given at the AGM.

The surveyor and the geologist work in close co-operation throughout the many phases of mineral exploration. The carefully recorded observations of the geologist have little significant value until they are related to one another by accurate survey. Only in the initial stages of mineral exploration will the geologist attempt to conduct his own survey control (and then simply by compass and pace methods). In all the more advanced and critical phases of mineral assessment the services of professional surveyors will be demanded.

In order to illustrate the relationship that exists between the two professions let us follow a feasible sequence of events leading to the

establishment of a new mine.

From his assessment of available information - maps, reports, aerial photographs - the exploration geologist will choose an area of ground, considered to have economic potential, for initial examination. his first task will be to conduct a reconnaissance survey of the total area, running traverses at moderately spaced intervals, to obtain a comprehensive picture of geological conditions. Even at this early stage he will appreciate assistance from the surveyor in the form of plane - table and/or triangulation control of his mapping. From his study of the recorded data the geologist will select a smaller area (or areas) of ground, on the basis of favourable rock types, structure, and evidence of mineralization, to receive closer study. At this point it may be necessary, or considered expedient, to reserve this promising area by the staking of claims. The geologist will commonly conduct this work with the usual compass and pace methods, but as we shall later see, the services of a qualified surveyor will eventually be required to establish the actual and legal boundaries of these claims.

More intensive exploration will now be conducted upon this selected area. The application of geophysical surveys (to distinguish between mineralized and barren rock by measurement of their contrasting physical properties), as a major tool in this search for ore, will require the establishment of a "grid" of cut lines upon which the necessary measurements will be taken and their relation-ships plotted. For many surveys this "grid" must be accurately oriented with regard to geologic structure and a surveyor will again be called upon, this time to establish the "base line" and turn off "picket lines" at required intervals. Certain geophysical methods, particularly gravimetric surveys (measuring the contrasting densities of materials beneath the earth's surface), will require close vertical control and, hence, a carefully conducted level survey. The results of detailed geological mapping on this "grid" together with those of one or more geophysical surveys will then be studied and assessed.

If the accumulated evidence suggests the presence of mineralization, then a programme of diamond drilling will be undertaken. Each geophysical anomaly (i.e., area producing results varying,

from the normal negative response and at the same time similar to those obtained over known ore bodies) will be tested by at least two holes. If ore is thus indicated, the pattern of drilling; will be spread out both along the length of the anomaly and in the vertical plane until indications of ore are no longer obtained and/ or sufficient depth has been indicated. Now the volume, grade and configuration of the ore body must be diligently assessed. The basic for such calculations will be the relative horizontal and vertical positions of the numerous drill holes as they are established by the surveyor.

The next step in the development of the property will be to proceed underground to further sample the ore and test its continuity and mining characteristics. A surveyor's plan of the property showing terrain contours, location of the ore body, water supply and existing roads will play an essential role in the selection of a suitable shaft site. When the shaft has been sunk to the elevation of the first level, a station will be cut in the wall and a tunnel (cross cut) driven out into the ore zone. Additional tunnels (drifts) will then be advanced in both directions to follow the ore and holes drilled from them to probe the boundaries of the ore body. Meanwhile, additional levels, crosscuts and drifts will be established as the shaft is deepened to its target depth. It will now be necessary for surveyors to "plumb the shaft" and carry their surface survey underground. This survey will establish numerous control points (stations) and an accurate outline of the workings both of which are required before the geologist may commence underground mapping, before ore samples may be cut, before drill hole results may be correlated and before interconnections between levels may be attempted. Only with this important contribution of the surveyor may a thorough assessment of the ore-body be achieved.

At this well-advanced stage in the exploration of the property it may be necessary and desirable to make application for a mining license or lease to embrace this strategic ground. This will require an accurate survey of the original claims commencing with the running of "trial lines", following as nearly as possible the previously blazed trail, to locate the boundary posts. The surveyor will then calculate the actual bearings and distances between

the posts and return to the field to establish them as a well cleared boundary line between these stations. Now the original, and perhaps orderly appearing, plot of the geologist's staking efforts will acquire its true, and oftentimes quite divergent, configuration. A plan of the survey and a condensation of the surveyor's notes will be filed as a legal requisite for the license or lease.

If the ore body and its characteristics assure a profitable mining operation, then plans to proceed to the production stage will be made. Both the geologist and the surveyor must shoulder important responsibilities in this project. The geologist must closely assess the tenor, tonnage and configuration of the ore, data that will direct the surveyor in his guidance of the efficient development of the mine. The surveyor must keep his work abreast of the many changes taking place underground - the advancement of headings preparatory to the opening of "stopes" from which the ore will be obtained, the location of blast holes that will break the ore, the enlargement or, the "stopes" to within limits of economy and safety, plus the laying out of numerous inter-level "ore passes" and "loading pockets" to channel the ore material into an efficient transportation pattern, plus the directing of new exploratory headings to test the extensions of the known ore body for future development and the associated chores of laying out headings solely for ventilation and transportation. All of this work will require an exacting degree of precision. The occasional error that a surveyor may make underground, particularly in waste rock, will be perpetually sculptured for all to observe. That such miscalculations are few attests to the consistent accuracy of the surveyor's work.

On the surface other problems will else become the duty of the surveyor - establishment of the boundaries of surface rights, the laying out of plant installations, housing lots, roads, water and sewage systems.

In the varied aspects of mine exploration the geologist first depends upon the surveyor to provide accurate control for the comprehensive plotting of his data, then the surveyor awaits the geologist's interpretation of these results to guide the development of the ore, together they work in close co-operation and contribute services

essential to the development of a mine.

The June 1960 issue of *The Newfoundland Surveyor* reports that field work is as follows: Newhook and Morgan Engineering Co. Ltd has among other projects a contract to delimit certain mining properties in Labrador; Willett Engineering Co. Ltd. is making topographic determinations over a large tract of land at Holyrood; W. F. & Jas. Canning Ltd. is engaged at surveys for C.O.T.C. line on the West Coast; Yates & Woods are completing surveys on the North West Coast; and G.T. Halley Surveys Ltd. has just completed Crown Land Surveys in the Marystown, Placentia West District, and are busily engaged in City Sub - Divisions.

Also reported in this issue is the University of New Brunswick has started a degree course in Surveying Engineering.

Association of Newfoundland Land Surveyors From *The Canadian Surveyor* Annual Report 1960

The Association of Newfoundland Surveyors held its seventh annual meeting in January 18 and 19, 1960, at the Newfoundland Hotel, St. John's.

President T. H. Winter called the meeting to order at 10:15 a.m. on Monday, January 18. In his presidential address he dealt with certain amendments to the Surveyors Act that were pending and added his own well thought out comments to those of the many voices now speaking for professional training attitudes for surveyors.

The secretary's report showed that Council at its meetings during the year had concerned itself with amendments to the act, as mentioned by the president, particularly the section that deals with qualifications to practice with the plans for a larger convention than had been held in other years, with assistance to students, and other matters important to the Association. It had been decided to award a scholarship of \$100.00 to a student at the University, but details of this were yet to be arranged.

The Canadian Surveyor notes, with a touch of envy, that according to the financial statement the Association made a profit of \$7.21 on the publication of its journal.

After the business session, Mr. H. A. S. West, Department of Mines and Technical Surveys, Ottawa, gave a paper on the Department's surveys and mapping in Newfoundland.

In the afternoon Mr. Keith Rosebrugh, of Tellurometer Canada, gave a detailed demonstration of the use of the Tellurometer, with students from the University as well as Association members in attendance.

At 7:00 pm. members, their wives, and guests to the number of about one hundred took part in the Association dinner. The Honourable W. J. Keough, Minister of Mines and Resources for the Province, guest speaker, spoke of the need for a plane co-ordinate system, improvements in the system of land registration, and a land use survey. These matters were all being studied by his Department and some measures to deal with them were already under way.

On Tuesday morning, January 19, Dean S. J. Carew, of the Faculty of Applied Science of Memorial University and Mr. J. T. Allston, Director of Rural and Urban Planning, Department of Municipal Affairs, gave interesting talks on the education of the land surveyor and on town planning, respectively.

The meeting ended with the installation of the newly elected officers on Tuesday afternoon.

The Canadian Surveyor Annual Report 1961 Vol. XV No. 9

The eighth annual meeting of the Association of Newfoundland Land Surveyors was held in the Newfoundland Hotel, St. John's, on Monday and Tuesday, January 23 and 24, 1961. The Canadian Institute of Surveying was represented by the President, Mr. Robert Thistlethwaite, and other national and provincial survey associations from the United States and Canada were also represented.

The opening session was occupied by the President's welcome to the visiting delegates and our-of-town members, greetings brought by delegates from the organizations they represented, and various reports.

The President, in his report, dealt with a number of subjects, including impending amendments to the Surveyors' Act, means of promoting growth of the surveying profession in the province, misunderstandings on the part of those wishing to acquire land of the functions of the surveyor and his fees, liaison between the Associations and the survey division of the Department of Mines and Resources, and possible aid for surveying students at Memorial University.

Mr. Thistlethwaite then gave a talk in which he described the functions of the Legal Surveys and Aeronautical Charts Division of the Federal Department of Mines and Technical Surveys. Mr. W. F. Roberts, Director of the Survey, Title, Records, and Draughting Branch of the Department of Lands and Mines of the Province of New Brunswick, gave an illustrated talk on the rectangular co-ordinate system now being established in his province.

On Monday evening a reception and cocktail party were held and this was followed by the annual dinner, at which Mr. C. K. Howse, of the Iron Ore Company of Canada, Limited, was the guest speaker. Mr. Howse traced the history of the development of the great iron ore bodies of Labrador from their discovery to the present and showed a film, "Iron from the North".

On Tuesday morning Dr. Gottfried Konecny spoke to the meeting on the degree course in surveying recently established at the University of New Brunswick, and Lt. Col. J. I. Thompson, Topographical Survey Division of the Department of Mines and Technical Surveys, Ottawa, gave a talk on some of the applications of photogrammetry to surveying. Col. Thompson illustrated his talk by a mapping exhibit that he had brought with him from Ottawa. The final session of the annual meeting was devoted to internal business of the Association. A good number of members attended the closing session and left with a pleasant feeling that the whole convention had been a resounding success.

The Canadian Surveyor Annual Report 1962 Vol. XVI No.4

The ninth annual meeting of the Association, held in the Newfoundland Hotel, St. John's, January 19 and 20, 1962, featured many out-of-province guests, a variety of papers informative and interesting, good food, humour and joviality, and a number of constructive proposals for the continuing progress of the Association and of surveying in general.

Under the chairmanship of President James Canning, proceedings for January 19 included the passing of the minutes of the eighth annual meeting and various reports, a variety of excellent lectures, and the election of officers for the ensuing year. A cocktail party and dinner followed the business session. Speaker for the evening was the Hon. Dr. J. R. Smallwood, Premier of Newfoundland, who spoke of the changing economy of his province and of the need for more surveyors to serve Newfoundland's many communities. An after-dinner dance followed.

The program for January 20 included more specialist lectures, the installation of officers, lunch, proposals and motions. President Canning suggested that the Memorial University should set up a diploma course in surveying, having as its basic plan that students taking the course would continue to a degree in Surveying Engineering at the University of New Brunswick. Mr. T. H. Winter thought that the Association should take advantage of the new Trades and Technical College that would soon be opened.

A discussion on the matter of the annual fees payable by members to the Association elicited a recommendation for the raising of the fee from \$10 to \$15. It was also recommended that all Association members should submit their ideas on the scale of fees listed in the by-laws for land surveys, which were generally felt to be inadequate.

A motion was passed to the effect that the by-law respecting arrears of fees payable to the Association should be enforced.

Among those present and bringing greetings from their organizations were, Messrs. Fred Gover,

Deputy Minister of Mines, Agriculture and Resources, St. John's; Ray Mulholland, of W. & F. Gurley, Ltd.; Roy Kemp, of the Hughes-Owens Company, Ltd.; Keith Rosebrugh, of Tellurometer Canada; J. H. Chisholm, of the Association of Provincial Land Surveyors of Nova Scotia; F. J. Jones, Editor of *The Canadian Surveyor*; and J. F. Lilly, Dominion Geodesist.

Speakers included Mr. F. J. Jones, who spoke on the training of surveyors, J. F. Lilly, whose talk dealt with the various kinds of map projections, and Mr. H. B. Morgan, a member of the Law Society of Newfoundland, who gave a talk on "Land Titles and the Surveyor". The question-and-answer periods were brisk and informative.

Officers for the ensuing year are: President, James Canning; Vice-President, D. A. Poynter; Secretary-Treasurer, E. C. Granter; Councillors, J. H. Burrige, O.B.E., W. J. Walsh, A. R. Penney, T. H. Winter and G. T. Halley.

The April 1963 Issue of *The Newfoundland Surveyor* reports that two pieces of legislature were due to efforts of the committee set up four or five years ago. The committee included James Canning, T.H. Winter, Kevin McGrath, W.J. Walsh and one or two other members, working diligently with our legal adviser, D.W.K. Dawe. The 1953 Act was changed to eliminate a clause of that act, which permitted Crown Land Surveyors to apply for membership in the Association. The Surveyors Act as it now stands is the only law which provides for the appointment of Land Surveyors to practice in this Province. The other piece of legislature was the amended Crown Lands Act to the extent that it relieved the Lieutenant - Governor in Council from the task of appointing Land Surveyors from those persons who had passed the examinations of the Board of Examiners for Crown Land Surveyors.

A Board of Examiners appointed by the Association and approved by the Lieutenant - Governor in Council under the revised provisions and amendments to the Land Surveyors Act was put in place. The Board consisted of the Dean of Applied Science at Memorial University, Dr. S.J. Carew as Chairman, Mr. T.H. Winter as Secretary, Mr. Kevin McGrath and J.H.

Burridge, Esq., O.B.E.

A new syllabus would be made ready for distribution to show the procedure and qualifications to become a Newfoundland Land Surveyor.

The College of Trades and Technology started classes in September of 1963 and Mr. K. F. Duggan, Principal, requested the Association to appoint an Advisory Committee on Surveying to advise the College. The committee consisted of J.H. Burridge, T.H. Winter, James Canning, E.C. Granter, and F.M. Shortall, Secretary.

ASSOCIATION OF NEWFOUNDLAND LAND SURVEYORS

From *The Canadian Surveyor* Annual Report 1963

The 10th Annual Meeting of the Association was held in the Newfoundland Hotel in St. John's on January 17 and 18, 1963.

Mr. Fred Gover, Deputy Minister of Mines, brought greetings from the Honourable W. J. Keough, Minister of Mines, Agriculture and Resources, and Mr. S. G. Gamble, Director of the Surveys and Mapping Branch, Department of Mines and Technical Surveys, Ottawa, from his Department and from the Canadian Institute of Surveying. Mr. Canning read telegrams and letters from other Associations, expressing best wishes for a successful meeting.

Officers elected for the ensuing year were Mr. J. H. Burridge, O.B.E., President; Mr. D. A. Poynter, Vice-President; Mr. E. C. Granter, Secretary, and Messrs. James Canning, W. J. Walsh, A. R. Penney, T. H. Winter, and F. M. Shortall, Councillors.

The Annual General Meeting was held on January 17th 1964 at the Newfoundland Hotel with President J.H. Burridge, Esq., O.B.E. as chair and twenty six members present. Some items discussed were:

1. Changing the date of the meeting so weather would not hinder the attending.

2. Surveying practices concerning City Lot Layout.
3. The Minium Tariff Schedule.
4. The publication of membership in a regular periodical.
5. Members in arrears.

The editor W.J. Walsh noted that we were all sorry to record the death of that grand old gentleman of the surveying profession in Newfoundland. Mr. W.F. Canning, who was our first President had passed away. Mr. Canning was born in 1877. [Archives note; W.F. and his twin brother Alfred E. were the sons of William Stratford Canning and Louisa Penney born 1877 05 08. Mr. Canning was in the surveying business as far back as 1904 as he is listed as Sullivan and Canning, Duckworth Street in the 1904 directory].

W. J. Walsh Newfoundland Provincial Councillor for Canadian Institute of Surveying

W. J. Walsh, editor of *The Newfoundland Surveyor* and former secretary of the Association of Newfoundland Land Surveyors, is chief surveyor with the Department of Mines, Agriculture and Resources in Newfoundland. He was born in 1917 at Placentia, Newfoundland, and was educated at St. Bonaventure's College in St. John's. Following a course in surveying and mapping, he began work as a surveyor's assistant with the Department of Natural Resources in that province in 1936, and has continued with government land surveys since that date.

From *The Canadian Surveyor* Annual Report 1964

ASSOCIATION OF NEWFOUNDLAND LAND SURVEYORS

From *The Canadian Surveyor*
Annual Report 1964

One of the most important tasks facing the Association is the provision of a survey service to the isolated sections of the province to bring about the orderly development of these areas, retiring president, J. H. Burridge, told Association members at the eleventh annual meeting held in the Newfoundland Hotel, St. John's,

Newfoundland, January 16 and 17, 1964.

"It has, in the past, been difficult to obtain the services of a surveyor in the more isolated areas", he said, "But I suggest we have an obligation to investigate the feasibility of such a project".

Speakers at the meeting included L. L. Anderson, Department of Mines and Technical Surveys, Ottawa. H. W. Walters, Director of Fishing and Hunting Development, Department of Mines, Agriculture and Resources, Newfoundland, was the guest speaker at the annual dinner.

Much of the business session was spent on a discussion of the Minimum Tariff Schedule. Each item was discussed in detail and each member was given an opportunity to express his views. The tariff was approved, but the Tariff Committee was requested to meet again to clarify items.

Council was asked to consider the feasibility of changing the date of the annual meeting to a time of year when the weather would be more clement.

The Canadian Surveyor Vol. XIX No. 3 ANNUAL REPORT FOR ANLS 1965

The twelfth annual general meeting of the Association of Newfoundland Land Surveyors was held in the Newfoundland Hotel, St. John's, on May 6 and 7, 1965.

The meeting was chaired by James Canning in the absence of president J. H. Burrridge, who was unable to attend because of illness.

The program included several interesting highlights. J. C. Traynor, president of The Canadian Institute of Surveying, brought greetings from the Institute and gave an interesting account of its history. Mr. Traynor urged the association to form a branch of the Institute in St. John's and outlined the advantages of such a branch. Peter J. Berghuis, instructor of surveying technology, College of Trades and Technology, St. John's, spoke on the history of surveying in the province of Newfoundland and the events leading up to the establishment of the surveying course at the

college. G. G. Bennett, senior lecturer of surveying, University of New South Wales, gave an illustrated talk on survey practices in Australia.

The business meeting included a lively discussion following the introduction of the bylaws revision report and the adoption of a motion that the annual fees of the association be raised to \$20.00.

Officers elected for 1965 - 66 are: president, S. F. Willett; vice-president, A. R. Penney; secretary - treasurer, F. M. Shortall, and councillors, James Canning, W. J. Walsh, E. C. Granter, Marston Cameron and Robert Sutherby.

A cocktail party, a dinner and dance were held in the Newfoundland Hotel on the evening of May 7. The guest speaker Lester C. Higbee, past president, American Congress on Surveying and Mapping, spoke on the history of surveying instruments and their complex uses today.

The Canadian Surveyor Vol. XX No. 3 ANNUAL REPORT ANLS

The association held its 13th annual general meeting on May 5 and 6, 1966, at the Newfoundland Hotel in St. John's, Newfoundland. The meeting was opened by President S. F. Willett.

Visitors included L. M. Sebert, CIS president; Gilbert Simard of La Corporation des Arpenteurs-Geometres de la Province de Quebec; George T. Bates, vice-president, and Walter Servant of the Association of Provincial Land Surveyors of Nova Scotia, and Douglas Kendall, representing the Canadian Association of Aerial Surveyors.

Committee reports were given by T. H. Winter, association secretary of the board of examiners and by J. H. Burrridge, chairman of the Surveys Act committee.

Several interesting speakers gave talks during the two-day meeting. These included Mr. Sebert who spoke on federal surveying and mapping in Newfoundland since 1960; P. J. Jellinek, Assistant Director of Planning, Province of Newfoundland, "Town Planning and the Surveyor"; R. W.

Vango, vice - president of Newfoundland - Labrador Surveys Limited, "Ground Control for Aerial Mapping"; and Capt. J. J. Strong, senior lecturer, Department of Nautical Science, College of Fisheries, "Astronomy and the Surveyor".

Members of the 1966 - 67 executive are S. F. Willett, president, for the second year; A. R. Penney, vice-president; F. M. Shortall, secretary; and councillors, James Canning, W. 3. Nugent, E. L. Ball, M. K. James and R. Sutherby.

Social events included a tour of the city, cocktail parties and a dinner and dance. Guest speaker at the dinner was the Hon. Mr. Justice J. D. Higgins, Q.C.

Thomas H. Winter was the Provincial Councillor to the Canadian Institute of Surveying for 1966 according to *The Canadian Surveyor Annual Report for 1966*. He was born in St. John's in 1895. He obtained his B.A. from the University of King's College, Halifax, N.S. in 1921 and his B.Sc. [civil engineering] from Nova Scotia Technical College in 1923. After several years as chief topographic cadastral surveyors with the Department of Natural Resources of Newfoundland, Mr. Winter joined the federal Department of Public Works as engineer in charge of property surveys and appraisals for the Harbours and Rivers Branch. He was pensioned in 1962. An active social worker, Mr. Winter has served for many years on tennis and figure skating club executives in St. John's.

The Canadian Surveyor XXI No. 3 ANNUAL REPORT 1967 ANLS

Several papers were presented during the two day annual general meeting of the Association of Newfoundland Land Surveyors held at the Newfoundland Hotel in St. John's on May 4th and 5th.

The speakers were W. F. Roberts, CIS president; P. J. Berghius, B.Sc., B.E., Professor of Surveying, the Newfoundland College of Trades and Technology, and Dr. F. A. Aldrich, A.B., N.S.C., Ph.D., of Memorial University of

Newfoundland.

President Lt. Col. S. F. Willett opened the meeting and introduced the visitors who brought greetings from their provincial organizations.

The program also featured a panel discussion "Is Articleship Necessary"? The moderator was Dean S. J. Carew, B.Sc., B.E., D. Eng., of Memorial University of Newfoundland. The panel members were J.H. Burrige, O.B.E., N.L.S., K. McGrath, N.L.S., and T. H. Winter, B.Sc., Eng., N.L.S. The meetings concluded with a dinner and dance. Guest speaker was Reverend C. H. Earle, M.A., Provost of Queen's College, St. John's.

Officers elected for the year 1967 were F. M. Shortall, president; W. J. Nugent, vice-president; W. J. Walsh, secretary, treasurer, and councillors, M. K. James, R. Sutherby, E. C. Granter, T. O. Woods and E. L. Ball.

***The Canadian Surveyor Vol. XXI No. 3 1967* E. C. GRANTER, Provincial Councillor.**

E. C. Granter, 39, president of Newfoundland and Labrador Surveys Limited and E. C. Granter Land Surveys Limited, was born at Safe Harbour, Bonavista Bay, Newfoundland, where he received his early education. After graduation from a teaching training course at Memorial University, he taught in several Newfoundland schools before returning to Memorial University for a three-year engineering course. He spent 11 years with the Government of Newfoundland, in the field of surveying in the Department of Highways and the Department of Mines, Agriculture and Resources. In 1961, he went into business for himself.

ASSOCIATION OF NEWFOUNDLAND LAND SURVEYORS From *The Canadian Surveyor* Annual Report 1968

Members, delegates and guests attending the annual meeting of the Association of Newfoundland Land Surveyors in St. John's on May 2 and 3, 1968 were welcomed by President

F. M. Shortall who opened the meeting and by William G. Adams, mayor of St. John's.

Visiting delegates attending were D. C. Holmberg, president, Alberta Land Surveyors' Association; F. J. S. Pearce, president, Association of Ontario Land Surveyors; A. C. Hamilton, CIS president; Edgar Porter, Corporation des Arpenteurs Géomètres de la Province de Quebec, and J.S. Pope, president, The Association of Provincial Land Surveyors of Nova Scotia. Main speaker was CIS president, A. C. Hamilton, whose topic was "Coordinate Surveying and Mapping in Newfoundland".

A paper, illustrated with slides, courtesy Department of Highways, Ontario, was read by James Canning. Two films were shown: *Superwide Angle Photogrammetry*, courtesy Wild of Canada Limited, and *Airborne Control* courtesy Tellurometer Canada Limited. Two afternoon sessions were devoted to the affairs of the Association.

The meeting concluded with a well attended dinner and dance on May 3rd. Guest speaker was the Honorable Dr. F. W. Rowe, Minister of Education.

Officers elected for the year 1968 - 1969 were president F.M. Shortall, vice - president, W.J. Nugent, secretary - treasurer W.J. Walsh, councillors, E.C. Granter, R. Sutherby, T.O. Woods, A. Rees, E.L. Ball, and immediate past president S.F. Willett.

CONTROL SURVEYS

In 1968, member Alfred Rees served on the Control Surveys Committee. On the motion of P. C. Atkinson and T. H. Kihl Council approved the membership of the control surveys committee as follows L. Pelton, D. Selley, N. Frost, G. Babbage, W. MacLean, M. Ste-Marie, and H. Blandford, with corresponding members A. Rees, Newfoundland, S. B. Panting, Ontario, and K. Pawson, Alberta. [Information from *The Canadian Surveyor* Supplement Sept. 1968] .

The following year *The Canadian Surveyor* Supplement June 1969 had the following article by Alfred Rees:

THE CONTROL SURVEY NETWORK St. John's, Newfoundland

Until recently, the lands of the City of St. John's had no monumentation for the proper control to which individual or legal surveys could be referenced but were covered by registered plan, where, in some cases of adjacent lots that were shown to be of the same length on the plan, one was actually much longer than the other. Because of the inaccuracies in the registered description and also because of lack of reference to any permanent mark it is mathematically impossible to retrace the original survey and any attempt to relocate the boundaries would be a hit or miss job and always subject to challenge. St. John's is like many cities in Canada which have many hundreds of surveys of all grades from very good to just the opposite. The reference points from which some of those surveys are described are of such a nature that their reliability is subject to doubt. Many of the older reference points have been obliterated or removed altogether. No doubt some of these points were set by the surveyors in good faith, and any that remain intact do agree with recent developments. Unfortunately very few marks of the original surveys are undisturbed, and a surveyor has no way in which he can be satisfied that his work in retracing an old survey will agree with the original.

In 1965 it was decided to have maps of the city prepared at a scale of 1" = 40'. For this purpose it was necessary to have a horizontal and vertical control network for the proper coordination of this work. From correspondence with S. G. Gamble, of the Department of Mines and Technical Surveys, (now Energy, Mines and Resources), the city engineer learned that Ottawa would assist in setting up a coordinate network of control stations tied to the basic geodetic triangulation,

In May of 1966 a reconnaissance survey was made to determine suitable locations for a number of monuments. Thirty-seven points were selected

and the city had them ready in June, when a team of surveyors from Ottawa, under the supervision of W. L. MacLellan arrived. In about four weeks of excellent field work the 37 second order traverse Stations were established which covered 12 square miles of the city area. Descriptions were made and photographs were taken of each monument location for identification and reference purposes. The geographic and plane coordinates and azimuths for all stations were given, also the plane rectangular coordinates with distances between points. The network is based on the 3° zone Transverse Mercator Projection having as its central meridian longitude 53° west, which is given a false easting of 1,000,000, equator = 0, scale factor .99990.

In St. John's, frost seldom penetrates deeper than four feet. Most of the monuments consisted of poured reinforced concrete 4½ to 5 feet deep, 18 inches in diameter at the bottom tapering to one foot at the top. These were brought to ground level and a bronze marker with a reference number was set into the concrete and carefully protected until the concrete had set. The cost per monument, not including the plaque, was \$30.00. From this second order control network, monuments of the third order have been established in new subdivisions to which building lots are referenced, and the description of each lot is referred to the grid coordinate of its point of commencement. It is hoped that the third order will be of sufficient density to permit all surveys a sound base for reference. All surveyors will find this control system to be of paramount value in the execution of their work, not only within the city limits but in areas immediately adjacent which, by modern methods and instruments, can be tied into the city network quickly and accurately. All data in connection with the city control system is filed in the city engineer's department and can be readily available to all persons who wish to use it.

It is a good beginning to put all surveys in the city on a permanent reference base, and should be continued into the future, not only for the present-day surveyors but for all persons who in years to come will be invoked in land development.

F.M. Shortall, 38, a partner in the firm, Canning and Shortall, Sr. John's Nfld., is a native of

Newfoundland. He attended Memorial University in St. John's and qualified as a NLS in 1956. Before going into private business, he was employed by the provincial Department of Highways and by the federal Department of Energy, Mines and Resources. His surveying experience has been centered in the province, both on the Island and in Labrador.

From *The Canadian Surveyor* XXIII No. 3 1969
Provincial Councillor.

On 1969 03 20 Jim Canning passed away and the following obituary was printed in *The Canadian Surveyor*. **James Canning - 1908-1969**

Surveyors and friends alike were shocked when the news spread that James Canning had passed away. Although it was known fourteen months ago that he had an incurable illness, he bore his suffering very well and was able to attend to his business until February 28th past. He entered the Grace Hospital, St. John's, Newfoundland on March 5th. In the early hours of Thursday morning, March 20, Rev. George Gruchy, a life-long friend, administered the Sacraments of Holy Communion to him and he passed away at 11.30 a.m. the same morning. His brothers were with him at the end.

James DeRadcliffe Canning was born at Millerton, Newfoundland, on August 4th, 1908, the eldest son of the late William F. Canning (Civil Engineer and first president of the Association of Newfoundland Surveyors), and the late Florence (Knight) Canning. He was educated at Bishop Field College in St. John's. Upon leaving school he worked for two years at Harvey & Company Limited and then entered the surveying business with his father in 1928. In 1932 he passed his examinations and was appointed a Crown Land Surveyor.

On the 8th of May, 1958, father and son formed a partnership under the name of W.F. & James Canning Limited. At the request of his father, who had then semi retired, this firm was changed on April 26th, 1963, to Canning and Shortall Limited, when Francis M. Shortall was taken into full partnership. Since then the business has

thrived until it is one of the outstanding surveying firms in the Province of Newfoundland and Labrador.

James Canning loved his profession and took a very keen interest in it. He was a charter member of the Association of Newfoundland Land Surveyors and was councillor from 1953-1955, secretary-treasurer 1956-1958, councillor again in 1959, president for three years from 1960-1962 and continued as a councillor from 1963 to 1966.

He was vice-president of The Canadian Institute of Surveying in 1962 and became its president in 1963.

On December 15th 1934, he married Jean Bussey and they were blessed with six children, three of whom passed away at an early age. He is survived by his loving wife Jean; two daughters, Joan (Robert Matchim) of Goose Bay, Labrador, Ada (Airs. Kenneth Wheeler) of Oromocto, New Brunswick; one son Kenneth, at home; two grandchildren and two brothers, George and William, both residing at St. John's.

He was a life-long member of St. Thomas' Anglican Church, and a member of long standing of the Church of England Institute and the Church Lads' Brigade Old Comrades, Association.

He rested at Carnell's Funeral Home until Saturday morning when the body was brought to St. Thomas' Church. The funeral was held in the afternoon with Rev. Rhodes Cooper, Rector, and Rev. George Gruchy Curate of St. Thomas', officiating. At both the church and the grave side the pall bearers were members of the Association of Newfoundland Land Surveyors.

ASSOCIATION OF NEWFOUNDLAND LAND SURVEYORS

Forty-three members and 40 students from the Newfoundland College of Trades and Technology attended the sixteenth annual meeting of the Association of Newfoundland Land Surveyors held in St. John's on May 1 and 2, 1969.

Because of the Air Canada strike, many guests,

including S. H. de Jong, CIS president, who had signified their intention of attending were unable to obtain transportation. However, the assembly were happy to welcome Robert Thistlethwaite, Surveyor General of Canada and Roy Dunbrack, president of the Association of Nova Scotia Land Surveyors.

Four members were honored with life membership in the Association: they were J. H. Burrige, O.B.E.L. D. H. Earle, N. R. Taylor and A. Rees. Four new members were admitted this year, bringing total membership to 93

The new executive comprises E. C. Granter, president; James Thorns, vice-president; Robert Sutherby, secretary-treasurer, and council members, E. L. Ball, George Lawrence, W. J. Nugent, Alfred Rees and George Willett.

From *The Canadian Surveyor* Vol. 23 No. 3

ASSOCIATION OF NEWFOUNDLAND LAND SURVEYORS.

From *The Canadian Surveyor* Annual Report 1970.

A highlight of the association's annual meeting held at the Holiday Inn in St. John's on May 7 and 8, 1970, was the productive business session during which the bylaws were strengthened and tariff schedules were brought more in line with today's costs.

The assembly was pleased to welcome as guests Hans Klinkenberg, CIS president; Cot. George Streb, president, and George Bates, member, of The Association of Nova Scotia Land Surveyors; John Trainor, past president of The Association of New Brunswick Land Surveyors; John Wentzell, representing the Prince Edward Island Surveying Association; Laurier Bossé of The Association of New Brunswick Land Surveyors, and W. D. Stretton of *The Canadian Surveyor*.

Members of the new executive are E. C. Granter, president; D. A. Poynter, vice-president; Robert Sutherby, secretary-treasurer, and councillors, Alfred Rees, B. L. Ball, B. F. Alexander, George Lawrence and M. T. O'Brien.

The association held its 18th meeting at the Holiday Inn in St. John May 6 and May 7, 1971. The sessions were well attended. The total membership is 110.

The gathering gave a warm welcome His Worship, W. G. Adams, the mayor of St. John's; the Honorable W. R. Callahan, Minister of Mines, Agriculture and sources of Newfoundland; Gilbert Simard, CIS president; Robert Feetham, president, The Association of Nova Scotia Land Surveyors, and Mrs. Feetham; Ken MacDonald, president, Association of New Brunswick Land Surveyors, and Mrs. MacDonald; A.C. Hamilton, Ottawa; Willis Roberts, New Brunswick, and Neil Flemming, Prince Edward Island.

The Council of Management for the coming year comprises B. F. Alexander, president; Robert Sutherby, vice-president, and W. J. Walsh, secretary-treasure;

Councillors are F. M. Shortall, N. F. Govor, M. T. O'Brien, L. A. Winsor, W J. MacDonald and E. C. Granter, immediate past president.

From *The Canadian Surveyor* Annual Report 1971.

Ben Alexander is the home town boy who made good, progressing in some 31 years from the infant son of Mr. and Mrs. James Alexander of St. George's, Newfoundland (1934) to Mayor of St. George's (1965), to further successes in neighboring Stephenville and recognition throughout the whole of Newfoundland.

Ben graduated from St. Joseph's High School in St. George's, took two years of engineering at St. Francis Xavier University, and graduated as a Bachelor of Engineering (Civil) from McGill University in 1961. He won the British Association Medal at McGill by taking first place in the graduating class. He then attended the Massachusetts Institute of Technology on a research assistantship and received a M.Sc. (structural engineering) in 1965.

He was manager and chief engineer, Engineering Projects Ltd., in Stephenville from 1966 to 1968 and has been general manager of the Harmon

Corporation since 1968. He was mayor of St. George's from 1965 to 1969 and is a former president of the Newfoundland and Labrador Federation of Municipalities. At the present time, he is president of the Harmon Golf and Country Club, president of the Newfoundland Land Surveyors Association, president of the Stephenville Chamber of Commerce and president of the Newfoundland and Labrador Chamber of Commerce. He also finds time to be a member of the Stephenville Rotary Club, the St. George's Lions Club, and the R.C. Church.

His wife's name is Heather, and they have two sons, Donald and Gregory.

His hobbies include flying, salmon fishing, fly tying, archery, golf and hockey. How's that for a busy and successful man?

From *The Canadian Surveyor* December 1971 Supplement.

Carl Granter, immediate past president of the Newfoundland Land Surveyors' Association, is a hospitable man and welcomes visitors to his two offices in St. John's, Newfoundland. In August, a reporter for the *Supplement* interrupted his holiday travels to take advantage of this invitation.

E. C. Granter and Associates is a land surveying company which owns a comfortable two-storey building near the centre of St. John's. It was originally a house, but in 10 years has been remodelled to fit a surveying business. Carl has an impressively panelled and carpeted office, modestly labelled 'Manager', while other rooms have been remodelled for drafting, computing and equipment. He has a staff of 10 men, including Newfoundland Land Surveyors Alonzo Cave and Arnold King, and five of the ten are graduates of the Newfoundland College of Trades and Technology. Currently they are working on the survey of two of the fifteen new provincial parks established this year and surveying the boundaries of the new Gros Morne National Park near Corner Brook. A large map in Carl's office shows the company's most memorable project - the survey of the right-of-way for the 550-mile Trans Labrador Highway, which is as yet unbuilt.

Newfoundland and Labrador Surveys Limited, which also lists E. C. Granter, NLS, as president, is a photogrammetric mapping organization, established in new and modern offices in the K-Mart Plaza, on the outskirts of the city. The company's major photogrammetric equipment are a Wild A-8 Autograph, a Kelsh anaglyphic plotter, and a Haag Streit coordinatograph. It also has a fully equipped photographic laboratory and a fairly large scribe drafting section. It owns three Wild RCS survey cameras and rents various aircraft that have been modified for aerial photography, airborne geophysics and airborne magnetics. The key men in this organization are manager and chief photogrammetrist, Robert J. Crutchner; the compilation supervisor, C. C. Curtis; the drafting supervisor, F. A. Best and the data processor, E. Rose. The staff also includes photogrammetric technicians, scribe draftsmen and a photographic technician. In addition the company has an impressive list of specialist consultants, who will solve any mapping, or engineering, problems encountered. Major jobs that have been completed by this company include the mapping of the Trans Labrador Highway, 114 miles of transmission line location, and 800 square miles of photography and aerotriangulation in the Avalon Peninsula.

The Canadian Surveyor Supplement Dec 1971.

ELMER L. BALL *President,*
Association of Newfoundland Land Surveyors

The free and easy Newfoundland land surveyors have had two shocks this year; first Alec McEwen insisting on the elimination of rods and perches from the land measurement system, and now the election of a president who wants to impose rules of order on their annual meeting! No question about it, Elmer runs a good meeting, but it sure doesn't sound like the old association!

Elmer graduated from Memorial College, Dalhousie University and Nova Scotia Technical College in civil engineering in 1938, and has had extensive engineering experience. He held successive positions as a draftsman with Imperial Oil in Halifax, a junior engineer with Engineering Service Co., Halifax, field engineer with Foundation Co. of Canada in Arvida, Quebec, assistant engineer with the federal Department of

Public Works in Saint John, N.B., design engineer with the Anglo-Newfoundland Development Co. at Grand Falls, Newfoundland, senior engineer with Engineering Service Co., Halifax, resident engineer with the Newfoundland Department of Highways, senior engineer for R. J. Noah & Associates of St. John's, Newfoundland, building supervisor for Beattie Engineering, St. John's, Newfoundland, and president and general manager of Provincial Planning Associates Ltd., St. John's, Newfoundland.

He joined the Association of Newfoundland Land Surveyors in 1962 and has served three years on the association Council, before being elected president this May. He is one of the few remaining members of the original Geodetic Survey of Newfoundland.

Elmer is married to the former Jean Pickings of Halifax; they have five children.

Elmer is very much the business-like and professional man, given to discussion of serious matters rather than small talk. He conducts a meeting on the principle that all points of view should be heard; such fairness will make him a fine president.

From *The Canadian Surveyor* Supplement
September 1972

**NEWFOUNDLAND'S DIRECTOR
OF SURVEYS AND MAPPING.**
SEPT 1972 *The Canadian Surveyor*

When Alec C. McEwen says he finds his new job challenging, you have the word of an expert - he has had a lifetime full of challenging jobs. His latest position as director and head of the Surveys and Mapping Division, Newfoundland Department of Mines, Agriculture and Resources, will involve the reorganization of parts of the former Crown Lands and Surveys Division, taking over former functions of certain other government departments and producing a model provincial surveys and mapping agency. The province has been involved for several years - in APSAMP, the Atlantic Provinces Surveys and Mapping Program and will now endeavour to organize the same type

of program as that which New Brunswick, Nova Scotia and Prince Edward Island will undertake together. Stu Dick, lately of the Geodetic Survey of Canada, is chief control surveyor, while the head of the Mapping Section is yet to be appointed. It is expected that the present relatively small staff will be gradually expanded and that, initially, most of the surveying and mapping will be performed by contractors, with the Surveys and Mapping Division exercising supervision and carrying out field inspections.

Alec's career in land surveying began shortly after his graduation from university, when he joined the venerable firm of Speight, Van Nostrand in Toronto. He qualified as an OLS in 1952 and as a DLS in 1953.

ASSOCIATION OF NEWFOUNDLAND LAND SURVEYORS

From *The Canadian Surveyor*
Annual Report 1972.

The 19th annual general meeting of the association was held May 4 and 5, 1972, at the Holiday Inn in St. John's. The main business meetings adopted several new bylaws and an updated tariff schedule.

The gathering welcomed J. B. O'Neill, CIS second vice-president, who also represented Dr. S. O. Gamble, director of the Surveys and Mapping Branch, EMR; W. D. McLellan, representing the Surveyor General of Canada, D. R. Slessor; S. G. Hancock, president of the Association of Ontario Land Surveyors; J. B. Boldon, president of The Association of New Brunswick Land Surveyors, and I. F. Doig, president of The Association of Nova Scotia Land Surveyors.

Papers presented were "Horizontal and Vertical Control in the Province by Federal and Provincial Authorities" by Stu Dick, chief control surveyor of the Department of Mines, Agriculture and Resources of Newfoundland, and "Planning and Zoning By-Laws" by H. Arends, city planner of St. John's. Students at the College of Trades and Technology also gave papers: G. D. AuCoin and T. P. Hood, "Satellite Surveying", and R. J. Power and C. J. Wheeler, "Barometric Surveys". A panel discussion on survey education was held

with J. M. Horwood as moderator and P. J. Berghuis and Alf. Rees as members, together with four students from the College.

Exhibitors were AGAtronics (Canada) Ltd., Bruning Addressograph, WANG Laboratories, Hewlett-Packard, Hughes-Owens, and Keuffel & Esser.

The new executive is president, F. L. Ball; vice-president, Robert Sutherby; secretary-treasurer, W. J. Walsh, and councillors, F. M. Shortall, George Lawrence, L. A. Winsor, R. A. Way and A. Cave.

Provincial Councillor 1974 - 75. From *The Canadian Surveyor* 1974 Annual Report. Vol. 28 No. 4 Peter J. Berghuis, 50, instructor in Survey and Technology at the College of Trades and Technology, St. John's, Newfoundland. was born in the Netherlands. He immigrated to Canada early in 1954, after serving Shell Oil in South America on Shell tankers and later as a hydrographer on the coast of Venezuela and Caribbean Islands. He enjoyed various aspects of surveying under W. E. Roberts, OLS, on the St. Lawrence Seaway Power Project and received his B.Sc. in surveying engineering from the University of New Brunswick in 1962. In the fall of 1964, he left the Bedford Institute of Oceanography to take up his present teaching position in St. John's, Newfoundland. In 1968 he received his M.Sc. in engineering, also from UNB.

From *The Canadian Surveyor* 1974 Annual Report Vol. 28 No.4

The highlight of the year was the 21st annual meeting held in the Holiday Inn, St. John's, May 1, 2 and 3.

President Charles Adams opened the meeting and outlined the activities of the association and commented on the state of the profession in Newfoundland. Two important tasks are now before the association: the study and revision of the Act and giving assistance to the formation of a Survey Technician Technologist Association in Newfoundland. Mr. Adams stressed that the association should look very seriously at the whole

idea of para-professionals and that any organization of survey technicians, cartographic personnel, or photogrammetrists should be under the aegis of the association.

Guest speaker was Hon. James Higgins, Q.C., of the Supreme Court of Newfoundland. Papers were presented by Dr. John Allen of the Engineering Department, Memorial University, on hydrographic surveying; by Ivan Ford, a student at the College of Trades and Technology, on the performance of the CA 1000 Tellurometer, and by Nick Nur, technical manager of Aero Technical Service Ltd., on orthophoto maps.

During the year, an association newsletter, *The Newfoundland Surveyor*, was revised and distributed. It will continue as a quarterly publication to provide a forum for members and articles of interest to Newfoundland surveyors.

Informal meetings were held in St. John's and Gander to allow local members to express their ideas on a variety of subjects to the association's council.

Frank Shortall and Robert Aylward were appointed to a committee to revise the bylaws and they presented their revisions to the annual meeting. Members of the council for the coming year are Robert T. Whiffen, president; John Power, vice-president; Robert Aylward, secretary - treasurer; and Richard King, T. G. Scammell, Noel Gover and John Sullivan, councillors.

MEMBERS OF COUNCIL 1953 - 1980

1953 [Founding Year]

President	W.F. Canning
Vice President	Cyril Parsons
Secretary	J. H. Burrridge
Councillors	T. H. Winter
E. Cumby	J. Canning
S. F. Willett	K. McGrath
A.R. Penney	A.H. Rees

1954

President	W.F. Canning
Vice President	Cyril Parsons
Secretary	J. H. Burrridge
Councillors	A.R. Penney
J. Canning	T. H. Winter
S. F. Willett	K. McGrath

1955

President	W.F. Canning
Vice President	T.O. Woods
Secretary	J. H. Burrridge
Councillors	A.R. Penney
J. Canning	T. H. Winter
S. F. Willett	K. McGrath

1956

President	W.F. Canning
Vice President	T.O. Woods
Secretary	J. Canning
Councillors	A.R. Penney
J. H. Burrridge	T. H. Winter
S. F. Willett	R. G. Patterson

1957

President	T. H. Winter
Vice President	T.O. Woods
Secretary	J. Canning
Councillors	A.R. Penney
J. H. Burrridge	E. Cumby
S. F. Willett	R. G. Patterson

1958

President	T. H. Winter
Vice President	T.O. Woods
Secretary	J. Canning
Councillors	A.R. Penney
J. H. Burrridge	W. J. Walsh
S. F. Willett	R. G. Patterson

1959

President	T. H. Winter
Vice President	T.O. Woods
Secretary	W. J. Walsh
Councillors	F. W. Newhook
A.R. Penney	J. Canning
S. F. Willett	G. T. Halley

1960

President J. Canning
 Vice President N. R. Taylor
 Secretary G. T. Halley
 Councillors W. J. Nugent
 A.R. Penney T. H. Winter
 W. J. Walsh L. Chaffey

1961

President J. Canning
 Vice President N. R. Taylor
 Secretary G. T. Halley
 Councillors W. J. Nugent
 A.R. Penney T. H. Winter
 W. J. Walsh L. Chaffey

1962

President J. Canning
 Vice President D.A. Poynter
 Secretary E.C. Granter
 Councillors J. H. Burrridge
 A.R. Penney T. H. Winter
 W. J. Walsh G. T. Halley

1963

President J. H. Burrridge
 Vice President T.O. Woods
 Secretary E.C. Granter
 Councillors J. Canning
 A.R. Penney T. H. Winter
 W. J. Walsh F.M. Shortall

1964

President J. H. Burrridge
 Vice President T.O. Woods
 Secretary F.M. Shortall
 Councillors J. Canning
 A.R. Penney T. H. Winter
 W. J. Walsh E.C. Granter

1965

President S. F. Willett
 Vice President A.R. Penney
 Secretary F.M. Shortall
 Councillors
 R. Sutherby E. M. Cameron
 W. J. Walsh E.C. Granter
 J. Canning J. H. Burrridge, P.Pres.

1966

President S. F. Willett
 Vice President A. R. Penney
 Secretary F.M. Shortall
 Councillors
 E. L. Ball J. Canning
 M. K. James R. Sutherby
 J. Canning J.H. Burrridge, P.Pres

1967

President F. M. Shortall
 Vice President W. J. Nugent
 Secretary W. J. Walsh
 Councillors
 E. L. Ball E.C. Granter
 M. K. James R. Sutherby
 T.O. Woods S. F. Willett, P.Pres

1968

President F. M. Shortall
 Vice President W. J. Nugent
 Secretary W. J. Walsh
 Councillors
 E. L. Ball E.C. Granter
 A. Rees R. Sutherby
 T.O. Woods S.F. Willett, P.Pres

1969

President E. C. Granter
 Vice President Jas. Thoms
 Secretary R. Sutherby
 Councillors
 E. L. Ball W. J. Nugent
 A. Rees G. Lawrence
 G. Willett F. M. Shortall, P.Pres

1970

President E. C. Granter
 Vice President D. Poynter
 Secretary R. Sutherby
 Councillors
 E. L. Ball B. Alexander
 A. Rees G. Lawrence
 M. O'Brien F. M. Shortall, P.Pres

1971

President B. F. Alexander
 Vice President R. Sutherby
 Secretary W. J. Walsh
 Councillors
 F. M. Shortall N.F. Gover
 M.T. O'Brien L.A. Winsor
 W. J. MacDonald E. C. Granter, P.Pres

1972

President E. L. Ball
 Vice President R. Sutherby
 Secretary W. J. Walsh
 Councillors
 F. M. Shortall G. Lawrence
 R. Way L.A. Winsor
 A. Cave B. F. Alexander, P.Pres

1973

President C. Adams
 Vice President A. Cave
 Secretary A. W. Reid
 Councillors
 J. T. Power R. Whiffen
 H. D. Bartlett F.M. Shortall
 R. Aylward E. L. Ball, P.Pres

1974

President R. Whiffen
 Vice President J. T. Power
 Secretary R. J. Aylward
 Councillors
 D. Bartlett N. Gover
 R. King T. Scammell
 J. Sullivan C. Adams, P.Pres

1975

President R. Whiffen
 Vice President J. T. Power
 Secretary R. J. Aylward
 Councillors
 T. Power N. Gover
 M. Batten T. Scammell
 J. J. Sullivan C. Adams, P.Pres

1976

President J. T. Power
 Vice President R. J. Aylward
 Secretary R. G. Hughes
 Councillors
 T. J. Power E. K. Jerrett
 M. Batten T. G. Scammell
 K. Williams C. Adams, P.Pres

1977

President R. J. Aylward
 Vice President M. H. Batten
 Secretary R. G. Hughes
 Councillors
 A. A. King J. J. Byrne
 A. Cave K. F. Williams
 O. J. Ryan J. T. Power, P.Pres

1978

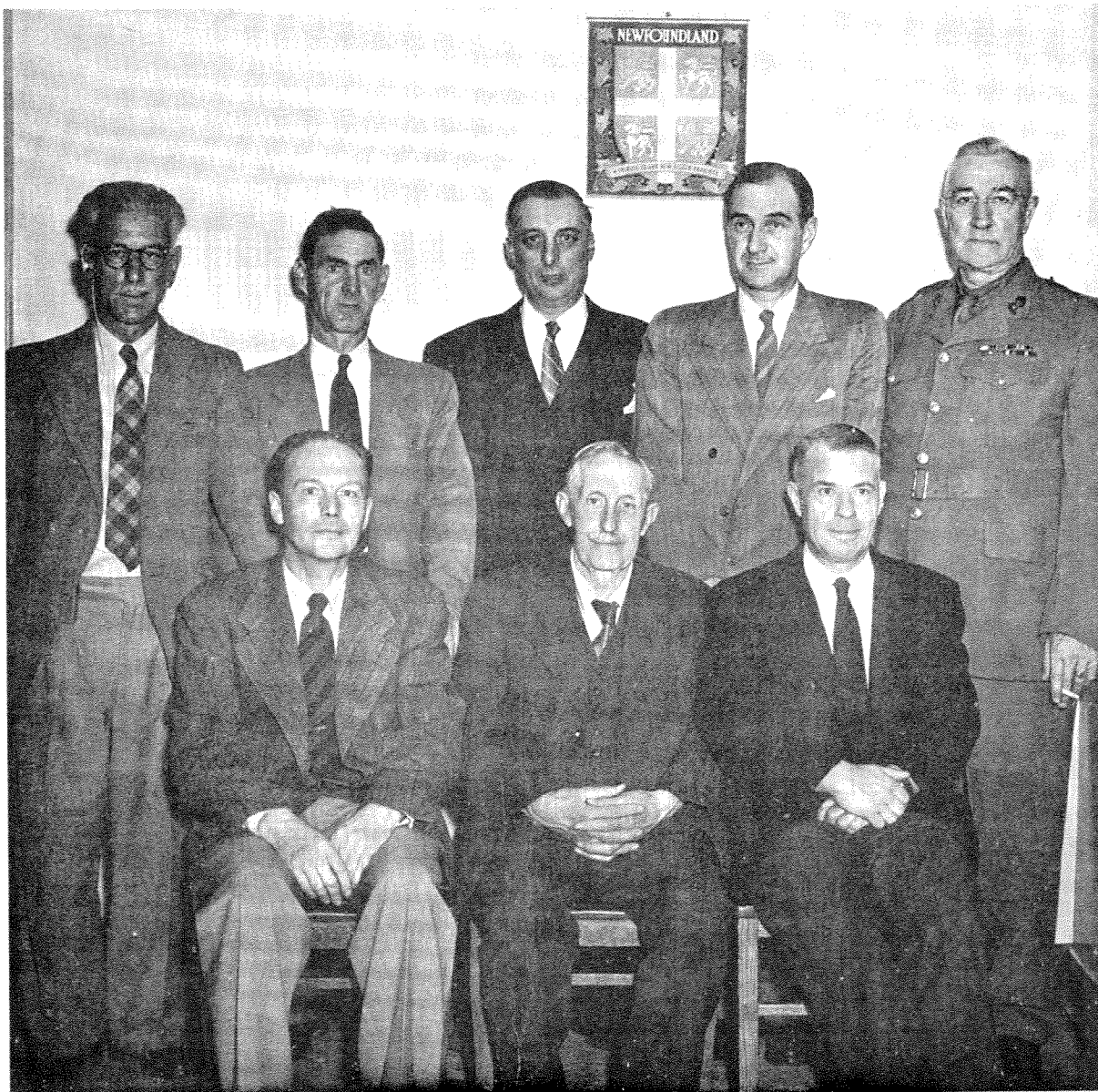
President M. H. Batten
 Vice President E. K. Jerrett
 Secretary A. Webber
 Councillors
 A. A. King J. J. Byrne
 A. Cave T. G. Scammell
 K.G. Spence R. J. Aylward, P.Pres

1979

President E. K. Jerrett
 Vice President A. A. King
 Secretary A. Webber
 Councillors
 W. Doyle R. Codner
 K. Masters R. Power
 K.G. Spence R. Young
 M. H. Batten, P.Pres

1980

President E. K. Jerrett
 Vice President A. A. King
 Secretary R. J. Power
 Councillors
 W. Doyle P. Brown
 K. Masters F. Rowsell
 A. Webber M. H. Batten, P.Pres



**FIRST COUNCIL OF MANAGEMENT
OF THE
ASSOCIATION OF NEWFOUNDLAND LAND SURVEYORS**

MAY 20, 1953

T.H. WINTER, A.H. REES, J. CANNING, K.F. McGRATH, LT.COL. S.F. WILLETT, ED. CD

A.R. PENNEY, W.F. CANNING, J.H. BURRIDGE, O.B.E.

MISSING FROM PHOTO: E.W. CUMBY AND C. PARSONS

Mr. Alf Rees' diary shows that the first meeting was held on 1953 05 04 with the following who were founding members attending: Jack Burridge, Kevin McGrath, W. F. Canning, James Canning, Major S. F. Willett, A.R. Penney. T.H. Winter, Alf Rees, Bill Walsh, Cyril Parsons, Ellis Cumby.

The three officers elected were: President, W.F. Canning; Vice President, Cyril Parsons; Secretary, J. H. Burridge. All the remaining members became members of the Council of Management.

It was discovered by looking at the early ledgers that there were no "even" membership numbers. The ledger started at page one with W. F. Canning, the opposite even numbered page was left for expansion to the preceding page number for additional notes, change in address, etc. Alfred Rees at age 101 years is our oldest member has membership no. 13.

The 1953 account book shows that in addition to the members above the following also paid dues, etc for 1953: A.E. Marston Cameron, Stan Condon, W. W. Cossitt, W.G. Dawe, M.K. James, Gerald Knight, E. Owen Legge, P.T. Murphy, W.J. Nugent, F. W. Newhook, R.G. Patterson, J.C. Sherren, James E. Thoms, Wilfred Verge, W.J. Walsh, George Way. That's a total of 27 members. The total paid by each member was \$16.00. We believe the \$16.00 covered the certificate, a membership fees and annual dues. The Association took in \$402.25 and paid out \$52.81 with a balance on hand of \$349.44. W. F. Canning being around 76 years old must have been the first life member and never paid any fees.

By 1954 O. Ross Batstone, J.J. Cunningham, G.T. Halley, Wallace McIsaac, Sim H. Parsons, D.A. Poynter, Kevin Mc Grath, Wallace Mc Isaac, A. J. Rendell, Otto Ryan, J.D. Snow, N.R. Taylor, T.O. Woods, and Eric Yates had joined the Association for a total of 41 members paid members and W. F. Canning. There were 2 members on the 1953 list that did not pay for 1954. The annual fee for 1954 was \$10.00. It appears that by 1954 the certificate was \$1.00, and membership and annual dues were \$10.00 each. Other reports show there were 6 new members for the year. Membership was a one time payment.

The member ship for 1955 is as follows:

V. Ross Batstone	J.H. Burrige, Sec.
James Canning	W.F. Canning, Pres.
Marston Cameron	L.C. Chaffey
Stan Condon	W.W. Cossitt
Ellis W. Cumby	John Cunningham
Gordon W. Dawe	D.H. Earle
G. T. Halley	Raymond Hunt
Kevin James	Harold E. Johnson
G.E. Knight	George Lawrence
E. Owen Legge	James Major
Kevin McGrath, Coun.	Wallace McIsaac

Edgar McNeil	Fred Newhook
W. J. Nugent	Cyril Parsons
S.H. Parsons	R.G. Patterson
A.R. Penney, Coun,	D.A. Poynter
Alfred Rees	Otto Ryan
J.C. Sherren	J.D. Snow
A. J. Rendell	N.R. Taylor
James E. Thoms	Wilfred Verge
George Way	W. J. Walsh
T.H. Winter, Coun.	T.O. Woods, Coun.
S.F. Willett, Coun.	Eric Yates

The above would be 44 paid members and W.F. Canning for a total of 45 for 1955. Annual Dues were still \$10.00. Membership \$10.00 one time fee, and the certificate went from \$1.00 to \$2.00 during the year. New members were Harold E. Johnson, D.H. Earle, Edgar McNeil, George Lawrence, James Major, and L.C. Chaffey.

The ledger for 1956 show 48 paid members, plus our only life member at the time being W.F. Canning for a total of 49. The new members being B.E. Brennan, C.R. Vivian, George Neary, E.C. Granter, Francis M. Shortall, George E. Willett, T.W. Landers, R.I. Morgan. P.T. Murphy who was shown on the 1953 list paid his back dues and is on the 1956 list.

The following list of Newfoundland Land Surveyors Is published in accordance with Section 29 of The Land Surveyors Act 1953.

The persons whose names appear in the list are authorized to perform the duties of a Newfoundland Land Surveyor during the year 1957.

Burridge, J. H.	9 Cornwall Avenue, St. John's.
Batstone, V. R.	P.O. Box 545, Corner Brook.
Butler, Gordon W.	343 Hamilton Ave., St. John's.
Brennan, B. E.,	P.O.Dept. Municipal Affairs, St. John's.
Canning, W. F.	Box E 5089, St. John's.
Canning, James,	P.O. Box 5089, St. John's.
Cumby, B. W.	45 Beaumont Ave., Grand Falls.
Condon, Stan	P.O. Box 2144, St. John's.
Cameron, A. E. M.	64 Cornwall Crescent, St. John's.
Cossitt, W. W.	Provincial Contractors, Ltd., Corner. Brook.

Chaffey, L.	36 North Street, Corner Brook.	Willett, G.	39 Cornwall Avenue, St. John's
Cunningham, J. J.	Freshwater, P.B.	Yates, E. K.	P.O. Box 513, Corner Brook
Dawe, W. G.	Kelligrews, C.B.		
Earle, D. H.	10 Linscott Street, St. John's.	James Canning, Secretary, The Association of Newfoundland Land Surveyors. 1957 04 16.	
Granter, E. C.	Dept. Mines and Resources, St. John's.		
Halley, G. T.	90 Alandale Road, St. John's.	For 1957 we had a total of 56 members on the ledger with Gordon W. Butler, Michael Howley, and Robert Sutherby being new members.	
Hunt, R.	Bowater's, Corner Brook.		
James, M. K.	66 Cochrane Stret, St. John's.	1958 records show we had 56 members with A.W. Wall, W. Newman, M.T. O'Brien, and James Turner being new members.	
Johnson, H A.	Bowater's, Corner Brook.		
Knight, G.E.	P.O. Box H 239, St. John's.		
Legge, E. O.	P.O. Box 7, Cartyville.		
Lawrence, G.	Dept. Mines and Resources, St. John's.		
Landers, T.W.	Seven Islands, P.Q.	By 1959 total membership was up to 59 with new members being R.S. Butler, B.H. Frampton, Graham Frampton, B. Pardy, R.B. Riche, C.J. Scott, and M.I. Woolridge.	
Major, J.	34 First St., Mount Pearl, Glendale.		
Morgan, R. I.	Newhook and Morgan, Topsail Road., St John's.	January 1960 <i>The Newfoundland Surveyor</i> . Eight new members in 1959 for a total of 67. 38 in St. John's, 26 outside the city and 3 outside the Province.	
McGrath, K.	85 Circular Road, St. John's.		
Mclsaac, W.	Stephenville.		
McNeil, E.	St. Anthony..		
Newhook, F. W.	Newhook and Morgan, Topsail Road, St. John's.	The ledger for 1960 shows we had 65 members. Two new members being V. Newell, and Cyril R. Mifflin.	
Nugent, W. J.	10 Fine Bud Place, St. John's.		
Neary, G. N.,	Buchans.		
Penney, A. R.	C.N.R., St. John's.	In 1961 we had 56 members with John J. Sullivan, Andrew Burden, J.C. Gorman, Stephen McNeilly, R.L. James, and Ronald J. Delaney being new members.	
Parsons, C.	Bowater's, Corner Brook.		
Parsons, S.H.	P.O. Box 542, Corner Brook		
Paterson, R. G.	13 Winter Place, St. John's.		
Poynter, D. A.	St. Lawrence.		
Parsons, C.	P.O. Box 542, Corner Brook.		
Rees, A.,	28 Hoyles Avenue, St. John's.		
Ryan, O. J.	Bowater's, Corner Brook.	For 1962 we only find 43 paid members plus W.F. Canning for a total of 44 members. The dues were increased from \$10.00 to \$12.50 after February 5 of that year. Maybe members did not pay as a protest. New members shown were Carl Norberg and F. Saunders.	
Rendell, A. J.	Schefferville, P.Q.		
Sherran, J. C.	40 Somerset Drive, Moncton, N.B.		
Snow, J. D.	Bowater's, Corner Brook.		
Shortall, F. M.	17 Leslie Street, St. John's.		
Thoms, J. E.	Middle Brook, Gambo.		
Taylor, N. R.	P.O. Box 202, Wabana.		
Verge, W.	Curling.		
Vivian, C. R.	Grand Falls.		
Winter, T. H.	85 Rennie's Mill Road, St John's		
Willett, S.F.	39 Cornwall Avenue, St. John's.		
Way, G.	7 Fitzpatrick Avenue, St. John's.		
Walsh, W. J.	Dept. Mines and Resources, St. John's.		
Woods, T. O.	P.O. Box 513, Corner Brook.		

The current membership is listed below. The list also includes members who passed on and when they died [if known]. Some of our membership have drifted away and we do not have any information on them.

Name	Admitted	Status	#	Town/ City	Prov.	Deceased	De-commissioned
Adams Charles E.	1971-01-22	resigned	249	St. John's	NL		1995-04-19
Alexander Benedict F.	1963-06-12	standard	157	St. George's	NL		
Anderson Paul	1978-01-27	deceased	327			1992-10-09	
Aylward Robert J.	1970-01-05	resigned	229	St. John's	NL		
Badcock John	1976-03-10	de-commissioned	301	St. John's	NL		1979-12-06
Ball Elmer L.	1962-02-01	deceased	159			1997-09-03	
Barnes Kenneth	1975-01-01	de-commissioned	279	Manuels	NL		
Barrow Alvin C.	1977-06-01	standard	323	Clareville	NL		
Bartlett H. Donald	1970-09-08	resigned	243	Gander	NL		1996-05-13
Batstone V. Ross	1956-11-21	unknown	057	Corner Brook	NL		1959-01-01
Batten Maxwell H.	1971-05-06	standard	263	St. John's	NL		
Bennett Paul J.	1985-05-24	standard	407	Manuels	NL		
Berghuis John D.	1983-04-14	standard	375	Clareville	NL		
Berghuis Peter J.	1968-07-25	deceased	217			1996-02-25	
Bradbrook J.	1963-06-12	unknown	161	St. John's	NL		1969-03-26
Brennan B. E.	1956-01-18	unknown	093	St. John's	NL		1957-01-01
Brown Peter M.	1979-08-23	standard	339	St. John's	NL		
Brown Tony A.	1991-04-02	de-commissioned	435	Fort McMurray	AB		1994-03-31
Burden James A.	1990-01-04	standard	429	Grand Falls-	NL		
Burden Andrew A.	1961-02-10	deceased	143			1990-04-12	
Burrige John H.	1953-05-20	deceased	005	St. John's	NL	1991-03-08	
Burt Dudley E.	1976-07-06	standard	319	King's Point	NL		
Burt Aubrey K.	1991-07-26	standard	441	Clarke's Beach	NL		
Burt Stephen		standard	450	King's Point	NL		
Butler Gerard J.	1975-08-13	standard	291	Deer Lake	NL		
Butler Harold N.	1970-09-08	associate	241	St. John's	NL		
Butler Gordon W.	1957-01-01	resigned	107	St. John's	NL		1982-08-25
Butler Robert S.	1959-11-02	resigned	133	St. John's	NL		1988-02-01
Byrne John J.	1976-07-06	de-commissioned	313	St. John's	NL		
Cahill John	1959-11-06	resigned	135	St. John's	NL		1985-08-27
Cameron Marston A. E.	1956-11-21	life	029	St. John's	NL		
Canning W. F.	1953-05-20	deceased	001	St. John's	NL	1963-12	
Canning James	1953-05-20	deceased	009			1969-03-20	
Carew Alan J.	1975-03-31	standard	285	Mount Pearl	NL		
Cave Alonzo	1969-10-20	standard	219	Gander	NL		
Chafe Allan K.	1990-01-08	standard	431	Portugal Cove -	NL		1991-03-31
Chaffey L.	1956-04-04	unknown	077	Corner Brook	NL		
Chislett Eldred M.	1966-06-23	standard	193	Mt. Pearl	NL		
Codner Neville S.	1970-05-04	standard	239	Torbay	NL		
Codner Robert R.	1968-07-18	associate	215	Torbay	NL		1999-03-31
Collins Ronald F.	1979-08-24	standard	341	Topsail	NL		
Condon Stan	1956-03-16	deceased	025				
Cossitt W. W.	1956-03-16	deceased	051			1975-01-01	
Crane John J.	1990-04-16	standard	433	Goulds	NL		1992-03-31
Crane Hubert S.	1971-04-27	resigned	253	Portugal Cove	NL		1997-01-01
Crews William F.	1991-10-07	standard	445	Yellowknife	NT		
Crossan Owen J.	1971-01-11	unknown	247	St. John's	NL		1982-01-01
Cumby E. W.	1953-05-20	deceased	019			1967-01-01	
Cunningham J. J.	1957-01-01	resigned	083	Freshwater	NL		1981-01-01
Cunningham David D.	1980-04-10	resigned	347	St. John's	NL		1986-08-21
Curtis Scott	1978-07-25	standard	337	Paradise	NL		
Davis Robin C.	1976-03-10	standard	307	Stephenville	NL		
Dawe Garrett P.	1976-04-13	standard	309	Conception Bay	NL		
Dawe Wayne L.	1980-11-27	standard	351	Kelligrews	NL		
Dawe W. Gordon	1956-04-07	deceased	047			1973-01-15	
Delaney R. J.	1956-04-26	unknown	163	St. John's	NL		1981-01-01
Doyle William P.	1967-05-04	standard	205	Paradise	NL		
Doyle William M. (Jr.)	2002-04-01	standard	451	St. John's	NL		

Duffett	Michael	R.	1984-05-	standard	39	St. John's	NL		
Dunphy	Joseph	L.	1986-11-21	standard	421	Torbay	NL		
Edwards	Ian	G.	1986-06-01	standard	415	Manuels	NL		
Fitzgerald	Gerald	M.	1975-01-01	standard	283	Spaniards Bay	NL		
Fitzgerald	Donald	L.	1986-06-01	standard	417	Mount Pearl	NL		
Flynn	Brian	J.	1968-07-30	standard	209	St. John's	NL		
Foran	John		1960-11-21	deceased	139	St. John's	NL		1979-04-16
Ford	Ivan	E.	1975-09-10	resigned	295	St. John's	NL		1993-06-15
Forsey	Archibald	J.	1981-03-26	standard	353	Kippens	NL		
Foss	Carl	W.	1978-07-17	standard	335	Pasadena	NL		
Frampton	Bertram	H.	1959-02-20	life	127	Grand Falls-	NL		
Frampton	Graham		1959-03-09	unknown	131	St. John's	NL		1965-03-20
Francis	Ronald		1969-01-01	standard	223	Mount Pearl	NL		
French	R.	M.	1963-06-12	unknown	165	St. John's	NL		1978-01-01
Fudge	Enos	K.	1986-05-09	standard	413	Stephenville	NL		
Gill	Victor		1963-06-12	unknown	167	Grand Falls	NL		
Goodland	Wesley	O.	1975-08-13	deceased	289			1999-02-22	
Goodland	Robert	E.	2000-04-17	standard	449	Port au Choix	NL		
Gorman	J.	Clifford	1961-02-25	deceased	149	Corner Brook	NL	2002-12-07	
Gover	Noel	F.	1968-07-03	resigned	213	St. John's	NL		
Granter	E.	Carl	1956-05-04	deceased	089	St. John's	NL	2002-07-15	
Green	Ernest		1983-05-13	standard	379	Mount Pearl	NL		
Greene	James			honorary	H0	St. John's	NL		
Gruchy	Richard	A.	1983-01-10	standard	369	Pouch Cove	NL		
Hall	Francis	W.	1983-05-05	associate	377	Goulds	NL		
Halley	Gerald	T.	1956-03-22	deceased	031			1974-06-03	
Hardy	Wayne	D.	1970-05-04	unknown	233	St. John's	NL		1996-05-16
Harris	Winston		1967-05-04	standard	201	Kelligrews	NL		
Havill	Bruce		1974-07-19	unknown	277	St. John's	NL		1978-01-01
Hawco	Clifton	G.	1978-07-06	standard	331	Conception Bay	NL		
Hayden	Eric	J.	1970-05-04	standard	235	Petitie Forte	NL		
Hayes	Alvin	L.	1991-04-19	standard	437	St. John's	NL		1992-03-31
Hedges	Reginald	S.	1974-07-31	resigned	275	Gander	NL		
Hinchey	Morgan	F.	1973-08-29	standard	269	St. John's	NL		
Hodder	Wayne	E.	1980-11-27	standard	352	Gander	NL		
Hodder	David	W.	1983-01-10	standard	371	Shoal Hr.	NL		
Earle	D.	Hodge	1956-03-06	deceased	075			1985-02-21	
Holden	Patrick	M.	1971-05-06	standard	259	St. John's	NL		
Horwood	John	M.	1975-05-01	standard	287	Botwood	NL		
Howard	Dominic	J.	1981-03-26	standard	354	St. John's	NL		
Howley	Michael		1957-01-01	unknown	109	St. John's	NL		
Hughes	R.	Gary	1973-04-27	standard	265	St. John's	NL		
Hunt	Raymond	P.	1956-05-12	standard	085	Corner Brook	NL		
Hunt	W.	Charles	1981-11-27	standard	361	Harbour Grace	NL		
James	M.	K.	1956-11-26	deceased	043			1968-04-18	
Janes	R.	L.	1961-04-04	unknown	151	Glovertown	NL		1981-01-01
Jerrett	Eric	K.	1969-01-01	standard	225	Bay Roberts	NL		
Johnson	H.	A.	1956-03-21	unknown	071	Corner Brook	NL		
Jones	J.	Donald	1971-05-06	deceased	261	St. John's	NL		
Jones	David		1963-01-01	resigned	169	Mount Pearl	NL		1974-01-01
Kearley	Everett	J.	1966-06-23	unknown	191	St. John's	NL		1990-01-17
King	Arnold	A.	1970-05-04	standard	237	St. John's	NL		
King	Richard	G.	1968-05-31	standard	207	Portugal Cove -	NL		
King	Berrick	A.	1976-07-06	standard	317	Marystown	NL		
Knight	Gerald	E.	1957-01-01	deceased	021				1974-01-01
Lambert	S.	Sherwin	1983-03-07	standard	373	Rattling Brook	NL		
Landers	Thomas	W.	1957-01-01	deceased	101			1974-04-01	
Lawrence	George	H.	1956-01-18	deceased	081			1993-10-19	
Leeman	Robert	L.	1983-08-17	standard	383	St. John's	NL		1993[resigned]
Legge	Richard	V.	1991-04-24	standard	439	Paradise	NL		
Legge	E.	O.	1956-03-07	deceased	045			1982-04-01	
Leonard	Kenneth	F.	1980-07-21	de-commissioned	348	St. John's	NL		1991-03-01
Linehan	Albert	P.	1974-05-03	resigned	273	Paradise	NL		

Locke	Robert	W.	1986-11-12	standard	419	Corner Brook	NL		
MacDonald	W.	Joseph	1970-01-05	de-commissioned	227				1989-08-03
MacNaughto	Neil	G.	1984-05-28	standard	395	Portugal Cove	NL		
Maher	John	J.	1965-03-20	deceased	171			1986-08-27	
Major	James		1956-02-25	deceased	079			1982-05-26	
Martin	James	A.	1980-01-14	standard	345	Yellowknife	NT		
Martin	Brian	D.	1980-11-27	standard	350	St. John's	NL		
Masters	Kenneth		1974-05-03	standard	271	Torbay	NL		
McEwen	Alexandre	C.	1976-03-08	life	299	Calgary	AB		
McGrath	K.	P.	1953-05-20	deceased	007			1981-10-01	
McIsaac	R.	Wallace	1956-11-21	deceased	069			1989-04-11	
McNeil	Edgar		1955-05-04	deceased	103			1959-01-01	
McNeily	Stephen		1961-02-25	deceased	147			1964-12-01	
Morgan	Robert	I.	1957-01-01	deceased	105	St. John's	NL		1981-01-01
Murphy	Scott	T.	1991-08-06	standard	443	Glovertown	NL		
Murphy	P.	T.	1954-01-01	deceased	095			1967-01-01	
Neary	George	N.	1956-04-21	unknown	087	Buchans	NL		1994-05-02
Newell	Varrick	J.	1960-05-16	life	137	Mount Pearl	NL		
Newhook	Frederick	W.	1953-05-20	deceased	023			1997-12-01	
Newman	W.		1958-01-01	unknown	111	St. John's	NL		
Nightingale	Craig	L.	1976-07-06	standard	315	C.B.S.	NL		
Nolan	Donald	H.	1974-07-25	standard	281	Goulds	NL		
Norberg	Carl		1962-02-24	unknown	153	Mount Pearl	NL		
Norman	Lewis	D.	1984-04-25	standard	389	Bay Roberts	NL		
Noseworthy	Roger	P.	1977-07-06	standard	325	Corner Brook	NL		
Nugent	William	J.	1956-01-18	deceased	039			1997-02-01	
O'Brien	Michael	T.	1958-01-01	unknown	113	St. John's	NL		
Pardy	Bruce	N.V.	1959-01-01	resigned	115	St. John's	NL		
Parrott	Neil	E.	1983-11-07	standard	385	Goose Bay	LAB		
Parsons	Wayne	L.	1984-05-28	standard	397	Spaniards Bay	NL		
Parsons	Cyril		1953-05-20	deceased	017			1980-01-01	
Parsons	S.	H.	1956-04-03	deceased	067			1966-01-01	
Parsons	Paul		1979-10-10	unknown	343	St. John's	NL		1995-04-06
Patterson	R.	G.	1956-03-01	deceased	049			1975-01-01	
Payne	Calvin	B.	1976-05-06	standard	311	Pasadena	NL		
Penney	Alfred	Raymon	1953-05-20	deceased	011			1990-01-05	
Pittman	Frank	C.	1978-07-06	standard	333	Little St.	NL		
Pittman	David	G.	1993-04-02	standard	448	Winterland	NL		
Pointer	Donald	A.	1956-03-16	deceased	055			1976-07-01	
Power	Robert	J.	1973-07-28	standard	267	Holyrood	NL		
Power	Maurice	Vincent	1984-02-27	resigned	387	Yellowknife	NW		
Power	Patrick	J.	1984-05-04	resigned	391	Goulds	NL		1987-03-31
Power	David	P.	1963-06-12	unknown	173	St. John's	NL		
Power	Thomas	J.	1963-06-08	deceased	175			1988-05-13	
Power	John	T.	1969-05-02	deceased	221			1998-11-29	
Quinlan	Jerry		1993-04-28	standard	447	Grande Prairie	AB		1995-11-08
Redmond	Robert	J.	1961-01-20	deceased	145			1992-02-11	
Rees	Alfred		1953-05-20	life	013	Mount Pearl	NL		
Reid	Alva	W.	1971-05-06	deceased	257			1981-05-31	
Rendell	A.	J.	1956-05-12	unknown	073	Labrador City	NL		1982-01-01
Renouf	John	Keith	1989-05-06	standard	427	St. John's	NL		
Riche	R.	Boyd	1959-03-03	resigned	129	Mount Pearl	NL		1981-01-01
Rose	Elwyn	J.	1971-04-27	standard	255	Port aux	NL		
Rowsell	Frederick	W.	1963-06-12	standard	177	Grand Falls-	NL		
Ryan	William	J.	1971-01-22	standard	251	St. John's	NL		
Ryan	Otto	J.	1954-03-12	life	059	Corner Brook	NL		
Samson	Gordon	J.	1984-05-18	resigned	393	Mount Pearl	NL		1997-03-31
Saunders	Derrick	G.	1985-01-04	standard	405	Mount Pearl	NL		
Saunders	Francis		1962-04-16	resigned	179	St. John's	NL		
Scammell	Timothy	G.	1970-09-08	standard	245	Torbay	NL		
Scott	C.	J.	1959-02-13	unknown	125	St. John's	NL		
Seaward	Patrick	J.	1981-03-26	standard	355	Corner Brook	NL		
Sheppard	Byron	G.	1983-06-20	standard	381	Lewisporte	NL		

Sherren	James	C.	1955-01-01	deceased	035			1994-06-02	
Shortall	Francis	M.	1956-05-14	life	091	St. John's	NL		
Shortall, Jr.	Francis	M.	1981-11-27	deceased	359	St. John's	NL		
Simms	Guy		1982-06-03	de-comissioned	365	Grand Prairie	AB		
Snook	E.	J.	1963-01-01	unknown	181	St. John's	NL		1983-08-23
Snow	John	D.	1956-11-21	deceased	065			1994-05-25	
Spence	Kenneth	G.	1977-02-02	de-comissioned	321	Torbay	NL		
Squires	Lawrence	J.	1986-05-09	standard	411	St. John's	NL		
Sullivan	Maxwell	G. T.	1982-03-25	standard	363	Mount Pearl	NL		
Sullivan	John	J.	1961-01-05	life	141	St. John's	NL		
Sutherby	Robert	J.	1957-01-01	deceased	117			1985-12-06	1981-01-01
Taylor	N.	Reginald	1956-11-21	life	063	Mount Pearl	NL		
Temple	Garry	G.	1982-06-03	standard	367	Marystown	NL		
Thoms	Paul	S.	1963-12-06	resigned	155	Darl Cove	NL		
Thoms	James	E.	1956-02-25	deceased	041		NL	1976-08-01	
Thorne	Levi	J.	1976-03-10	standard	303	Mount Pearl	NL		
Thorne	Wilfred	J.	1987-01-23	standard	423	Blaketown	NL		
Thorne	Clifton	S.	1981-03-26	resigned	356	St. John's	NL		1996-05-13
Tobin	Peter		1975-08-27	resigned	293	St. John's	NL		1985-02-01
Tomlinson	H.	M.	1963-05-13	unknown	183	Labrador City	NL		1981-01-01
Turner	James	S.	1958-01-01	life	119	Pasadena	NL		
Turpin	Joseph		1986-01-14	standard	409	Marystown	NL		1993-03-31
Vallis	David	W.	1968-07-02	standard	211	St. John's	NL		
Verge	Wilfred		1957-01-01	deceased	033			1970-01-01	
Vivian	C.	R.	1956-02-28	deceased	097			1976-12-07	
Vivian	Frederick		1965-03-07	resigned	189	St. John's	NL		1981-01-01
Wade	John	F.	1967-05-04	de-comissioned	195	St. John's	NL		
Wakeham	Rennie	R.	1984-08-08	standard	401	St. John's	NL		1986-03-31
Wall	Austin	William	1958-01-01	standard	121	St. Alban's	NL		
Walsh	William	J.	1953-05-20	deceased	037			1990-07-16	
Walsh	Paul	G.	1987-02-11	resigned	425	St. John's	NL		1996-05-14
Way	Robert	A.	1967-05-04	standard	197	St. John's	NL		
Way	George	G.	1956-03-31	deceased	027			1983-08-31	
Webber	Arthur	E.	1976-01-02	standard	297	Bay Roberts	NL		
Wheadon	Baxter	A.	1980-07-21	resigned	349	St. John's	NL		1993-03-31
Whiffen	Robert	T.	1967-05-04	standard	203	Goulds	NL		
White	William	D.	1978-04-28	resigned	329	St. John's	NL		1985-08-27
Whitten	Reginald		1964-01-01	unknown	187	St. John's	NL		1977-03-03
Willett	George	E.	1956-11-21	deceased	099			1976-01-16	
Willett	Sidney	F.	1953-05-20	deceased	015			1981-10-01	
Williams	Kevin	F.	1970-03-23	standard	231	Bay Bulls	NL		
Winsor	Leslie	A.	1967-05-04	standard	199	Mount Pearl	NL		
Winter	Thomas	Hinson	1953-05-20	deceased	003	Ottawa	ONT	1985-12-15	
Wiseman	Ivan	G.	1981-06-26	deceased	357	Stephenville	NL		
Woods	Thomas	O.	1955-01-01	deceased	061			1980-03-28	
Woolridge	Maxwell	I.	1959-01-01	life	123	Deer Lake	NL		
Yates	Terry	L.	1984-11-26	standard	403	Lewisporte	NL		
Yates	Eric	K.	1956-11-01	deceased	053			1997-10-01	
Young	Richard	J.	1976-03-10	standard	305	St. John's	NL		
Young	W.	J.	1963-06-12	unknown	185	Gander	NL		1977-01-01

Distance Measuring Equipment.

The acre was a measure of land used in England for a thousand years. The chain as we know it today was first used for measuring in the 1500's. Edmund Gunter (1581 - 1626), an English mathematician, and astronomer who was Professor of Astronomy at Gresham College, England, designed in 1620 his 100 link chain to

be 66' long so that 10 square chains should equal one acre. Prior to the "The Gunter Chain" ropes and rods were used. Edward Gunter also invented the quadrant, and scale and introduced the trigonometric terms cosine and cotangent. His chain was four rods long. The chain was used in Newfoundland into the 1930's, and that

is why many of our roads are 66' wide, and sometimes 33' wide. The chain was heavy, difficult to stretch tight and straight, changed its length rapidly from wear. The chains were hand made, most of iron and rarely measured exactly sixty six feet in length. The surveyor had to use a correction factor when reducing his field notes into a plan. George Canning, son of W. F. Canning and brother to James Canning said when using the chain twigs, grass and dirt would continually catch in the links. He was probably pressed into service by his father but went on to work in Customs. The chains used in Newfoundland and elsewhere contained 100 links. Every 10 links there was a marking tag. The first tag had one leaf or tab at 10 links along the length, then two leaves or tabs at twenty links, and three leaves or tabs at thirty links, etc. In this manner a chainman would have to count from one of the marked 10 link section to record the actual chainage. In 1867, the first American patent for a steel ribbon tape was obtained. The ribbon tape became known as the Surveyor's Tape or Engineer's Tape and was machine made and used metallurgy to compensate for the small (but measurable) effect of temperature on the length of the tape. The steel tape eventually replaced the chain. In Newfoundland the chains and links were replaced by dimensions in feet in 1935. The 100' chain was the surveyor's main distance measuring tool. Throwing the chain was a convenient way of carrying the 100' chain when not on the reel. While the chain measured in feet the tape was still referred to as a chain and the measuring was referred to as chaining. While the chain was available since the 1600's somehow the early plans in the Crown Land Records were recorded in yards in the 1830's.

The chain was also available in invar wire for precision chainage such as the layout of a base line. The line between the monuments known as North Base, north of Kenmount Road and the overpass, and South Base, east of the Trans Canada Highway, and south of Pitts Memorial Drive was chained with an invar wire in the 1930's when setting up the base line for the Geodetic Survey for Newfoundland. Invar wire and subtense bars were available in the 1800's. In the 1960's a few Newfoundland Land Surveyors were trying the Subtense Bar, but they never caught on as an every day tool.

The development of the Tellurometer started in 1954 in South Africa with a prototype made in 1957. It A demonstration of the Tellurometer was scheduled for the Annual Meeting of January 1960. It was the mid 1960's when the first Tellerometer arrived in Newfoundland for use by the Newfoundland Land Surveyor. The earlier ones had the oscilloscope with the rubber frog foot viewing mask. Then came the MRA - 101 and the MRA - 3. At the same time the first Tellurometer arrived the Geodimeter Mark 1V entered the scene. These were all long range distance measuring instrument used by the surveyor for tying in a survey or doing control work for Crown Lands. Later came the CA 1000 by Tellurometer for shorter distances, and the CD Six for a shorter range again [up to 2500m] that could be used in everyday works. By this time many other companies had entered the province with various EDM's. Most Land surveyors used a 12 volt car battery rather than a nickle cadmium to power this type of equipment. The batteries were generally carried on a person's back in some manner. It was no trouble to tell who carried the battery, the back was usually burnt out of his coat. If you carried the battery on a fine day you did not know there was acid on your coat until it rained and then the material would drop away where the acid had splashed.

In 1970 the Canadian Government adopted the Metric System - System International or the SI system. Then the Newfoundland Land Surveyor had to acquire metric reading tapes. Most of the tapes were 50m and 60 m and a better tape than the 100' Surveyors Tape. A good metallic metric tape was graduated throughout in mm and was about 6mm wide. The tension required on a 50m or 60 m tape did not feel anymore than that required for a 100' steel tape. The wider metric tape of cloth and fibre was a wind holder and would flap in the breeze. The SI system also meant a change with the plan and description showing only metric measurement. Some early plans came out with both metric and imperial units for a while.

Then came the total station and the elimination of most of the chaining. The chaining seemed to be the bulk of the problem in surveying over the years. Some surveyors applied temperature corrections and others did not. At various times

some surveyor would apply reduction to grid while others did not.

When the Association was formed most surveyors were using the open faced K & E, Hughes Owens transit or a similar one with a plumb - bob and slip knot on the string. With the entry of Wilde and Ziess to the Newfoundland Market the T16 and 020 were a common theodolite with optical plum and the T1, T2 and 010 for control work or tying in a survey. Wilde and Ziess were followed by many other manufacturers.

Today in 2003 a number of Newfoundland Land Surveyors have their own G.P.S. units and eliminate both the theodolite and the chain.

There are many other aspects to look at concerning our Association and the Land Surveyors that were, and are members. A look at the old surveying instruments that were donated to the Association show another way of life and another way of surveying. The Newfoundland Land Surveyors from the 1950's used a book of traverse tables, traverse sheets and many additions to calculate his traverses. Logarithms were also used. Double Meridian Distances were used to calculate an area of the parcel surveyed. Office work was long, slow and labour intense, especially when the parcel surveyed was an irregular shape. Some survey offices used hand crank adding machines but by the mid 1960's electric adding machines were being used with the traverse tables, and 10 place trigonometrical tables. Then came the early computers such as the Ollivetti 101 using programable cards and a paper print out the various surveying functions. These computers were slow by today's standards but a great improvement over the traverse table, and the traverse sheet. By the mid 1980's other field hand held or desktop calculators/ computers were available to assist the surveyor in the field. This type of calculator/ computer with improvements carried on until c.1987 when the personal computer entered the scene. The PC has improved in speed and storage capability on and off the system since then, and over the years better surveying programs are available to help the Land Surveyor do his work efficiently. With the PC's, gone are the days of plotting by using

a north / east grid and the plotting of each point using a scale and triangles. Today the PC attached to a printer or plotter will plot a plan with great speed and accuracy. The various cad packages have eliminated the need for drafting, completely. Gone are the drafting pens, triangles, drafting instruments, etc. In the 1950's and long before, the pen was an open nib design held in a wooden handle, then came the drafting pen that resembled the fountain pen of that era. Then came various improvement of the drafting pen with special nibs, special inks, etc. Most of these pens are now obsolete. Along with the pens came the lettering aids, the Leroy sets, the electrical mechanical lettering machines, now nearly obsolete. A Total Station with a data collector can be downloaded into a PC and eliminate works that took days to plot just a few years ago. The PC and the survey programs have also cut calculations to a minimum. Subdivisions design and calculations, curve calculation for design and layout etc. are all done efficiently with the PC, with less chance of a mis calculation or error arising.

THE OBSERVATION STONE - FORT TOWNSEND

J. H. Burrige mentioned in *The Newfoundland Surveyor* of October 1961 an old admiralty observation site at Fort Townsend in St. John's. The stone was established in 1828 as being 47° 33' 42" north latitude and 52° 45' 29" longitude west of Greenwich. In 1935 it was re - observed with modern instruments and radio by a Geodetic survey officer. The resultant information obtained fixed the point as 47°33' 55.78" north latitude and 52° 42' 46" longitude west. The error in latitude is 1,396' and the error in longitude is 11,175 feet. Recently, a local surveying firm took a shot on the stone while laying out *The Rooms* at Fort Townsend. The values were converted to NAD27 values and then to a NAD27 north latitude of 47° 33' 58.37649" and a NAD27 east longitude of 52° 42' 46.41122". It has been a goal of the Provincial Government to create a facility like *The Rooms* for nearly a decade for the Newfoundland Museum, the Provincial Archives and the Art Gallery of Newfoundland and Labrador and is due to open in 2004. The stone was in a fenced area but was removed from that location during the recent construction and hopefully stored in a safe place.

