

THE SURVEYING OF TOWNSHIP 1

BY L. M. SEBERT, D.L.S.

Most Ontario Surveyors know that the Ontario system of township surveys was started with the survey of Kingston Township by John Collins in the autumn of 1783, but some may not be quite so familiar with the momentous events of that year that led up to his survey.

The war between Great Britain and her rebellious American colonies was to all intents and purposes over in 1781 with the surrender of Yorktown to the American and French forces. Most of the loyal American colonists did not leave the United States immediately but remained hoping that the treaty of peace would contain clauses that would provide them with some protection, or at least recompense for property which had been confiscated. But when the American Congress ratified the draft terms of the treaty of Versailles on April 19th, 1783, the Loyalists realized their hopes were in vain. The migration northward into Canada, which had been going on in modest numbers since the defeat at Yorktown, at once greatly increased in volume. General Haldimand, the Governor of Quebec, realized that he was faced with a settlement problem of major dimensions.

Some early migrants from the States had been established on farm lots in what is now Ontario as early as 1781. To accommodate them certain local surveys had been carried out on the Niagara Peninsula and along the North Shore of the St. Lawrence River upstream from the last of the French seigneuries, but so far as existing records show only single rows of farm lots had been laid out, and there was evidently no thought of incorporating these early surveys into townships. Although Haldimand had had no previous experience in land settlement on a large scale, he could comprehend that isolated rows of settlement lots were not the answer. He would shortly need large tracts of surveyed land, because in addition to the Loyalists he was responsible for settling the men of disbanded regiments (including several hundred Hessians that elected to stay in Canada) and finding new hunting grounds for the Mohawks and the other loyal Iroquois bands that wanted to move into Canada. In February 1783 Haldimand had received instructions from the home government phrased in vague terms advising

him to "make all needful arrangements for the settlement of refugees in Canada." As Haldimand had been an army officer for the whole of his adult life, his reaction to these instructions was in keeping with his military training. He sent out reconnaissance parties to investigate the forested lands on the north shore of the upper St. Lawrence and Lake Ontario with instructions to report on the quality of land for agricultural settlement. The most important of these parties was headed by Samuel Holland, the Surveyor General of Quebec, who had been ordered to pay particular attention to the land lying to the west of the old French fort at Catarqui.

The result of the reconnaissance was the now famous letter of instruction from Governor Haldimand to Deputy Surveyor-General Collins, dated September 11, 1783, ordering township surveys to begin. As this letter (together with a number of others bearing on this period of history) was published as part of the Proceedings of the Ontario Land Surveyors' Sixth Annual Meeting (1898) it is not necessary to repeat it here in its entirety. It is sufficient for the theme of this article to set out the paragraph detailing the design of the townships that General Haldimand wanted surveyed along the shore of Lake Ontario west of the Catarqui River. It reads as follows:

"The method of laying out townships of six miles square I consider as the best to be followed, as the people to be settled there are most used to it, and will best answer the proportion of lands I propose to grant to each family, viz.: 120 acres, of which six are to be in front, which will make 19 chains in front and 63 chains 25 links in depth, so that every township will have 25 lots in front and four chains 75 links will remain for roads, with 7 concessions in depth. Fifty-eight links will remain for a road, by which distribution each township will contain 175 lots of 120 acres."

The instructions are clear, and we have ample evidence that they were carried out to the letter. Figure 1 is a photograph, reduced in scale, of Collins' plan of survey of Township No. 1 (later known as Kingston), signed by him on the 27th day of October, 1783.* On it the lots measure 19 chains by 63 chains 25 links. The notes in the right margin read as follows:

TOWNSHIP No. 1 (KINGSTON)

"A township or tract of land six miles square, lying and being in the Province of Quebec, situate on the north side of Lake Ontario, near the ancient Fort Frontenac, beginning at a stone boundary standing south 49 degrees, west two hundred and twenty perches from the west angle of the said fort, and six perches from the bank of the lake, runs due west, crossing the mouth of the Little Catarqui six miles to a stone boundary standing six perches from the bank of the Bay Tonegeyon; and from thence due north, crossing the head of the Bay Tonegeyon, and a small creek that discharges itself into the said bay, six miles to a stone boundary; and from thence a due east course, passing through a low country six miles to a stone boundary standing on a hill twenty-eight perches from the main branch of the little River Catarqui; and from thence due south, crossing the main branch of the little River Catarqui and two other branches that discharge into the said river, terminates on the north bank of Lake Ontario at the first station, including twenty-three thousand and forty superficial acres of land, the greater part of which appears to be of an excellent quality, fit for the production of wheat, oats, Indian corn, hemp, flax, timothy and clover. The woods in general are maple, bass, hickory, ash, elm, pine and white oak, etc. — the two latter in many parts from two and half to three feet diameter.

This township hath a great many advantages on account of its situation, having Lake Ontario on its front. All the small bays afford good harbor for boats, and the lake abounds with a great variety of fish and wild fowl. The little River Catarqui is navigable for batteaux from its entrance into the lake to the upper boundary of the township, in which space are many proper places for erecting saw-mills."

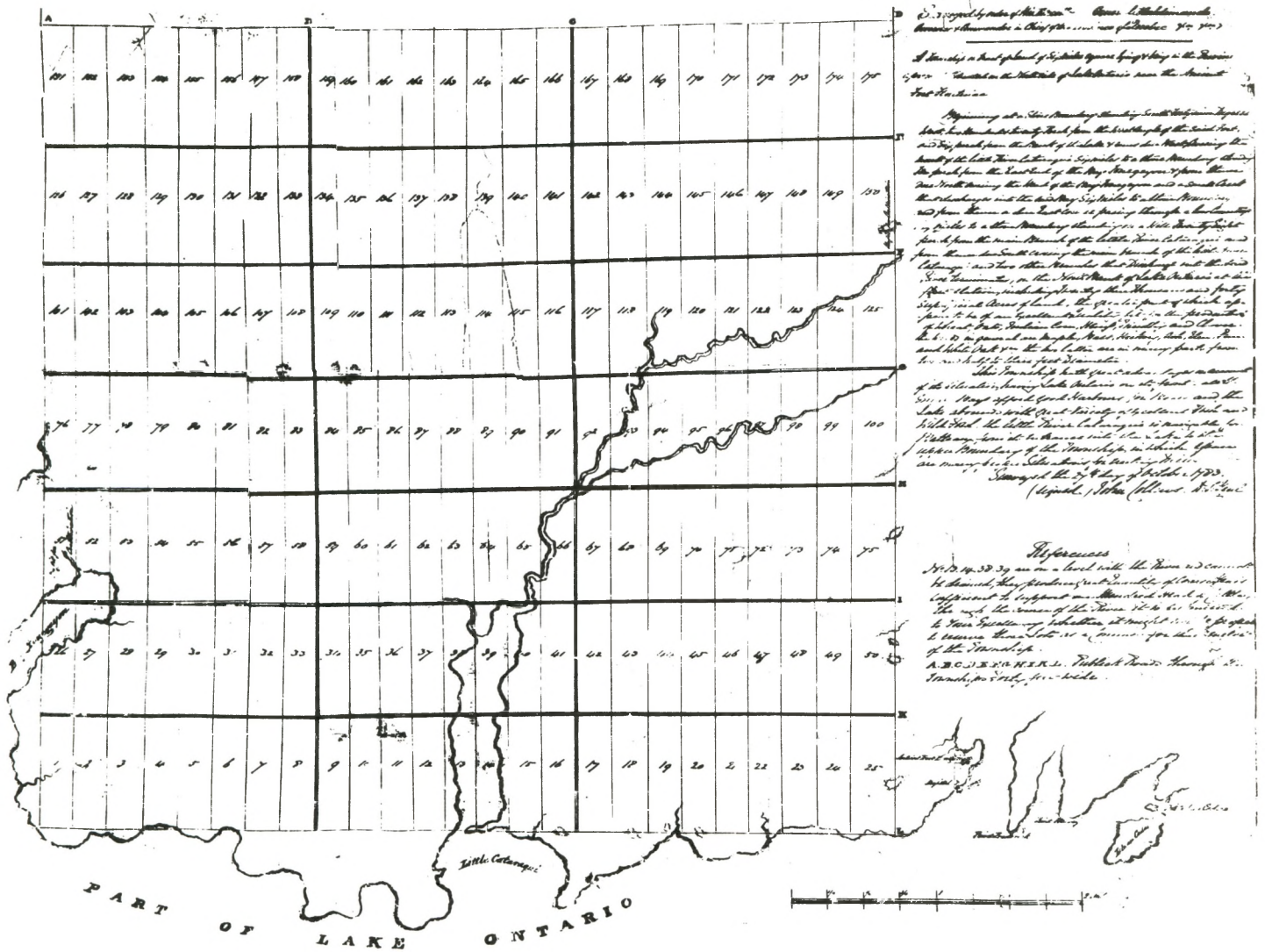
J. COLLINS,
D S General

References

Nos. 13, 14, 38, 39 are on a level with the river and cannot be drained; they produce great quantity of course grain sufficient to support one-hundred head of cattle through the course of the river, it is submitted to Your Excellency whether it might not be proper to reserve those lots as common for the benefit of the township.

A B C D E F G H I K L Public roads through these townships— 40 feet wide.

It is therefore clear that Haldimand's instructions were in fact carried out, yet no lots of 120 acres were ever registered in Ontario as part of a general township pattern. What then became of the Collins survey?



To answer this question a supposition must be made because there is an unfortunate gap in the documentation between the events leading up to Collins' survey of 1783 and the occupation of the familiar 200 acre lots (19 chains by 105.27 chains) that commenced in 1784. When Haldimand wrote to Collins on September 11th he did so without definite instructions from the Home Government. He was not an impulsive man, but he could see much more clearly than those in London that action was necessary, and so he ordered the survey to begin. Lots of 120 acres must have seemed eminently sensible to him, because the area being duodecimal in nature such lots could be divided into halves, thirds, quarters and even sixths. We can presume he was dismayed when finally instructions did arrive from London, (dated July 16, 1783, but received in October) specifying the amount of land that would be

given to Loyalists and their families and to disbanded soldiers. The unit of land in the grants was to be 50 acres. The instructions, in part, read as follows:

- To every master of a family 100 acres and 50 acres for each person of which his family shall consist;
- To every single man 50 acres;
- To every non-commissioned officer, 200 acres;
- To every private man, 100 acres and for every one of his family, 50 acres.

Haldimand could immediately see that such grants would not fit into his new townships which, even as he read the instructions, were being laid out at Cataraqui and to the west of that river. Someone, and there is no record of who this was, saw that the work Collins was doing could be salvaged by a simple expedient — the extension of each lot from 63.25 chains in depth to 105.27 chains in

depth. This would produce 200 acre lots that could be granted in 100 acre halves and 50 acre quarters. As Collins had only surveyed the township outlines of the four townships and the front concession in each, there was practically no lost effort. In fact we find in a letter addressed from Collins to Haldimand, from Cataraqui on August 12th, 1784, the following sentence:

"However, I have employed Mr. Tuffe and Mr. Henry Holland, with each a good party, in drawing the lines of the second and third concessions of the first township."*

The township records show that these concession lines were indeed spaced to provide 200 acre lots; and thus was born the first pattern of the Single Front System. The township was extended in depth from 6 miles to 10 so that it could contain roughly the original number of farm lots.

The Township of Kingston had a troubled survey history, particularly the eastern boundary which today runs directly through the City of Kingston. Lot 25 in particular was the subject of several court actions, and a number of heated letters to the editor of the Kingston Herald. The correspondents, each evidently representing a certain faction in the debate, used the pen names Mentor, Philo and Subscriber. Mentor was so proud of the way he handled the other two that he published the correspondence along with the pertinent acts and statutes in a book titled, rather unimaginatively, MENTORIANA. But during this exchange of letters, Philo raises the following point which was never answered by his antagonist, Mentor:

"And first, if he will examine a map obtained by the Venerable Archdeacon of this Town from the Surveyor General's Office, at Quebec, he will find that the Township of Kingston was originally intended to be six miles square; that the Lots in each Concession are represented to be about 64 chains long, and that there is an allowance for Road between every nine lots; while on the Government map obtained at Toronto, bearing nearly the same date, he will find that the Township, instead of being six miles square, is six miles by ten; that between the lots there is no allowance for Roads laid out, and that the lots by the latter map, instead of being only 64 chains long, are 105 chains, 27 links. Will "Mentor" account for this, and show us which is correct?"

Kingston, May 22nd, 1841

So we see that the original plan of survey, or more probably a copy of it, has survived in Kingston at least until 1841 to cause confusion about the original survey of 1783 and its alteration in 1784.

The early settlement of what is now Ontario was a successful application of the resources available (surveyors and land) to the problem at hand (the settlement of refugees). Haldimand's original concept of farm lots surveyed out in concession rows within the administrative unit, the township, was extended to cover much of Ontario. Modifications in the survey pattern were made from time to time, but basically the original principles were maintained.

Without a doubt the first few years following 1783 were the hardest. There were three basic reasons why success crowned the settlers' efforts. First of all, the land available for settlement in Southern Ontario included some of the best farm land in North America. Secondly, the settlers that the Americans sent us

were exactly the right type, namely frontier farmers that were just as familiar with the axe as with the plow; (the city Loyalists left via New York!). Thirdly, the surveyors preceded the settlers to set out farm lots that were well marked and roughly equal in size to be distributed without quarrel or favour. With good land in adequate quantity for each family, it required only dogged perseverance and hard work to establish the family farmstead and in turn the successful township.

If Ontario had not been properly settled in those difficult years following 1783, there would have been little or no resistance to an American take-over during the relentless American westward expansion that started two decades later. Anyone who doubts this statement has only to read the history of New Mexico and California to obtain the proper perspective.

It would of course be ridiculous to claim that those early surveyors, the predecessors of the present Ontario Land Surveyors, were alone responsible for maintaining the British presence in Central and Western Canada. It should, however, be well understood that they did their part.

Note: There appears to be no existing document from Haldimand, or any other person in authority, ordering a change in Haldimand's original survey instructions, some reference to the change may still exist in old letters, memoirs, etc.; and those Ontario Land Surveyors that are interested in history are encouraged to watch for such a reference.

*This plan is on file in the Public Archives of Canada, in Ottawa.

*This letter is also included in the Proceedings of the OLS Sixth Annual Meeting.

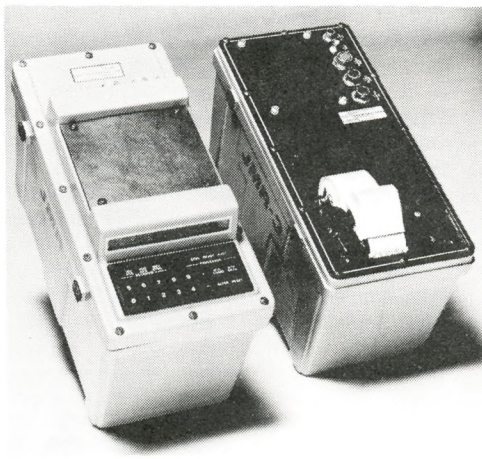
I.S.S.

Continued from Page 18

ganizational and administrative problems required to make our I.S.S. system reasonably efficient and reliable. We have also successfully established an interface between the Datametric recorder of the system and an HP 9830 calculator. Programs have been produced which allow acceptance of Datametrics data, the addition of offsets, the changing of coordinate values in the terminals of runs and the prompt production of final smoothed values suitable for data analysis to ascertain rapidly the quality of field measurements. The output consists of corrected "smoothed" values, closure and scaling discrepancies, misorientation and scaling factors of the raw data, means of the forward and backward runs and differences between them, the relative error between adjoining points and of any point in the run with respect to the initial station. As indicated earlier we have recently developed a method of adjusting large blocks of I.S.S. traverses.

One of the most important of the problems yet to be resolved is that of developing a system for the establishment of stations which depart significantly from the straight line joining the terminal control stations. We are also interested in improving the accuracy, extending the range and increasing the ZUPT interval. Less important problems are the development of a facility that will allow the insertion of offsets into the I.S.S. on board computer, a method of obtaining "smoothed" values on tape when using the input-output control or designing a "smoothing" program for use on the HP 9830, and the development of better guidelines to determine the acceptability of traverses (to replace our current rules of thumb). The search for improvement continues

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