

manent material under the post, and in this connection we find the following instructions in the United States Manual of 1871: "Besides the charcoal, marked stone, or charred stake, one or the other of which must be lodged in the earth at the point of the corner, the deputy surveyor is recommended to plant midway between each pit and the trench, seeds of some tree (those of fruit trees adapted to the climate being always preferred), so that in course of time should such take root, a small clump of trees may possibly hereafter note the place of the corner. The fact of planting such seed and the kind thereof are matters to be truthfully noted in the field book."

In a very instructive paper prepared by Mr. Seymour on various forms of Dominion Lands Survey's monuments and read at the annual Dominion Land Surveyors' meeting a year ago, the following "true story" published in the Engineering News was quoted: "Called on to locate a certain corner that had been established many years ago, a surveyor of repute found that his nearest known starting point was some eleven miles away. The survey party commenced operations with every care, and at last, according to calculations, the desired corner was reached. The picket was jammed down into the earth with the expectation of coming into contact with the 'deposit,' but nothing seemed to be encountered. What could be wrong? The surveyor commenced to carefully check his calculations, but soon gave a joyous shout; the old notes explained that in the absence of other suitable material, a grindstone had been buried. The picket had gone right through the hole in the grindstone." Mr. Seymour aptly remarks that this shows to what degree of accuracy these old surveys were carried out.

There is no doubt that many surveyors have encountered similar experiences when endeavoring to locate obliterated corners and may recall remarks made by their clients to the effect that when they had a surveyor here forty years before, he didn't go to all this trouble in hunting up a corner; he simply measured over from another post and stopped when he had gone the right distance, kicked around in the leaves and found the post. Apparently some of our very early surveyors were men of an entirely different calibre to those of the present day.

So far as I am aware, it has never been the custom in this province to perpetuate monuments in the manner just referred to, although from a very early date our surveyors have recognized the necessity of doing more than merely planting a single wooden post. For years the position of a post has been referenced by means of bearing trees; in a great many cases surveyors have gathered stones and boulders and built a mound around the post, in other cases the old maxim "that there is safety in numbers" has been called into use, and instead of one post, three are planted at lot corners and five at the intersection of road allowances. Indeed, in some cases surveyors were unable to limit themselves to five posts. An examination of some of the original notes reveals the fact that in certain townships three rows of three posts, or nine in all, were planted at these intersections. In our present nine-mile township this system of posting is still in use, and in cases where the road allowance along a river or lake intersects the intersection of a concession and side road, you have your day's work right there. In many of these cases, our most experienced surveyors are unable to agree among themselves just where posting should be stopped and how some of these posts should be marked, and when we consider that these posts are often put in place by chainmen who are not always infallible, it is occasionally a source of speculation in camp as to whether this method of posting is the best and most efficient that could be evolved.

In after years, when one has occasion to work in this system of survey, it is not uncommon to be shown the position of one, only, of these posts with nothing to indicate which of the three, or five, or nine, as the case may be, it is. In cases such as this, it is only necessary to remark that the surveyor's troubles are often only commencing.

The disastrous effect of forest fires has been recognized to the extent that in our later surveys in Northern Ontario, surveyors have been supplied with supplementary iron posts which are planted at stated intervals throughout the township, such as the corners of a three-mile block, but no step, except a legal measure, has been taken to safeguard the post from loss through wilful removal or tampering through idle curiosity. It is common knowledge that in new country especially, survey lines are usually used as the first roads and consequently many persons who have otherwise no interest in monuments, are brought in contact with them, frequently to the detriment of the monument.

Until recently, subdivision surveys have been carried on in the provinces of Manitoba, Saskatchewan and Alberta under conditions entirely different to those obtaining in our own province, and the method of posting has necessarily also been different. Over a great portion of the West, it was impossible to obtain material to make wooden posts such as ours, and various types of monuments have been in use, the most common being the iron bar set midway between four pits; or in bush, the iron bar at the north corner of a mound five feet square, the mound itself being midway between four pits, each three feet square and eighteen inches deep. The iron posts used weighed about three pounds each, were made from piping two feet six inches in length, pointed at one end and squared at the other on which the marks were made with a cold chisel. It might be noted here that no lines are surveyed in the centre of a road allowance, but always along the side, and that one row of posts only is erected. Thus, instead of planting a post at the angle of every parcel of land separated by a road allowance, one post only is planted and the other corners located from it.

It has been recognized that this system, admirable as it is compared to that in our own province, is not sufficiently permanent and that posts were too often tampered with and lost, necessitating frequent re-surveys. Similar conditions apparently prevailed in the United States, which led to the adoption in 1910 of a post, the specifications of which are as follow: "Standard wrought iron pipe, three-quarters of an inch inside diameter, one inch outside diameter, three feet long, one end split and spread forming two foot plates, brass or composition metal cap, consisting of eighty-five parts copper, eleven and one-half parts zinc, two and one-half parts tin and one one part lead, five-sixteenths of an inch thick to lap three-quarters of an inch on pipe and flush on the end, so as to leave no space between cap and end of pipe and firmly riveted thereto; cap to be lettered as indicated, with cast letters indented. A space one inch in diameter to be bur-nished in order to show stamping of marks more clearly; inside of pipe to have concrete core and bottom of pipe to have rivet, bolt, or wire to secure core. Core to be of Portland cement and sand in equal parts; pipe to be coated, while hot, inside and out with mineral asphaltum rubber coating."

During the first year of the war the Surveyor-General of Dominion Lands carried on correspondence with the Commissioner of the General Land Office at Washington and also asked the various land surveyors then employed