not such as he would have chosen, had he possessed the means of chusing, but simply the best he could be find. *Few* of them had ever practised or studied the art of surveying; and some of them had received very little education of any kind. Not a tenth part of them, there is good reason to believe, were aware that there was any alteration of the variation. The allotments generally had the fronts, and a very short piece of the side lines marked, leaving the grantees to get the survey completed when they thought proper. Some had all their lines run soon after the occupation, and others one only of the side lines. After the lapse of so much time that the needle had moved a degree or more to the left, the Surveyor would be employed to run the other side line which he would do without making any allowance for the increase of variation, and running of course to the left of where he ought to have run, would make the rear of the lot either too broad or too narrow. In many other cases where the marks made in running the first lines had all disappeared, a Surveyor was employed to retrace the division line, which he thought he performed correctly by following the course marked on the plan of the lot, as he neither knew nor suspected that his compass had changed its direction; but it frequently happened that one of the Proprietors would recollect that a certain rock or tree, or other fixed object, which was now left on the right side of the line, was formerly upon the left side, and although he could not find any of the old marks, he would, if a loser by the new line, be positive it was wrong. The party who gained by it would be as positive that it was right, as the Surveyor assured him that he run it in exact conformity to the plan. Many of these cases were taken into the Court, which had been better, because more cheaply, decided by the toss of a shilling: for it was morally impossible that the parties and their Surveyor could make a case intelligible to a Jury, when neither of them understood it themselves.

The errors from inattention to the variation were not, *always* very slight ones, We have seen a very long lot, which had a front of eighty rods, reduced to less than forty rods by a survey of this kind.

Local Magnetism has also produced lawsuits and quarrels. The Southern front of the Province rests mostly upon what is called primitive rock, granite, slate, or hard blue whinstone. The granite generally forms the highest hills, but so great a portion of it is nearly bare of soil, that the greater part of the land worth surveying rests upon slate or whinstone.

The slate contains a great quantity of pyrites which is constantly forming vitriol, and in very many places affects the needle, sometimes changing its course as much as ten degrees. The needle is far less frequently affected upon the whinstone, where we have never observed its course changed more than two degrees. There are also in the sandstone and coal districts, argillaceous shales, which contain a vitriolic mineral that affects the needle, Surveyors, knowing nothing, and suspecting nothing of this local magnetism, but believing their compass to be infallible, were accustomed to go forward upon the line which it pointed out, while the thick woods prevented them from perceiving that their line was not straight, and often no error was suspected while the land remained uncleared, until there was occasion to measure the breadth of the lot, when if an error was found which produced a dispute, and Surveyors employed to settle it, they often only increased the confusion; for upon the magnetic rock, although the needle has generally a false direction, yet it is much more affected in some places than others, and we have observed it to change its direction four degrees upon removing the compass only 20 feet, consequently no Surveyor could retrace the line he had just before run, by following the direction of the compass, unless at every station he placed it on the identical place where it stood before. If, as it sometimes happened, a covetous, litigious man, should quarrel for one of these erroneous lines, several Surveyors would be employed to run it who would all differ from each other, and then, frequently suspect a fault in the compasses, as the real cause of the difficulty did not occur to them; for the English books which many of them had procured to teach themselves the art of surveying, gave them no hint of this local magnetism. A few Surveyors who had been navigators did know something of the variation, but for many years no attention was paid to it.

Although we have been writing for the purpose of giving information to those who do not understand surveying, yet we think it might be useful to some Surveyors to describe the mode in which we have been accustomed to run lines on magnetic ground. First see that your compass is in good order, and that it will point correctly backward and forward; set it very level, direct the sight to some distant object, and note the degree upon which the needle rests; then reverse it, and if the needle rests on the same degree, it is correct; but if it does not, it is most probable the sights will be found to twist, but if they are found to be perpendicular and to range with each other, it will generally be necessary to move one of them so as to bring them into a straight line with the pivot of the needle. Use a straight flagpole with the bark taken off, that its whole length may be visible. Always set a small straight stake directly behind the compass, with a blaze upon it, the centre of which shall be in the line. When you move to another station set the compass with its centre perpendicularly over the place where the flagpole stood. When you find by looking back from the second station to the first, that the needle has changed its direction, look out for the nearest place where you can get a true course. A frozen lake, a wet swamp 30 rods broad, or land resting on granite, will be free from local magnetism, and generally, but not always, that which rests upon whinstone may be trusted. Remember however that slate lying southward from granite or whinstone, will have the surface covered with blocks of those rocks, and that these surface stones are no proof that you are off the slate, as they would be if the slate lay northward from the granite. When you have decided which way to go, note the course from the place of beginning, and run a straight line by the help of your sights, flagpole, and stakes set behind the compass, till you reach ground which is not magnetic, which you may conclude you have done when the needle points the same course at three successive stations. The difference then observed between the directions of the needle at the beginning and end of this line, will be the error at the place of beginning, by allowing for which, you may set off upon the right course, and run a straight line as above directed, without regarding the needle, till you perceive by its course that you have got over the magnetic ground. It is, however, best in all surveying always to look back upon the line every time you set the compass, and on all slate soils, always to leave a stake behind. Where there are high hills, it will be necessary to be four or five chains from the upland upon a lake or *wet* swamp (a swamp is not to be trusted in a dry time) to avoid the attraction. Lines which have a course between East and Northeast (the general course of the slate) sometimes follow a magnetic band for near a mile.

The old system of leaving the greater part of the surveying to be performed by the grantee occasioned the surveys to be more inaccurate than they would have been had the surveys been previously made at the expence of Government, as they are at present. A great part of our land has a thick underwood, through which it is often impossible to see two rods, or to carry the measuring chain