

CON:- S.I. AT THE R.O.

TUDOR JONES

METR

Section 8, sub-section 2 of Ontario Regulation 932/78 under The Registry Act, as amended by Regulation 564/80, says in part: -

"Where distances on a plan are shown in metric units, the following shall be included on the plan -

(Notice occurs)

and no further metric designation shall accompany any measurement (distance) shown on the plan."

The last bit in fact is not in the revised Regulation, but I have been assured that this is an oversight, and that it should be in there.

As long as we in this Association are preparing plans featuring S. I. units, I believe that the last thirteen words of this sub-section, accidentally left off this time, should be left off permanently.

Our legal survey plans have to be as clear and unambiguous as possible, and we strive to make them this way. Every other value that we put on a plan, whether it be a chain, a degree, a foot, or whatever, is indicated by one recognisable symbol or another. Why should a metre be unique in that it shall not be so indicated? This is a very negative procedure that we are required to follow.

If it happens to be explained that, for example, eighty other countries in the world are doing it this way, then an appropriate reply could be that "eighty wrongs do not make a right".

A survey crew working with a photocopy of part of a metric plan, did not notice that a particular dimension did not have a characteristic tick denoting feet, and laid out a street line 4 feet from a monument found instead of 4 metres. The local inhabitant questioned the location of the line, the field crew checked the original plan and found the 'metric' announcement. The line was changed by over eight feet in the field, and the proposed sidewalk was fortunately constructed in its proper position.

As Dr. Sisters would say, "This need not have happened".

If the dimensions on the plan had been followed by a small "m", this source of error would have been eliminated.

Sometimes, part of a plan can get crowded, so we need to retain the option of not showing an "m" if circumstances do not permit, but the addition of an "m" after each metric linear measurement

wherever possible can only increase the usefulness of a plan.

Also, the next time the Minister's literary draftsmen come to re-write this Section, they should also consider mentioning the "International System of Units (S. I.)" so that everyone knows for sure which metre is being referred to.

When you consider that we as land surveyors spend a good deal of our time searching for possible errors, and proving that work done is correct, one has to wonder why we have accepted with such apparent enthusiasm another system of measurement. The opportunities for making mistakes when converting from one system to another are so great that they make our traditional sources of error seem paltry by comparison.

For the last three and a half years, all legal survey plans leaving our office have featured S. I. distances, and we are just now beginning to question this policy. Casual discussions with some of our colleagues would indicate that we are not alone with our misgivings.

I have also been told of a Land Registrar who is asking land surveyors to not submit metric plans to his office. He will take them if presented, because he has to, but he does not want to. He doesn't want metric dimensions in his records.

Theorists will tell you that converting from one system to another should not be done. I agree with them. But when millions and millions of imperial measurements are on file in the R. O. 's, then conversions must be done if a metric plan is to be produced.

As of now, we try to do all our field work in feet, and the draftsman gets the conversion chore. But more metric plans are being registered every day, and as their limits have to be retraced, so the two systems have to be used side by side in the field.

This situation is going to get an awful lot worse before it gets better. I think it is time to take another look at this situation, to see if it is really what we want.

Why are we going this route, anyway?

The only reason must be because everyone else is!

World-wide standards of measurement for aircraft engines and automobile parts are of course logical. The same can

be said for first order geodetic control surveys.

But there is no such logical reason for a legal survey to be done in metric units. While it may be possible to export 200 metric tonnes of topsoil, sand or gravel, it is impossible to export 200 acres of land. In no way can Lot 12 on Registered Plan 3456 be shipped overseas! An area of land is unique in that it cannot be moved. It will never have to be compared with a parcel of land in a foreign country.

Therefore, there is no real reason why it should be measured in international units.

Where its dimensions abut other sections of society, let a transformation occur.

The Development Control Approval Plan could be the interface between the land surveyor and the architect. The reference plan is in imperial units, and only that data required for the approval plan is converted into metres, at minimum risk.

Appropriate software will relate the land surveyor to the geodesist.

Far, far better to do this, in my opinion, than to continue on our present path, which appears to be leading into a morass of conflicting records in the R.O.'s. Even though I know that nothing will come of this, I wish that S. I. units could be kept out of the land registry offices.

A world-wide system for certain purposes, has advantages that cannot be denied. Such a system for every possible type of measurement, however, has a more subtle disadvantage that may not be so apparent.

Once such a system has been adopted, then it is going to be virtually impossible to change it to any significant extent. As long as many systems are in use, any one system can be amended and improved as time goes on. I submit that it will be much more difficult to effect changes to the International System of Units.

And there are lots of ways the S. I. could be improved. It is certainly not easy for the average citizen to understand many of the measurements, even after years of use.

I note that nearly six years after the official conversion, the C.B.C. is still telling us at frequent intervals that if the temperature is 20° above then it should be a nice day.

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Incidentally, the proponents of the metric system tell us that degrees centigrade are better than degrees fahrenheit, because there are not so many of them and they are easier to tell apart. That is, it is easier for the average person to differentiate between 19°C and 20°C than it is between 67°F and 68°F.

I wonder how these people justify the use of grams at more than twenty-eight to the ounce?

One of the disadvantages of the S. I. system of measurements is its basic and total dependence upon the decimal numbering system. The duo-decimal system, to the base 12, and which formed part of the imperial system of measurements, is much more "flexible", or "manageable".

Whilst the number ten is divisible by 2 and 5 only (disregarding unity), the number twelve is divisible by 2, 3, 4 and 6. This gives the duo-decimal system tremendous advantages. The problem of packaging regular shaped boxes, as for example of soap powder or corn flakes, into a larger box, for shipping between a factory and the supermarket will illustrate. If 10 small boxes have to be packaged into a larger box, the possible arrangements are extremely limited when compared to the arrangements that can be carried out with 12 small boxes.

This cannot really be blamed on the S. I. system, of course. What this civilisation needs, and which it is not going to get, are a couple of extra digits lying between nine and ten.

And what of the system that we are casting aside? Has no one any regard for the old inch or the acre? They have a lot more going for them than some may realise.

Sir John Herschel, one of the world's most eminent astronomers at the beginning of the nineteenth century, postulated at that time that the inch was the only sensible earth-commensurable unit, or unit based on the actual size of the earth.

Herschel criticized the meter derived from a curved meridian of the earth as being erratic and variable from country to country because the earth is not a true sphere, and each merid'ian of longitude would therefore be different.

He asserted that the only really reliable basis for a standard of measure was the polar axis of the earth, the straight line distance from pole to pole. This distance is just about five hundred million inches, giving the earth a polar radius of ten million cubits, at twenty-five inches to the cubit.

He suggested that the inch, at that time officially recognized as the

length of three grains of barley taken from the middle ear and placed end to end, be adjusted by 0.001 of an inch to obtain a truly scientific unit of measurement.

Given the above adjustment, it is interesting to note that a 25 inch square, or a square cubit, on a map drawn to a scale of 1:2500 represents one acre in the field.

A. E. Berriman, an American engineer and architect maintains that the English acre is the most intriguing of ancient measures because it is virtually equal to a hypothetical geodetic acre defined as one myriad-millionth of the square on the terrestrial radius.

There are also those people who relate the Great Pyramid at Giza to the dimensions of the earth and to the length of the inch. They maintain that the ancient Egyptians immortalized their knowledge by making the circumference of the earth to scale with the perimeter of the pyramid, and the radius to scale with its height.

Because of the close similarity of the inch to the Pyramid inch, they give impetus to the theory that the British are the descendants of the Lost Tribes of Israel, "which during their captivity and wanderings preserved a knowledge of the wisdom of the Egyptians". This sort of stuff borders on the occult, of course, and just for the record I do not subscribe to it.

It's too bad it all has to be cast aside, though, just because our leaders on Parliament Hill, without even a reference to the House of Commons, say that it has to be so.

REBUTTAL TO A. GIBSON

I will be the first to agree that some confusion in the old order of things certainly existed. Apparently back in about 1810 in the Dukedom of Baden, having an area of only about 15 square km, there existed no fewer than 71 different feet and rods, 65 cubits and 68 different areas. Fantastic.

Andy's inference, however, that all credit for clearing up this mess should go to France, cannot be allowed to pass without some comment.

It is true that the French first introduced a metre based upon a curved meridian of the earth, but unfortunately they blew it.

The S.I. metre that we have to live with today was accepted in 1960 by the International Union of Geophysics and Geodesy.

Gauss and Weber introduced the millimetre-second-milligram system in 1836. Other facets were developed worldwide, and formed the basis for the S. I. system which was officially recommended by the General Conference on Weights and Measures twenty years ago.

Some suggest that it should not even be referred to as metrication, because this does not reflect the truly international aspect of this system.

I disagree also with his remark that given a pocket sized electronic calculator, no problem in conversion exists. Having to live constantly with two systems is a very real problem. Unless an answer is found to it, I fear that our brand new Errors Insurance is going to be sorely tested in the next few years. ●

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"Divers weights and divers measures, both of them alike are an abomination to the Lord". Proverbs 20:10

"An English penny called a sterling, round and without any clipping, shall weigh 32 wheatcorns in the midst of the ear; and twenty pence do make an ounce, and twelve ounces a pound; and eight pounds do make a gallon of wine, and eight gallons of wine do make a bushel, which is the eighth part of a quarter." THE ASSIZE OF BREAD AND ALE, Henry 3, 1266.

"Then spake Elspeth of England - 'By my roode, if milorde Highe Admirale ys stoppyng when hyss caravell passeth over Godwinne Sands, then I, for alle I bee a meere womanne, wille decree the measur that wille bee.'

Then Elspeth measured a roape arownd her wayste, and sayd - "Thys, thenne, wille bee the fathome for my captaynes". And alle the captaynes sayed "Wowe!" From "THE MERRY REGNE OF ELSPETH THE FATTE".

We owe a lot to the English.

Let's see now; there's the Magna Charta, which unleashed the barons on the peasants; there's the Domesday Book, which was the first tax roll - we're all grateful for that; and, as a direct descendant of the Penny Post, we have our Post Office.

There's no end to our obligations.

But it's hard to be equally enthusiastic about our system of weights and measures, devised as it was by a nation which measures its horses in hands and its people in feet. There isn't space in a short article to list more than 1% of them, but a few idiocies can be noted.

In linear measure, going from an inch to a league, the factors are 12, 3, 5½, 40, 8, and 3 again. Surveyors, not thinking this complicated enough, took 6, multiplied it by the rogue number 11, and called that a chain. Then they divided it into links of are you ready? . . . 7.92 inches. And the sailors went their own watery way. Vertically they used the 6' fathom and horizontally a mile of 6080 feet, a number easily divisible by 19.

Back home in allegedly Merrie Englande a nation of shopkeepers and their bewildered customers were trying to preserve their sanity amidst their dry, liquid and apothecary's weights and volumes, their long and short tons, their 16 and 12 ounce pounds, and their four kinds of gallons. As time went on they

clearly accepted irrationality as the norm, enthusiastically welcoming Herr Fahrenheit's scale which, ignoring any connection with the real world, took 32 and 212 as it's significant numbers.

As if these lunacies weren't enough, the Americans, when they split in 1776, financed it by reducing the gallon by a sixth, and pocketing the difference. (It was the beginning of a trend. Most recently we've seen the 16 ounce pound reduced to 15 ounces, and the 26 2/3 ounce sixth of a gallon (known, predictably, as a fifth) to 25 ounces, to the greater glory of the dairies and the distillers.)

To Revolutionary France goes the honor of doing something about the madhouse. Fed up with a system which so impeded commerce, they initiated a rational one which, over the years has commended itself to every nation eager to join the international community. A temperature scale which starts at the freezing point of water, and goes in 100 units to the boiling point. A measure of length which, unlike the yard, which was defined as the distance from Henry 1st's nose to his thumb, is 1,650,763.73 wavelengths of excited atoms emitted by krypton-86. All we have to do now is find out what turns krypton-86 on.

The fact is that North America loses billions of dollars annually by not catching up with intelligent countries like Upper Volta, Chad and Paraguay. We trade with the world, and we are in the ridiculous position of tagging along behind the international brass band, playing a different tune on our ka-zoo, and wondering why the world doesn't march to our music.

There are, to be sure, some grey areas in which there doesn't seem to be any immediate advantage to metric conversion. One of them is in land measurements - - - - container ships don't come, pick up our acres, deliver them abroad and sell them as hectares. But we live in a shrinking world, the dimensions of which we now know within a few metres. Primary mapping is already metric. Our speeds and distances will shortly be all metric. Our children understand centimetres and kilos, and will soon find it hard to convert to Imperial. In 20 years feet and miles will be in the same troublesome position as chains and links are now - anachronisms which, because of an irrational clinging to the old order, simply delay the biting of the bullet. To avoid some trifling mental exercise, we go to the expense of maintaining two systems.

A change couldn't come at a better time. In the last few years we have seen calculators go from 50 lb. monsters costing thousands to 2 ounce wallet wafers. For \$25 we can get a brain which will convert anything to anything in half a second. So where's the problem?

The government would be irresponsible if it didn't initiate conversion. I rest my case.

REBUTTAL TO T. JONES

I have read "S. I. at the R. O.", and while I like the style I am unconvinced by the argument. In fact, it has reinforced my pro-metric opinions.

I find that a British inch was officially recognized as the length of three grains of barley taken from the middle ear. A person, such as Sir John Herschel, who has had such an operation performed on his middle ear is in no condition to make rational decisions about measurement systems. ●

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accident if it can be proven that both or all were negligent. Again, the question for the Court is to determine what standard of care is required on the part of a surveyor in order to meet a charge of negligence.

If the surveyor in question knew that a sidewalk was to be laid over the survey bar he may owe a duty to inform the Municipality of the location of the bar. However, given the rather minimal risk created by a protruding iron bar, albeit on a public sidewalk, the statutory duty of care imposed on the Municipality by **The Municipal Act**, and no reasonable expectation of heaving the better view still appears to be that the surveyor is exonerated from liability. **The Municipal Act** notwithstanding, liability might very well follow if the surveyor planted the bar in accordance with the statute knowing that in all probability the bar would heave and knowing that the site of his bar was the proposed location for a public sidewalk but neglected to inform the Municipality of the facts.

The most prudent approach would be for the surveyor to advise the client or owner if there is any reasonable risk presented by a protruding or potentially protruding iron bar. As stated, precautionary steps can take the form of simply providing information (which should be available for future reference) as to the existence and location of the iron bar to the person responsible for the land; painting the iron bar a bright colour or following the accepted safety procedures of fellow surveyors in the area. ●