

Quite often a sigh goes up in public about the lost arts of this or that, perhaps the enclosed is one of these ? ? ?

In these days of electronic calculators the chore of multiplying a course by the sine and cosine of an angle is just too much for the mentality. In the field most of us carry a "Curta" in the haversack, or a Facit or an Odhner in the car or truck, and the answer can be cranked out fairly quickly. But there are times when we have to return to basic ways and means. The late Sam McDougall, O.L.S., Q.L.S., showed me this short method of multiplication back in the bush up in Rouyn, Quebec in the '30s.

We had to work out a traverse of some twenty courses, in mid-afternoon. The only way I knew of doing the job was with 'logs', and that took me over an hour. Sam waited on me patiently, and that didn't help my composure any. When I thought I had the answer, he said "Now, I am going to show you a much shorter method". He was very proficient with this little trick; I think he took about a half hour to do the job.

In those days it was an awful crime to have 'the party' sit around for even a moment waiting on the transitman to calculate the final course. Almost every surveyor had his favourite secret

recipe for efficiency, almost as jealously guarded as some of the offsets used in city surveys, or the ties to reference points. Another favourite short-cut in traverses was dodging in and out through the bush with as little cutting as possible, using as small a deflection as possible, first to one side then the other. Left deflections were minus, right were plus. The course was plus, but when multiplied by the deflections in minutes we had a series of negative and positive values, and we could return to the true line simply by bringing each side to a balance. It saved a lot of cutting.

MULTIPLICATION:

1. By Machine .60158
 $253.79 \times \sin 36^{\circ}59' = 152.67$
79881
 $253.79 \times \cos 36^{\circ}59' = 202.73$

2. Long Hand:

$$\begin{array}{r} 25379 - 8 \\ .60158 - 2 \\ \hline 203032 \quad 7 \\ 126895 \\ 25379 \\ \hline 1522790 \\ \hline 1526749882 - 7 \end{array}$$

$$\begin{array}{r} 25379 - 8 \\ .79881 - 6 \\ \hline 25379 \quad 3 \\ 203032 \\ 203032 \\ 228411 \\ 177653 \\ \hline 2027299899 - 3 \end{array}$$

Prove by casting out the nines"

3. Short Method:

$$\begin{array}{r} 253.79 \\ \hline 85106 \\ 152274 \\ .253 \text{ Carry } 0 \\ .126 \quad \cdot 1 \\ \hline 20 \quad \cdot 4 \\ \hline 152.673 \end{array}$$

$$\begin{array}{r} 253.79 \\ \hline 18897 \\ 177653 \\ 22841 \text{ Carry } 8 \\ 2029 \quad \cdot 5 \\ .202 \quad \cdot 2 \\ \hline 7 \quad \cdot 5 \\ \hline 202.732 \end{array}$$

The multiplier is reversed. Since the first multiplier is in the first decimal place there is only one decimal point in the multiplier. This added to those in the multiplicand gives the number of decimal places in the product. There is no available method of checking except by repetition

Short cuts are not favoured by all however. There are those who believe in 'bulling it through hell and highwater come what may', measurements are made to the nearest tenth of a minute, or to the nearest hundredth of a foot. Some are ever willing to call the other a liar for the sake of 0.02 of a foot, forgetting that none is really ever a perfectionist. I sometimes wonder what point is served when we show on a plan "100.00' (Plan), 100.01 feet meas." When the difference is .20 then the value becomes of significance, but certainly 0.01 is like the flea's flea in Thompson's introduction to "Easy Calculus". To get back to short-cuts, direct measurement is of course the surer way. The user of short-cuts must be proficient, and know when such are an economy of time, therein lies true proficiency. But as is well known, more people have become lost by taking a short-cut.

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WHAT? 1970 ANNUAL O.L.S. MEETING

WHERE? WINDSOR, ONTARIO

WHEN FEBRUARY, 1970

WHY? TO PROMOTE THE PRACTICE OF LAND SURVEYING;
TO KEEP ABREAST OF SURVEYING;
TO GET TOGETHER, ETC. FOR YOUR BEST INTERESTS;
TO MEET YOUR FELLOW SURVEYORS, ETC.ETC.
HAVE FUN -- ETC.ETC.

WHO? MICHIGAN LAND SURVEYORS WILL MEET WITH
US FOR A JOINT ONE DAY SESSION; ALSO A ONE
DAY SEMINAR ON THURSDAY.

THIS MEANS - Y O U - AND INCLUDES
THE LADIES

PLAN NOW TO ATTEND

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