

be followed by some Western manufacturers, who, in that case, will have to look to the Dominion Iron and Steel Co. or to Europe for their supplies, and face probable competition from the United States. Some of the other firms, however, succumbed to the threat, and have placed their orders for the year. The competition referred to will, however, hardly materialize, as the duty on wire nails is 60c. per 100 lbs., with a further duty on the kegs or boxes, and the United States Steel Trust in order to secure trade would be obliged to sell the manufactured article as low, if not lower, than the price charged Canadian manufacturers for the rods. This agreement between Canadian wire nail manufacturers on the one hand and the American Steel and Wire Co. on the other, has been in force since 1899, with the exception of 1900, and included all wire nail manufacturers in Canada. The American Steel and Wire Co., in return for these Canadian companies purchasing wire rod supplies from the Trust kept their manufactured product out of the Canadian market, on the same plan, if not by the identical means, taken by the makers of shovels to divide the Canadian and United States markets between them, as far as such monopolies are able to do. In both cases the monopoly may end, as we learn that a new company is now quietly installing a plant to make shovels in Canada on a scale which will certainly affect the market price of those commodities.



—A communication in this issue corrects an error into which we fell last month as to the position of the American Machinist on the question of metric weights and measures. We were informed by a United States manufacturer of machine tools—who, while opposed to the introduction of the system on the ground of cost, yet believes it inevitable—that Mr. Miller was personally a believer in the advantages of the metric system. Mr. Miller does not state his own personal convictions, but if his friend is wrong, the misconception probably arises from the fact, mentioned in the letter, that nearly all who have written in the American Machinist are advocates of the introduction of metric weights and measures. To those who are regular readers of our able contemporary, and have marked the high average of intelligence and practical knowledge of machinery shown by its contributors and correspondents, this fact alone will bring conviction that the metric system is bound to be adopted by the Anglo-Saxon world. The chief difficulty in the engineering trades is the fear that the change will be very costly. We believe this cost is much over-estimated.



THE METRIC SYSTEM IN PRACTICE.

Editor, Canadian Engineer:—

Sir,—Much discussion of a speculative nature has been indulged in, in regard to the Metric System, as to whether its application in commerce would, or would not, be fraught with much benefit.

Unquestionably the change from any one system of measurement, to any other, will occasion temporary inconvenience, irrespective of whether the system changed to is either better or worse than that changed from. Experience has shown that the public adheres tenaciously to a practice once adopted, and a long continuance of almost any practice creates a bias, and will more or less mask the ability to see an innovation in its true relation to the end desired—the knowledge of what is—being much more complete, than the knowledge of what might be.

Much favor is lavished upon the so-called duo-decimal system, because 12 can be divided by 2, 3, 4, and 6, the dividend being a whole number in each case. The late Herbert

Spencer urged this point, and it is unquestionably one of much moment, but the decimal notation offers a much greater advantage in that it is easy to work out quite large arithmetical problems mentally by this notation, whereas the introduction of 12's would inevitably involve confusion or at least much increase the difficulty.

Moreover, the commercial world is so continually using the percentage method of expressing relative and absolute values, that in the nature of things, it is highly appropriate to combine a centesimal system of coinage and gravimetric and volumetric measurements.

As one who has used the Metric System for years, side by side with our feet and inches, pounds, and gallons, I most emphatically favor the Metric System, and I can confidently assert that any one who essays to become as familiar with this system as they have been with the duo-decimal, will never want to return to the latter.

No analysts use septems, minims, and grains now; even when results must be expressed per gallon, the so-called "miniature gallon" is used being 70 cubic centimeters, which volume of water contains as many milligrams as there are grains in a gallon, and so by transposition of terms each milligram counts as one grain per gallon; this miniature gallon is largely used in water analysis. Assayers appreciating the ease of the Metric System have adopted a weight known as the "assay ton" (approximately 35.8 grams), which contains as many milligrams as a ton does ounces, and so one milligram pound represents 1 oz. per ton of precious metal. Another instance of the convenience of the Metric System is afforded when the barometer is used for ascertaining heights, where a decrease of one millimeter represents an ascent of 10 meters. or, as one can see at a glance, the ascent is ten thousand times the diminution in the barometric column; this is by no means so easy to perceive when the statements are made in feet and inches, e.g., a reduction of the column by one-tenth inch equals an ascent of about 87 feet. Again, in computing the weight of liquids from the measurements of the containing tanks, the superiority of the Metric System becomes apparent; up to the point where the cubical contents are ascertained there is not much difference, but having obtained the number of cubic feet we must now multiply by 6.23 for gallonage, and 62.3 for pounds; whereas, having ascertained the number of cubic decimeters you may either call it kilos for weight or litres for volume; this point saves an enormous amount of work and time where much liquid measurement is necessary, as in breweries, distilleries, soap works, and chemical works generally.

It is unfortunate, but not inconvenient, that the meter exceeds the 10-millionth part of the meridional arc of the earth (by one part in 6,400 or .0155 per cent., as stated by Sir John Herschel), which it was intended to be, nevertheless this does not impair its usefulness. In conclusion, I would say to those who oppose the Metric System, use it till you are thoroughly familiar with it, and you will fall in love with it.

Yours truly,

HARRY SPURRIER.

Davenport, April 23rd, 1904.



THE METRIC SYSTEM.

Editor, Canadian Engineer:—

Sir,—As some further evidences of the extended desire, through all classes in this country, for the adoption of the Metric Weights and Measures, I may inform you that the petition—of which a copy is attached—is being signed by all trade unions, by all the chambers of commerce, by all the teachers' associations, by all the retail trade societies, and by most of the town and county councils, hundreds of thousands of individuals, merchants, school-masters, ministers of religion, shopkeepers and retailers, manufacturers, engineers and workmen.

In all, several millions of persons will be represented by the signatures of officials of the various organizations.

Moreover, there are 315 M.P.'s pledged to vote for our Metric Bill, and it is certain that these promises could not