

The various heads of departments upon whose recommendations this compromise law was passed, and Congress itself, believed it would have the same effect as a bill to exclude the old systems from legal recognition. The experience of nations from the first, goes to show, however, that sweeping changes of popular custom have not as a rule been secured by compromise or temporary legislation. That such legislation has failed thus far to bring to the people of England and the United States the inestimable benefits of the metric system is not good evidence that they were hostile to the reform. It is a fact that the files of the committee on coinage, weights and measures are loaded with petitions for a law that will make quick work of the change.

The colleges took advantage of the permissive law and all the old standards were promptly expelled from such institutions. So that today all chemical and physical apparatus and scientific nomenclature generally are based upon the metric system. But the merchants, manufacturers and tradesmen who are properly expected to supervise the nomenclature of commerce cannot operate reform in that manner, they are in some sense the slaves of established usages. They must follow the dictates of custom or assume risks that may destroy them utterly. The merchant, therefore, though a supervisor of fashion cannot dictate a reform except with authority that not only permits but requires all competitors in the business to do likewise. For this reason, though every tradesman and every citizen of a state hold a sentiment in common, it is not impossible for it to go with them to eternity unrealized unless some voice of general authority commands a harmonious action. So it has been with the people of the United States and England in the matter of the metric system. There has been no authoritative command given and so every man is waiting for his neighbor to move first in order to be sure that he is of the same mind on the subject. Thus it has happened that the two most progressive nations on the globe have been outclassed by countries which are yet scarcely emerged from barbarism.

What this delay is costing can be estimated in part, but the entire expense of it no man may ever know. The leakage from an imperfect system of weights and measures may come from incalculable places. It is only where the losses are most prodigious that cost can be determined. For instance, in one report to Congress, a sub-committee declared officially—or intimated in a way that amounted to a declaration—that a continuance of the weights and measures now in use was costing the country a year of student life for every boy and girl in the public schools. The students of the Salt Lake schools alone are reported at about 10,000. Here is a waste in the assets of Salt Lake alone, of ten thousand years of school expenses, which anyone can calculate for himself without much difficulty, and from it he can make a fair estimate of the loss the Territory at large is sustaining in the same direction.

I give below the metric table, to which is added the table of United States money for purposes of comparison:

U. S. Money.

10 mills=1 cent.

10 cents=1 dime.
10 dimes=1 dollar.

Linear Measure.

[1 Meter=39.37 inches.]

10 millimeters (mm)=1 centimeter—cm
10 centimeters=1 decimeter—dm
10 decimeters=1 Meter—M
10 Meters=1 Dekameter—Dm
10 Dekameters=1 Hectometer—Hm
10 Hectometers=1 Kilometer—Km.

Weights.

[1 gram=15.5 grains.]

10 milligrams—mg=1 centigram—cg
10 centigrams=1 decigram—dg
10 decigrams=1 Gram—G
10 Grams=1 Dekagram—Dg
10 Dekagrams=1 Hectogram—Hg
10 Hectograms=1 Kilogram—Kg
1000 Kilograms=1 Ton—T.

Volume.

[1 Liter=1 cubic dm =1 quart.]

10 milliliters—ml=1 centiliter—cl
10 centiliters=1 deciliter—dl
10 deciliters=1 Liter—L
10 Liters=1 Dekaliter—Dl
10 Dekaliters=1 Hectoliter—Hl
10 Hectoliters=1 Kiloliter—Kl.

To establish the identity between the advantage of the metric table over the old ones, and that of the table of United States money over English money, as formerly illustrated, I copy herewith a few of the old tables for comparison:

Linear or Line Measure. Surveyors' Measure.

12 inches=1 foot. 7.92 inches=1 link.
3 feet=1 yard. 100 links=1 chain.
5½ yards=1 rod. 80 chains=1 mile.
320 rods=1 mile.

Another Linear Table.

6 feet=1 fathom
120 fathoms=1 cable length
1.15 common miles=1 geographical mile
3 geographical miles } =1 league.
or 3.45 statute miles

This is one simple example of the heterogeneous character of the old measurements. Multiplying examples would scarcely make the jumble of figures more apparent or cause them to look more hideous to one who fully comprehends the effect of such confusion. As an evidence of the monstrous extent to which this degradation has been carried, I have Mr. Upton of the United States treasury for authority that in the English system of weights and measures there are no less than seventy six units in common use, having fifty-six names. In the United States the prodigious elasticity of the term bushel affords a striking example of the power of Yankee invention in creating chaos out of confusion. In the report on the metric system to the United States Senate, 1879. Mr. Upton has quoted a tabulation of the American bushel, whose multitudinous variations cover two octavo pages in fine print. President Talmage of the University of Utah, in a recent lecture on the subject, elaborated the absurdities of our weights and measures in the following entertaining fashion:

"In the common units of weight we have to deal with three separate tables, each complicated in itself, and bearing no simple relation to the other systems. I refer to the avoirdupois, the troy and the apothecary's weights. These have but one unit in common—the grain. Thus an avoirdupois drachm contains 27½ grains, and an apothecary's drachm 60 grains. The troy pound contains 5,760 grains, while an avoirdupois pound consists of 7,000 grains.

"Such complications are rendered the

more annoying by the provincial significations given to terms of measurement in trade. Thus in Great Britain, large cod, it hooked, are sold by the score; tawled cod, so much apiece, and pickled cod by the barrel. I have no desire to exaggerate the eccentric basis of barter common among our Transatlantic friends, so cull the following facts of British trade from a comparatively recent article by an English writer—Mr. Cousins, of Leeds. At Grimsby, an important fish market, a style of weights and measures, very different from that used at Billingsgate is adopted. Thus, while at the latter place of unsavory repute, fish may be disposed of by 'the pound,' 'the stone,' 'the pair,' 'the basket' and 'the hundred,' the Grimsby dealings in fish are conducted largely by 'the box,' and 'the last.' It is said that at Grimsby a customer recently called for a stone of oysters and was informed that there oysters were not sold by weight but by measure. 'Ab,' replied the intended purchaser, 'let me have a yard.' In Ireland butter is sold by the cask, and the firkin; in England by the pound (16 ounces), or the roll (24 ounces), by the stone and the hundredweight, which last is not a hundred pounds, but 112. The writer just quoted asks, 'What is a load?' and answers—'a load of straw is 1,296 pounds, and a load of old hay is 2,016 pounds, and a load of new hay 2,160 pounds, but my tables do not tell me at what age hay becomes old.' So, a firkin of butter is 56 pounds, a firkin of soap 64 pounds, and a firkin of raisins 112 pounds. A hogshead of beer is 54 gallons, of wine 63 gallons. A pipe of wine may be 93 gallons, or 92, or 117, or 103, or 100 gallons, depending upon the locality of the vintage. A stone weight of a man is 14 pounds, of a dead ox 8 pounds; a stone of cheese is 10 pounds, of glass 5 pounds, of hemp 32 pounds; a stone of flax at Belfast is 16½ pounds, but at Downpatrick, 24 pounds; while a hundred weight of pork is eight pounds heavier at Belfast than it is at Cork. Mr. Cousins said: 'A barrel of beef is 200 pounds; butter 224 pounds, flour 196 pounds, soft soap 256 pounds, beer 36 gallons, tar 264 gallons; whilst a barrel of herrings is 500 herrings.'

"Perhaps we console ourselves that we are far less eccentric in these matters than are our British relatives, but there is much reason to believe that by the time our civilization is as old as England's, should our present tendency undergo no change, we will be fully as blameworthy as are they whom we now laugh at. There is a woful lack of uniformity among the states of our Union; thus, in most of the states a bushel of rye=56 pounds avoirdupois, while in California it is 54 pounds, and in Louisiana 32 pounds. A bushel of oats is 26 pounds in Maryland; 30 pounds in Pennsylvania, Maine, New Hampshire and some other states; 32 pounds in Vermont, New York, Michigan and many others; 34 pounds in Nebraska, 35 in Montana and 36 in Washington. So potatoes, though designated by the bushel, are usually sold by weight, 50 pounds to the bushel in Washington, 58 pounds in Ohio, and 60 pounds in most other states. Similar variations are found in the case of other commodities. With such irregularities, such vexing inconsistencies as these, is