A New and Improved System of Numeration and Measurement.

The evils of our absurd system of weights and measures have been frequently pointed out and alluded to by us, and we hope the present Congress will do something to reform the laws relating to them. The American Association for the Advancement of Science has discussed the necessity of such a reform in our country, and the British Scientific Association has done the same for Britain, and the subject, we understand, will be discussed at the next meeting of Parliament. We hope our Congress will not be so pre-eminently fogyish as to follow in the wake of all other civilized nations.

The author of the following article on this subject has devoted much time and study in the investigation of the systems which he discusses, and his views deserve attention. He believes that a more perfect system of numeration would be the adoption of the square, instead of the centesimal; and we think he is correct in his views, that is, to throw away the figures 8 and 9, and use only eight figures, the last being 10, instead of 8. This might be like the scale of music, the eighth figure being an *octave*. The centesimal system, however, is much better than the one we have at present.

NUMERATION—I am not a revolutionist or reformer, in the general sense of the word, but I agree with the almost unanimously-expressed voice calling for a reform of our absurd system of computing and measuring. No doubt the reformation will be made; let us make it as perfect as possible. The English are weary of their "£ s. and d.," and show a strong desire to have a decimal coinage, which will much facilitate accounts. At the same time they and we should get rid of our absurd troy weight, avoirdupois weight, and apothecary's weight, and adopt instead a universal decimal system for all sorts of substances, liquid or solid. At present it is hard to say what should be weighed at 12 ounces to the pound, and what 16 ounces to the pound. We do not need one pint measure for ale, and another for another liquid; let us have all liquid measures decimal and uniform. Let us, too, discard a table which requires 5 1-2 times one measure to make the next—as 5 1-2 yards are one rod. There is no sufficient reason for all these oddities; let us get rid of them and take a simpler, easier, better plan. How much a poor lad has to learn in order to know a little.

The French have vastly improved upon the English methods, simply by decimating; we can improve upon the French by adopting a more suitable decimal. From time immemorial men have made 10 the key of a whole system; but why they began with 10 instead of 9, 11, or 12 for the first double number there is no reason, except that they had 10 fingers and 10 toes, and when they had counted all their hands contained they would continue with the resources their feet supplied. This was reason sufficient for them, but it is *not* sufficient reason for the requirements of the present day. This practice of separating by decimals, which are not themselves divisible, by divisible numbers in series, is a radical defect. Eleven, thus, would have been worse than 10 for the key, and 8 better. We divide 10 into 5 by 2, and then stop; whereas we would divide 8 into 4 2, 1. It would be far better to sweep away 9 and 10 from the system, and write 10 where we now write 8, thus, 1 2 3 4 5 6 7 10. The quantity 64 would then be written 100, and our hundred would have a square-root divisible in series, and would be divisible itself *ad infinitum* without a fraction, thus, 64 32 16 8 4 2 1. We could then discard the whole system of vulgar fractions, and compute entirely by decimals—the simplest and most perfect method. There is a very great amount of calculating to be done in the world, and a better decimating system would be the greatest labor-saving machine ever invented, besides avoiding greater liability to error. The smallest hundred (64,) is a more tangible, handy one than the present one. There are many reasons for this change, which will suggest themselves to the mind of every intelligent person, besides many more which would be appreciated only by men of science. Of course we would have to change the manner of writing figures, to avoid confusion, whilst the change of system is being established. This at first seems discouraging; but adopt a new name for 8, the first double number, and the whole change is made; thus suppose we say ter instead, and we would make terone, tertwo, terthree, &c., instead of teens, and then twoter, threeter, fourter, fourterone, fourter-two, &c.

As the French have set the example of adopting the Latin to express diminution and the Greek to express increase, we would do well to adopt them similarly. We might call the first great round number 100 (now 64 in quantity,) from the Greek, heckton, and 1,000 kilion, and we would form a table, thus :

10 hectons	make	1 kilion.
1,050 kilions	"	1 disilion.
1,000 disilions	"	1 trisilion.
1,000 trisilions	"	1 tetrakilion.

(*Concluded next week.*)

Mercury or Quicksilver.

This metal differs from all others in remaining liquid at ordinary temperatures. It has a silvery-white color, with a strong metallic luster, and is not, if pure, tarnished by exposure in the cold to a moist atmosphere. If, however, it contains traces of other metals, the amalgam is rapidly oxydized, and the surface quickly covered by a gray colored powder. This metal is solid at 39° to 40° below zero, and is then both ductile and malleable. In polar latitudes the cold is sometimes so intense as to cause the congelation of mercury, and a similar result may be obtained by artificial freezing mixtures. Considerable contraction takes place at the moment of congelation, for while its density at 47° is 13·545, that of frozen mercury is 15·612. It is sometimes adulterated with lead and bismuth, but such impurities may be readily detected, both by the less perfect fluidity of the mixture, and also from its leaving a residuum, when sublimed in an iron spoon. The mercury of commerce, as it comes directly from the mine, is, in most instances, nearly pure, but when found to be adulterated, it should be distilled in an iron retort. For this purpose, one of the iron bottles in which it is imported may be conveniently employed. One of these, half filled with mercury, should have attached to it a piece of iron gas pipe, bent at right angles, and furnished at its open extremity with a tube formed of several layers of linen, or cotton cloth, the end being plunged in a basin containing cold water. This end of the pipe and the hose are constantly kept cold by a stream of water made to flow over them from a stop-cock; the iron bottle is heated in a furnace, when the vapor of mercury will be plentifully given off, condensed in the water, while the foreign impurities will be left in the retort. A certain portion of the impurities is, however, by this process, carried over, though small; and if a perfectly pure specimen is required, it must be treated by nitric acid. When merely soiled by a slight admixture of oxyd, it is readily removed by brisk agitation in a glass bottle, with sulphuric acid; at the expiration of three or four days the acid may be poured off, and the purified mercury washed and dried. Mercury combines readily with other metals, as gold, silver, zinc, tin, lead, arsenic, and bismuth, and forms, when in suitable proportions solutions of those metals. This amalgamating property causes it to be extensively employed in extracting gold and silver from their matrices; also in gilding, plating, and the manufacture of looking glasses.

The process of obtaining gold from other mineral mixtures is pretty well known, but the process of obtaining silver by amalgamation we believe, is known to but a limited number. In Mexico the process is conducted as follows: Mineral having been reduced to a fine powder, is spread on the ground in large circular patches from thirty to fifty feet in diameter, and one foot thick, called "tortas." At Zacatecas, each torta contains sixty tuns. In the center of the heap is thrown one hundred and fifty bushels of salt, mixed with earthy impurities, and is intimately mixed first by wooden shovels, and afterwards by the treading of horses or mules. When thus mixed, they are allowed to remain until the next morning, when, after an hour's treading, from 1-2 to 1 per cent. of copper pyrites, called "magistral," is added, containing about ten per cent. of sulphate of copper, which appears to be the active principle that effects the subsequent chemical changes. The torta is again well trodden by horses or mules; and, when perfectly incorporated, a quantity of mercury is added through a canvas bag, which delivers it in innumerable small jets over every portion of the surface. It is then alternately trodden and turned by wooden shovels, until the silver has taken up all the mercury. A second portion is added, and the same process repeated until no more mercury can be absorbed. The duration of the operation varies considerably in accordance with the nature and richness of the ores and the temperature of the atmosphere; in winter the re-actions proceeding less rapidly. The amalgam is then washed, the free fluid mercury separated by leather or canvas bags, and the amalgam sublimed in a furance producing the resulting metals in a solid state.

Recent Foreign Inventions.

CAST-IRON PENS—Thomas Lees, of Birmingham, Eng., has secured a patent for the use of malleable cast-iron pens. By malleable cast-iron, the inventor means such cast-iron as becomes malleable after having been heated, or annealed, in contact with the iron ore called hematite, or per-oxyd of iron. In carrying his invention into effect, the inventor casts into ingots any of those varieties of cast-iron which are capable of being annealed or rendered malleable by being heated in contact with hematite or peroxyd of iron; the ingots are annealed or rendered malleable, as commonly practiced in the manufacture of articles of malleable cast-iron. After the annealing the ingots are rolled in sheets of a thickness proper for the manufacture of pens therefrom. During the annealing of the ingots the cast-iron is made soft and malleable, and during the rolling of the same a partial hardening is effected on the iron, which renders it elastic, and fitted for the manufacture of pens therefrom. In converting the sheets of malleable cast-iron into pens, any of the machines may be employed which are, or may be now used in the manufacture of steel pens.

LITHOGRAPHIC PRINTING PRESS—J. C. G. Massiquot, of Paris, has obtained a patent for improvements in lithographic printing presses. These may be summed up as follows:—A sliding carriage, which travels over the stone or other engraving, and carries along the printing scraper, to take off the impression, and which is moved to and fro by a crank on a shaft; a loose tilting frame which carries a plate and sheet to lie down upon the paper that has been put upon the plate to be printed, from the printing scraper passing over the sheet with the necessary pressure, and the loose tilting-frame being raised or tilted up by the said carriage at the end of each backward and forward stroke, so as to allow putting a fresh sheet of paper on the stone or plate engraved upon.

FURNACES FOR REDUCING LEAD AND COPPER ORES—A Jenkins, of Zell, Prussia, has taken out a patent in England for the following improvements in the above-named furnaces:

The principal feature in the improved reverberatory furnace is, that one fire serves the double purpose of reducing and calcining the ore. The fire is contained in an ordinary fire-place situated at one end of the double furnace. The gases and flame from this fire pass through a lateral opening or flue into the reducing or flowing furnace, and, after passing over the surface of the ore contained therein, enter by another opening or openings into the calcining furnace, which is placed upon the same level, or nearly so, with the flowing furnace, the gases passing off by a suitable flue or flues to the chimney. In the passage or passages which conduct from the flowing furnace to the calcining furnace there are placed suitable doors or dampers, which are so arranged that by opening or closing certain of them, the the gases or flame may either be directed into the calcining furnace or cut off and turned into a waste flue leading to the chimney.

FIGURED FABRICS—James Templeton, of Glasgow, Scotland, has obtained a patent for improvements in manufacturing figured fabrics embracing the following claims :

1. The manufacture of a solid or undivided fabric, having a dead inner or center warp, and with a complete and distinct pattern or device on each surface. 2. The use of a dead inner or center warp, operated upon by a Jacquard or other pattern-working mechanism, for the purpose of producing a solid or undivided fabric with a complete and distinct pattern or device on both surfaces.

Wearing Flannel.

Put it on at once: winter or summer, nothing better can be worn next the skin than a loose, red, woolen, flannel shirt; "loose," for it has room to move on the skin, thus causing a titilation which draws the blood to the surface and keeps it there; and when that is the case no one can take a cold; "red," for white flannel fulls up, mats together, and becomes tight, stiff, heavy, and impervious. Cotton wool merely absorbs the moisture from the surface, while woolen flannel conveys it from the skin and deposits it in drops on the outside of the shirt, from which the ordinary cotton shirt absorbs it, and by its nearer exposure to the exterior air, it is soon dried without injury to the body. Having these properties, red woolen flannel is worn by sailors even in the mid summer of the hottest countries. Wear a thinner material in summer.—[Hall's Journal of Health.

[The above is good advice, but most persons, we suppose, would prefer to wear white in preference to red flannel, were it possible to prevent it fulling up. Red flannel discharges its color by perspiration; this is an evil which does not belong to white flannel. Red flannel soon loses its bright appearance, and becomes a dull dirty-looking crimson; this is also caused by the perspiration. White flannel, when washed, always looks clean. Old red flannel cannot be made to look clean by all the waters of Lake Huron: white flannel, therefore, has much to recommend it over red, and for under-shirts nothing else should be worn. It can also be prevented from fulling up, as well as red flannel. What property does the latter flannel possess over the former that prevents it from fulling up by frequent washing? It is made of the same materials, consequently the cause cannot be in any difference in the quality of the wool. Red flannel, however, undergoes boiling for about an hour in the act of coloring, and this alone, we conceive, is the cause, why it does not full up so readily, as the white. Let white flannel be boiled in clean soft water for an hour, then dried, before it is made up into shirts, and it will be found no more liable to *full* (thicken) than red flannel.

HOW TO WASH FLANNEL—Some washer-women possess quite a *knack* in washing flannels, so as to prevent it fulling. It is not the soapsuds, nor rinsing waters that thicken up flannel in washing, but the *rubbing* of it. Cloth is fulled by being "pounced and jounced" in the stocks of the fulling-mill with soapsuds. The action of rubbing flannel on a wash-board is just the same as that of the fulling mill. Flannel, therefore, should always be washed in very strong soapsuds, which will remove the dirt and grease, by squeezing, better than hard rubbing will in weak soapsuds. It should also be rinsed out of the soap in warm water, and never in cold, as the fibers of the wool do not shrink up as much in warm as in cold water, after coming out of warm soapsuds. Great care should be taken to rinse the soap completely out of the flannel. This advice will apply to the washing of blankets, the same as it does of flannel.

The Color of Copper.

Our copper is all of a red appearance, but is this the natural color of the metal? Like diamonds, may it not have a variety of colors, such as "red and white." In China there is plenty of white copper; this has generally been believed to be as pure a metal as the red. A correspondent of the London *Mining Journal*, however, throws some more light on this matter than has been possessed hitherto. He states, that when raised in the mine, in a particular district of China, the ore from which it is made is of a red color, but by a peculiar method of treating it in smelting, and the addition of 1 1-4 per cent. of tin, it becomes white. This metal is common in China; is of a beautiful fine grain, and harder than red copper; this, no doubt, is due to the admixture of tin.

A late number of the *Collegiate Mirror*, published at Holly Springs, Miss., announces that the honorary degree of "Mistress of Arts," has been conferred upon Mrs. Hale and Mrs. Sigourney.