THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

The Introduction of the Metric System into Medicine

was the subject of two papers read by Dr. H. W. Wiley, of Indianapolis, and Professor E. B. Elliott. The former gentleman said the other sciences have adopted a uniform system of weights and measures, and that it is now proper time for medicine to accept the doctrine of science. Proximately, we may take the gramme as 15·5 grains. It is evident that all medicines now given in from one to two grain doses could as readily be presented in gramme doses, since all grain weights could easily be reduced to corresponding terms of the gramme. In regard to fluid remedies, we can make similar reductions.

Thus 1 cubic centimeter equals 16 minims; ·25 centimeter equals 4 minims; 2 centimeters equal 32 minims; 4 centimeters equal 64 minims, equal 1 fluid dram, equal 1 teaspoonful, equal 60 drops.

The paper was principally devoted to the subject of unification of doses, in order to avoid those serious accidents which result so often from the carelessness of physicians, druggists, and nurses. In order to this, both solid and liquid remedies should have a standard dose, say for solids 2 grammes, and for liquids 4 centimeters, or a teaspoonful. This could be accomplished by rubbing up the solids with some inert substance like sugar of milk or chalk, and mixing liquids with mint water.

Professor Elliot harmonizes the metric and apothecaries systems on the basis of the troy grain. If we augment the weight of the troy grain by about three (more exactly 2·88) per cent, the new grain so formed will be contained in the gramme exactly fifteen times—a very simple ratio; and the accidental substitution of this new grain for the old grain and *vice versa*, by the apothecary, would not appreciably change the quantity of medicine in a dose. The following is the scale of relation to the new grain with the metric series proposed by Mr. Elliott:

Proposed Apothecaries Weight.

	Equivalent wt. Troy grains.
5 grains* equal to 1 tergram (⅛ grain).....	5·144+
30 tergrams equal to 1 decagram.....	154·32+
100 tergrams equal to 1 ounce (new).....	514·4+
30 ounces equal to 1 kilogram.....	154·32+

* 1 new grain equal to 1·0288 troy grains.

The corresponding table of measures of capacity is as follows:

	Old Minims.
5 minims* equal to 1 fluid tergram.....	5·41830
30 fluid tergrams equal to one centiliter (in fluid decagram).....	162·54990
100 fluid tergrams equal to 1 fluid oz.....	541·83000
30 fluid ounces equal to 1 liter.....	16254·90000

* 1 new minim equal to 1·083660 old minim.

Professor C. W. Holley discussed

The Proximate Future of Niagara.

Professor Tyndall said that, if the rate of recession named by Sir C. Lyell, a foot a year, was correct, in 5,000 years the Horseshoe Fall would be far above Goat Island, and the American channel would be dry. Professor Holley showed that Sir Charles's rate was the result of a conjecture founded on a guess. He also, by means of the most trustworthy data we have since the commencement of the historic period, showed that it would be more than twice that length of time before the Falls would recede a mile. He also described the formation of the bottom of the river, the course and depth of the different currents and the location of the bars, all of which indicated that the American channel would never be without water.

Professor Tyndall thinks that the depth of the water will determine the course of the chasm channel as the gorge recedes, and the rate of excavation. Professor Holley cited the physical facts which tend to prove that it is the character of the bed of the river, the harder or softer nature of the material to be broken down, that will decide these points. He particularly noticed the fact that the Falls were constantly diminishing in hight as they receded, until they reached their present site, where the river makes an acute angle with its former direction. This was necessarily the case, because they were receding in the line of the dip of the underlying rock. They are now rising on the dip, and will be 50 feet higher than now when they are two miles up stream. To this bend in the river we owe one of the most beautiful features of the great cataract—the rapids above the Falls.

Do Snakes Swallow their Young?

was the title of a paper read by Mr. C. B. Goode, of Middletown University, in which he referred to the habit observed in certain snakes of allowing their young a temporary refuge in their throats, whence they emerge when danger is past. On this subject, through a note inserted in a monthly journal asking for observations, the testimony of 96 persons had been obtained. Of these, 56 saw the young enter the parent's mouth in 19 cases, the parent warning them by a loud whistle. Four saw the young rush out when the parent was struck; 18 saw the young shaken out by dogs or running from the mouth of their dead parent; 29 who saw the young enter killed the mother and found them living within, while only 13 allowed the poor parent to escape; 27 saw the young living within the parent, but as they did not see them enter, the testimony is at least dubious.

In the opinion of Professors Wyman and Gill and other physiologists, there is no physical reason why the young snakes may not remain a considerable time in the dilatable throat and stomach of the mother. The gastric juice acts very feebly upon living tissues, and it is almost impossible to smother reptiles. Toads and frogs often escape unharmed from the stomach of snakes. If the habit is not protective, if the young cannot escape from their hiding place, this habit is without parallel; if it is protective, a similar habit is seen in South American fishes of the genera *arius*, *bagrus* and *geophagus*, where the males carry the eggs for safety in their mouths and gill openings.

Professor Gill, in commenting on the above, said that the popular idea that snakes are sometimes swallowed by men and live afterwards in the stomach was an error which he was glad of the opportunity to denounce.

Professor Burt G. Wilder, of Cornell University, read several papers on the general subject of

The Brain.

This organ has been studied with three objects: the descriptive anatomy of its parts, the comparison between the brains of man and apes, the illustration of function. The proper method of preserving specimens was explained and the study of fissures especially commented upon. The speaker said in conclusion: After a pretty careful study of the specimens at my command, and the consultation of all works in which brains are accurately delineated, I feel justified in asserting that we cannot as yet characterize the fissural pattern of any mammalian order, family, genus, or even species, without the risk that the next specimen will invalidate our conclusion: that our studies in this direction should be based upon the careful comparison of accurate drawings of a much larger number of specimens than now exists in any museum; that nearly allied forms of carnivora should be compared; and that the most satisfactory results are obtainable from large series of fœtal and young brains of the same species, and if possible, family and sex, in order to eliminate minor differences.

An Automatic Filtering Apparatus

was exhibited by Dr. H. W. Wiley, which consists of an ordinary filter stone with two arms. The upper arm carries a large funnel of from one to three quarts capacity, an electro-magnet with a system of levers for working a stop to the funnel, and a glass bulb and mercury cup. The lower arm is fitted with an ordinary Bunsen funnel, in which floats the glass bulb attached by a platinum wire to a lever carrying the mercury cup. As the fluid in the small funnel falls, the float sinks, and the mercurial cup rises, until the mercury touches two platinum wires, which are the poles of a small galvanic battery connected with the electro-magnet. This completes the circuit. The armature of the magnet is pulled down, the stop in the large funnel is raised, and the liquid runs through into the small funnel until the connection is broken. This continues until the whole of the fluid runs through into the small funnel. By means of this apparatus the quantitative analyst can save several hours daily.

Dr. J. S. Newberry exhibited a series of exquisitely preserved small scaled

Fishes from the Cannel Coal of Ohio.

In these fishes every scale and fin ray is shown; and the whole animal is coated with a thin film of sulphide of iron and thus "gilded." Sharks' teeth and spines, scales and teeth of large ganoids, and skeletons of many carniverous salamanders are found all preserved in the same beautiful manner. Dr. Newberry also read a paper in which he said that the different strata which compose the geological column have been divided into several groups or systems, of which the base is formed by the old crystalline rocks called Laurentian and Huronian. Each of these systems consists of circles of deposition; first, sandstone, Potsdam, Medina, etc.: second, mixed mechanical and organic sediments, the calciferous, Clinton, etc.: third, a limestone, the Trenton, Niagara etc.: and fourth, a mixture of mechanical and organic sediment, the Hudson, Helderburg and the coal measures. Dr. Newberry claimed that each of the circles of sediments was formed by an invasion of the land by the sea, producing, first, a sheet of sea beach sand and gravel; second, the offshore deposits following and covering the first; third, the open sea calcareous organic deposit—a limestone; fourth, a mixed sediment—shale and limestone, or an earthy limestone—the product of the retreating sea. Between these submergences perhaps millions of years elapsed, in which the fauna of the sea and the flora of the land were changed. Hence the different fossils of the different geological systems.

Dr. Hill of Portland related a striking anecdote of a toad which had swallowed one end of a large earthworm, and had become so tired in its attempts to get the rest down that it was in danger of losing the whole, the worm crawling out of the toad's mouth faster than it could be swallowed. The toad then brought up its right hind foot, and grasping its stomach and the worm in it, held the worm in with its foot, taking a fresh grip after every gulp, until the job was finished.

In closing the session, Professor Lovering delivered a speech congratulating the members on the extent and variety of their labors during the past year. The usual resolution of thanks to everybody concerned in the affair were adopted, and it was afterward decided to hold the next meeting at Hartford, Conn., on the second Wednesday in August, 1874. The President elected is Dr. Le Conte, of Philadelphia; Vice President, Professor C. S. Lyman, of New Haven, Conn.; Secretary, Dr. Hamlin of Bangor: Treasurer, Wm. S. Vaux of Philadelphia.

Section Q---Scientific Fun.

A burlesque session, in which a number of the members participated, was attended by a large audience, which several learned professors managed to keep in convulsions of laughter for an hour or more.

Professor Morse, taking the chalk, stepped to the blackboard and began the reconstruction of an unknown animal, a fragment of bone belonging to which had been found. Proceeding step by step and speaking as he sketched, he quickly built up the figure of a hideous tomcat. Then he suggested certain anatomical objections and improvements which produced amusing changes in the drawing. Finally he concluded to restore the fragment on a different hypothesis, and by a few strokes revealed the true character of the fossil, which proved to be the handle of a jug. Professor White, discoursing on ancient shell heaps, produced a heavy bag, which, he said, contained specimens collected near Portland. A broken shovel, a stone bottle, a lobster, and a pile of clam shells were recognized, amidst peals of laughter, as relics of the recent clam bake participated in by the Association. Each separate article was then described in connection with the peculiarities of the race that had used it, as indicated by its condition. Perhaps the most amusing of these was a corn cob, which indicated the size of the mouth by the bite that had been taken out of it. A blackboard drawing was then made to illustrate a race with these peculiarities. "You can infer," said the speaker, alluding to a paper of no great value read the previous day, "that the length of this mouth indicates that its maternal grandmamma must have been very long lived."

Several other speakers read ludicrous papers, their remarks being illustrated by Professor Morse with grotesque sketches on the blackboard.

VIENNA PREMIUMS AND SEWING MACHINES.

We copy the following from the New York *Herald* of August 12th:

THE REGION OF THE SEWING MACHINES.

If Dante had been gifted with the spirit of prophecy, he would have set apart a region in his *Inferno* to illustrate the rivalries and emotions of the sewing machine manufacturers of the United States. The conflicts, the misunderstandings, the ambitions, the yearnings for approbation and notoriety, the odd, incessant efforts to win medals of progress and renown and merit and honor, which inspire the gentlemen who manage this industry, have given constant motion and life to the American department. So, when His Majesty came into the sewing machine department, every effort was made by our Commissioners to introduce him to each special machine and explain its peculiar qualities. Let me give you a list of the machines in the catalogue, so you may know what His Majesty was asked to do. First, the Howe Machine Company, New York; then the Singer Manufacturing Company, New York; the Whitney Sewing Machine, Paterson, N. J.; the Wheeler & Wilson Sewing Machine Company, New York; the Wilson Sewing Machine Company, Cleveland, Ohio; the Wilcox and Gibbs Sewing Machine Manufacturing Company, New York; Ezra Morrill & Co., Derby Line, Vt.; George N. Bacon & Co., London, England; the Weed Sewing Machine Company, Hartford, with the patent effective stop motion of Fairchild's attachment; the Secor Sewing Machine Company, New York; the Mackay Sole and Shoe Machine, Cambridge; the Universal Feed Sewing Machine Company. Every exhibitor expected a special visit from the Emperor, and His Majesty, with a patience and courtesy that should be commended, endeavored to visit them all.

After waiting a few minutes to comprehend the explanations to him of the advance of the industry so largely represented in America, the Emperor continued his tour of the other departments, especially inquiring of his attendants what different principles were presented by each separate machine, in what respect one machine differed from the other—all of which was explained to him, especially the new principle of the patent stop, or the application invented by Mr. Fairchild, and now owned by the Weed Machine Company, by which the action of the needle is arrested by the pressure of a spring, without stopping the motion of the wheel.

In the New York *Herald* of August 19th, we find awards were made as follows:

To the Wilson Sewing Machines of Cleveland.

Elias Howe Sewing Machine Company, for sewing and stitching.

Wilcox & Gibbs Sewing Machine Company of New York, for best single thread sewing machine.

The Weed Sewing Machine Company, for best stop motion applied to sewing machine treadles.

The Wilson Sewing Machine Company being the only exhibitor that received a grand prize medal for the best sewing machine, and medals of honor.

Small Fast Steamers.

J. C. X. states that he and a friend are building a small steamer, of the following dimensions: Length 24 feet, width amidships 6 feet 4 inches, hight amidships 3 feet and at stern 4 feet. She has a white oak keel, her ribs are of hickory, and she is built up with a double thickness of half inch white pine boards, all joints being lapped and tarred. She is covered with sheet zinc, the joints being lapped and soldered. "The boiler is an upright tubular, 3 feet high, 20 inches diameter, and has 19 two and a half inch flues, with a fire box 18 inches diameter and 1 foot high. The engine, attached to the boiler perpendicularly, is of about the same power as the boiler, and has double cranks set at right angles. The boat will be propelled by a 20 inch screw of four blades, each blade having a pitch of 6 inches, with space between each blade of one third the size of blade, and is so constructed as not to make any wave towards the banks of the canal. She is expected to run at from 8 to 12 miles an hour. The boat and all the machinery have been constructed by us two, it being our first piece of carpenter work. We are both machinists, and everything was done between work-