More Beer and Less Whisky.

According to the internal revenue returns, the citizens of the Republic are drinking less whisky and more beer. Whisky—that part of it which paid revenue tax, at least—fell off from 57,000,000 gallons for the fiscal year of 1877 to 50,704,000 in 1878—a difference of nearly 6,300,000 gallons. For the same time, the revenue-paying beer increased from 9,480,000 barrels to 9,937,000 barrels—an increase of 457,000 barrels, or 1,371,000 gallons. During the last 10 or 12 years, if not longer, there has been a perceptible diminution here, considering the ever growing census, in the consumption of whisky and others liquors, and a corresponding increment of beer, as is shown by a decrease in drunkenness and its attendant ills.—*New York Times.*

Engineering Inventions.

An improvement in Gearing has been patented by Mr. W. J. McDougall, of Kendall Creek, Pa. This invention consists in the combination of two or more sets of three or more cranks, loose wheels, and flexible connecting wires or wire ropes for transmitting motion from the driving power to the machinery to be driven.

An Electric Railway Car Signal has been patented by Messrs. Carl L. Mees and Israel A. Sherman, of Louisville, Ky. This invention consists in combining a signal device upon the locomotive with two circuit wires extending through the cars of the train, and with peculiarly constructed circuit-breaking connections extending from one car to the other, whereby the parting of the cars, or any one of them, automatically transmits to the engineer a signal to that effect.

Messrs. L. S. Chandler and Samuel N. Silver, of Auburn, Me., have patented an improved Engine which may be used as a water engine, a stationary or locomotive steam engine, a water pump, a steam pump, or a steam fire engine. It is simple, effective, and will work without pounding or back pressure.

The Order of Mental Progress Science-ward.

In summing up the points of his review of what we may call the evolution of science, before the Science Association at St. Louis, August 22, Prof. Newcomb traced the gradual ascendency of scientific over teleological thought, as follows:

First, When men study the operations of the world around them, they find that certain of those operations are determined by knowable antecedent conditions, and go on with that blind disregard of consequences which they call law. They also find certain other operations which they are unable thus to trace to the operation of law.

Secondly, Men attribute this latter class to anthropomorphic beings, or gods having the power to bring about changes in nature, and having certain objects, worthy or ignoble, in view, which they thus endeavor to compass. Men also believe themselves able to discern these objects, and thus to explain the operations which bring them about. The objects aimed at by these supernatural beings are worthy or ignoble, according to the state of society; in ancient times they were often the gratification of the silliest pride or the lowest lusts.

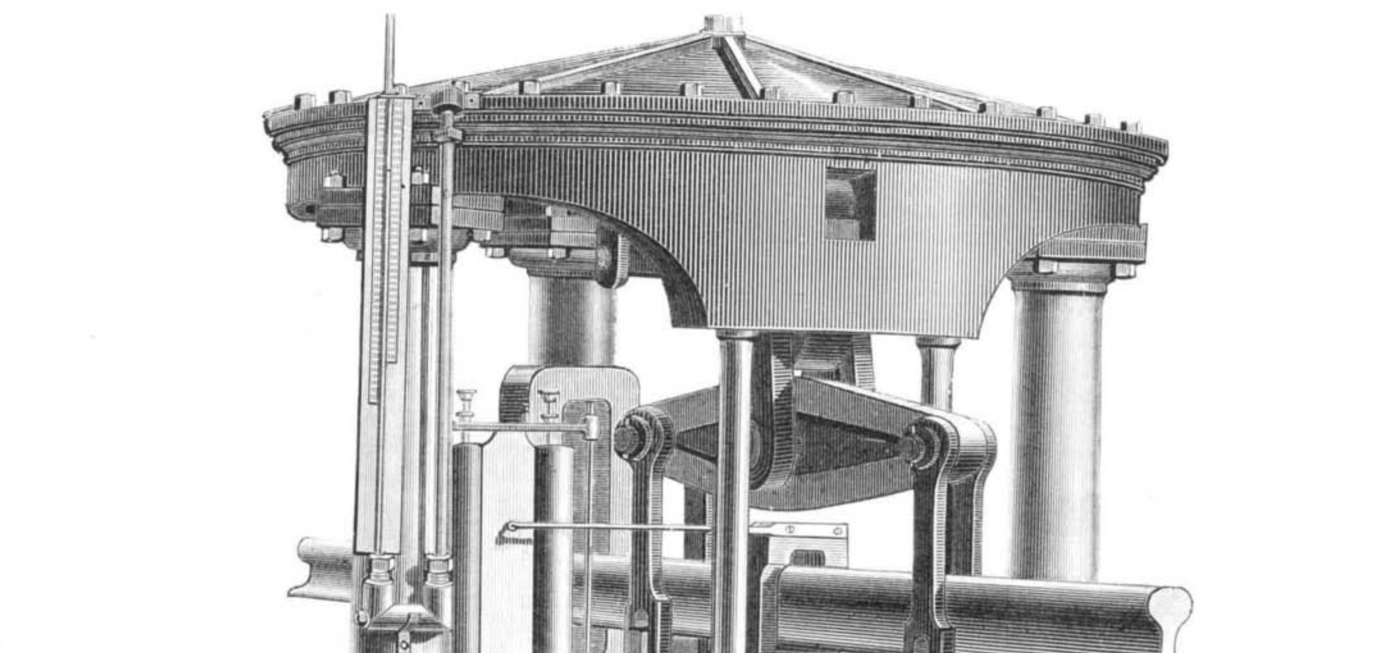
Thirdly, As knowledge advances, one after another of these operations are found to be really determined by law, the only difficulty being that the law was before unknown or not comprehended, or that the circumstances which determined its action were too obscure or too complex to be fully grasped by the mind.

Fourthly, Final causes having thus, one by one, disappeared from every thicket which has been fully explored, the question arises whether they now have or ever had any existence at all. On the one hand it may be claimed that it is unphilosophical to believe in them when they have been sought in vain in every corner into which light can penetrate. On the other hand we have the difficulty of accounting for these very laws by which we find the course of nature to be determined. Take, as a single example, the law of hereditary descent; how did such a law, or rather, how did such a process, for it is a process, first commence? If this is not as legitimate a subject for inquiry as the question, How came the hand, the eye, or the first germ into existence? it is only because it seems more difficult to investigate. If, as the most advanced scientific philosophy teaches, creation is itself but a growth, how did that growth originate? We here reach the limits of the scientific field, on ground where they are less well defined than in some other directions; but I shall take the liberty of making a single suggestion respecting a matter which lies outside of them. When the doctrine of the universality of natural law is carried so far as to include the genesis of living beings and the adaptations to external circumstances which we see in their organs and their structure, it is often pronounced to be atheistic. Whether this judgment is or is not correct, I cannot say, but it is very easy to propound the test question by which its correctness is to be determined: "Is the general doctrine of causes acting in apparently blind obedience to invariable law in itself atheistic?" If it is, then the whole progress of our knowledge of nature has been in this direction, for it has consisted in reducing the operations of nature to such blind obedience. Of course, when I say blind, you understand that I mean blind so far as a scrutable regard to consequence is concerned—blind like justice, in fact.

If the doctrine is not atheistic, then there is nothing atheistic in any phase of the theory of evolution, for this consists solely in accounting for certain processes by natural laws. I do not pretend to answer the question here involved, because it belongs entirely to the domain of theology. All we can ask is that each individual shall hold consistent views on the subject.

TESTING MACHINES AT THE PARIS EXHIBITION.

Messrs. Chauvin & Marin-Darbel, of Paris, have somewhat numerous exhibits of their manufacture at the Exhibition, among the rest some testing machines of a type which they brought out in 1876, and which we illustrate by the engravings on the present and opposite pages, for which we are indebted to *Engineering.*



TESTING MACHINE AT PARIS EXHIBITION.—Fig. 1.

Fig. 1 represents a 60-ton machine for tension, compression, and bending, shown in the engraving as arranged for bending stress. Fig. 2 shows the apparatus used for registering strains in the same machine when it is used for extension or compression. Fig. 3 is a machine for testing wire, and Fig. 4 a machine for testing paper, woven fabrics, or threads. All these machines act on the same principle, which may easily be described by the help of Fig. 1. Attached to the entablature of the machine, which is supported by three cast iron columns and two smaller ones of wrought iron, is a cast iron cover, slightly conical. Below this cover is a similarly shaped diaphragm, supported round the edge by a ring of India rubber so as to permit its motion up and down. The diaphragm fits up into the cover so that only a small space is left between the surfaces of the two. This space is filled up with water, all the air being carefully expelled from it. The lower portion of it is then put in communication with a bent tube filled with mercury, the outer end of which is open and stands above the level of the top of the machine, as shown attached to the left hand column in Fig. 1. It will be readily understood that under these conditions the separation of the diaphragm and the cover, that is to say, the pulling down of the former, is resisted by the atmospheric pressure from below. As the separation is effected the mercury passes from the tube into the space between the two surfaces, and the depression of the level of the mercury forms a measure of the amount of separation which has taken place, and hence of the force which must have been exerted to cause that separation.

Underneath the diaphragm, and connected with it at the center, is placed a lever, one end of which is fixed and the other attached to the object to be tested. In Fig. 1 this attachment is made to a second lever carrying hanging links and knife edges for the rail which is to be bent. The lower end of the test piece (or, as in Fig. 1, the center of the bar to be bent) is connected to the upper end of a hydraulic ram, the cylinder for which forms part of the base plate of the machine. The ram and parts connected with it are balanced by a counterweight carried by levers, shown to the right of Fig. 1. The load is applied to the test piece, as usual, by simply pumping water into the ram cylinder, and so forcing down the ram. At the side of the column of mercury are scales on which the alteration in its level can be read, the one being marked in kilogrammes simply, the other in kilogrammes per square millimeter. The scales are movable, so that the zero point can be adjusted at each experiment to the level of the mercury, which must, of course, alter with the weight of the piece to be tested. The scales are determined by calculation and verified by actual application of weight to the diaphragm. Somewhat primitive apparatus is attached for recording deflections (Fig. 1) and alterations of length (Fig. 2). It is assumed, at least in the former, that the whole drop of the diaphragm is too small to be worth measuring. The machine is made in four sizes, namely, 15, 30, 60 and 100 tons; that exhibited at Paris is for 30 tons.

The machine shown in Fig. 3 is for a maximum load of 2 tons, the same type being also made for 5 tons and for 10 tons. The entablature is here supported by two columns only, and the effort is applied by hand gearing instead of by a pump. The lever under the diaphragm is also dispensed with, the wire being attached directly to its center. The neat little machine for paper, etc. (Fig. 4), is, of course, simpler still; in it one of the columns is made to inclose the mercury gauge. Its maximum load is 30 kilos.

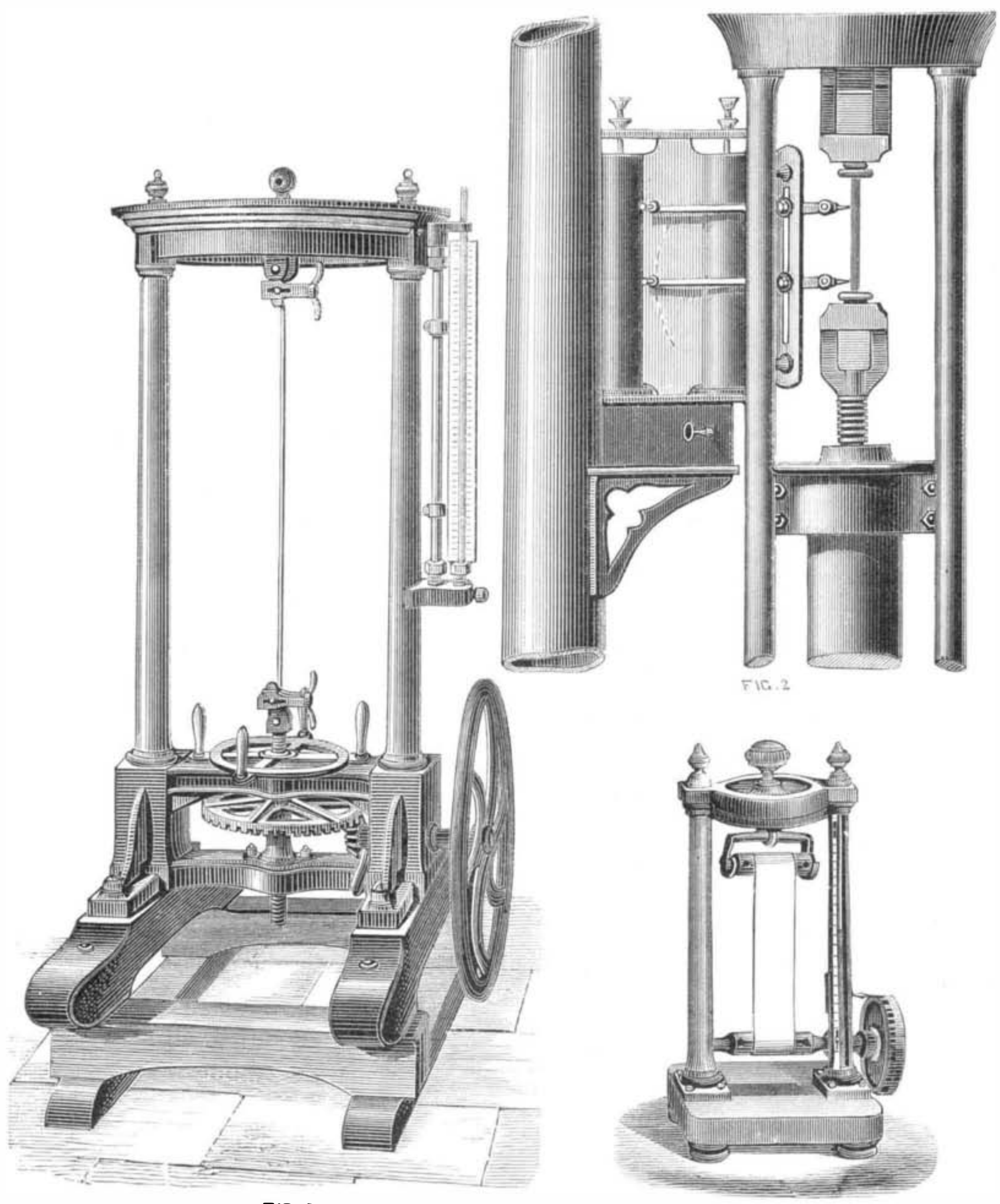


FIG. 2 EIG. 3 FIG. 4

TESTING MACHINES AT THE PARIS EXHIBITION.

The Study of Common Things.

Speaking of the grievous neglect of attention to common things and common employments as means of education, the Philadelphia *Public Ledger* sensibly remarks that "it is in the study of common things, that are so plentiful all around us, but so little understood, that an education may be gained of which at present we have only begun to conceive. Schools are numerous, books are abundant, every child is now made master of the elements of learning, yet there is a lack of practical education; the effects of the school are apt to fade away on the farm and in the factory, and a separation, if not an antagonism, often takes place between study and daily life. We need a bridge which will carry the scholar with his habits of study and inquiry safely into the life of profitable labor, without obliging him to drop what he has taken so much pains to gain. Such a bridge may be found in the study of common things. Ordinary life pursuits furnish abundant material for such study. Every object we see or handle in every-day life has a history well worth perusing, a composition well worth analyzing, a future well worth conjecturing. However common it may be, it has that in it, and about it, which will forever prevent it from being commonplace. Every employment we engage in, however mechanical or insignificant it may seem, will escape from all such odium if it is pursued with an active brain as well as a busy hand—if its resources are examined, its history studied, its methods compared, its best purposes followed. Such education will make labor far more valuable by introducing into it the element of thought; it will increase the power of observation, and stimulate the curiosity, which is the germ of all knowledge; it will invest the world of common things with richer meaning and keener flavor; and best of all, it will give continual occupation to those higher faculties of man which are apt to rust in the tame routine of every day life, when not thus lifted out of the region of commonplace."

New Inventions.

An improved Mechanical Telephone has been patented by Messrs. Schuyler S. Parsons, Francis R. Shaw, and George N. Daniels, of Chatham Center, Ohio. This invention consists of a diaphragm of cloth or other textile fabric, mounted in an open wooden case. The transmitting wire branches out into a number of smaller wires, jointed to the main wire and attached to the diaphragm. The main wire is hung to insulators, made of sheepskin, placed in a frame with a central opening, the frame and sheepskin being slitted, and the latter re-enforced at the slit.

An improved Checking Device for Horses has been patented by Mr. Joshua Davies, of Muskegon, Mich. This invention is designed to furnish for horses an improved adjustable check by which the head of the horse may be retained at any point and checked or unchecked with great facility from the driver's seat.

Mr. David S. White, of Tolono, Ill., has devised an improved Folding Chair, suitable for an ordinary chair, an arm chair, and a rocking chair, which may be changed from one to the other without lessening the feasibility of folding it up to occupy a small space.

Mr. Jacob L. Friedriech, of West Branch, Mich., has patented an improved Bag Holder. The object of this invention is to provide for quickly and readily attaching a bag to a hopper or spout, or detaching the same, and adapting the holder to various sized bags.

Mr. Benjamin F. Sellers, of Garden Prairie, Ill., has patented an improved Barb Winder, which consists in the combination of a pair of double holding jaws for retaining the fence and barb wires, a revolving spring-pressed mandrel or head, having a hooked coiling head and adapted to receive the fence wire, a forked bar forming a bearing for the coiling mandrel, and a forked handle or crank for rotating the coiling mandrel.

An improved Process for the Manufacture of Illuminating Gas has been patented by Mr. Daniel W. Hunt, of Oskaloosa, Iowa. This invention consists in utilizing coal tar by distilling it, together with petroleum and steam, and converting the mixture into a fixed gas in a separate hot retort, and mixing this gas while hot with ordinary coal gas. The vapors of the oil and tar mingle with the gas from the coal and with the decomposed steam, and unite and form a fixed gas of a high illuminating power.

Mr. Philip Lamboy, of Schenectady, N. Y., has patented an improved Broom Handle. The upper end of the handle is turned down smaller than the main portion, to receive the tube or sleeve, which may be of wood, paper, or metal, and of sufficient length to be grasped readily by the hand. In use the sleeve or revolving portion is grasped by the hand, and the broom can be turned without moving that hand, thereby facilitating the labor of sweeping.

An improved Cake Griddle has been patented by Mr. Jonathan V. Taylor, of Lansingburg, N. Y. The fixed plate is provided with raised lugs, on which the hinged plate is supported, so as to admit air to the cakes dumped by the swinging plate. The hinged plate is also provided with a hinged handle, that is retained by a projecting shoulder in upright position, and which admits the swinging over of the hinged plate without inconvenience.

Mr. John N. Valley, of Jersey City, N. J., has patented an improved Spring Bed Bottom. The object of this invention is to provide an improved and adjustable elastic bottom for beds, and in which the tension of the springs may be varied to suit the weight of the occupant.

An improved Combined Thill and Harness has been patented by Mr. Royal B. Boynton, of West Townsend, Mass. The object of this invention is to furnish improved means for connecting a horse to the thills, so as to relieve the horse from any pressure around his chest which might interfere with his breathing and circulation.

Mrs. Henry Dormitzer, of New York city, has recently secured improvements on a previously patented Window Cleaning Step Chair. These improvements consist in a folding auxiliary step connected with the chair bottom or platform, which facilitates the cleaning of the upper part of the window; and also in a novel arrangement of eccentrics for clamping the chair securely in place.

New Mechanical Inventions.

Mr. Henry C. Strong, of Mauston, Wis., has patented an improved Saw Gummer. This is a time and labor saving machine for cutting, gumming, and shearing saw teeth. It may also be used as a punch.

Mr. Ignatz Frank, of New York city, has patented an improved Machine for Cutting Roll Paper, to be used as telegraph paper, ribbon paper, hat binding, and for other purposes, the machine accomplishing the cutting of a number of strips at the same time, and winding them on a mandrel.

Messrs. George L. Carlton and George H. Crager, of Omaha, Neb., have patented an improved Locking Hinge for Sleeping Car Berths. This invention is particularly intended for use in connection with a folding berth in a sleeping car, but is applicable to other cases where a bolt and hinge are employed in connection with each other. The principal object of the invention is to provide means for locking the folding portion of a berth and holding it securely in place when the berth is open for use; and also, under certain circumstances, when closed, to hold it sufficiently fast to prevent it from being accidentally displaced, but allow it to be readily opened, when desired, by the attendant or the occupant.

Mr. John C. Lewis, of Charlottesville, Va., has patented an improved Nut Lock, which consists in combining a leather or other soft or elastic washer with two nuts having adjacent ratchet faces, and arranged respectively upon right and left threads on the bolt, the leather washer being first wetted to soften it, and then compressed between the ratchet teeth of the nuts, so that the two nuts are rigidly connected and both prevented from turning.

An improved Machine for Dressing Printing Type has been patented by Mr. Thomas Mason, of 14 Cross street, Islington, Great Britain. This is a machine having reciprocating files, which dress the sides and edges of the type. It also consists in a device for feeding the type from one set of reciprocating files to another, and also in a device for nicking the bottom end of the type.

Mr. John H. Kersey, of Columbus Junction, Iowa, has patented a Mechanical Movement for driving light machinery, such as circular saws, small thrashing machines, churns, cider mills, etc., or for propelling boats, vehicles, street cars, etc.; and the invention consists of the combination of two or more operating and transmitting levers and crank rods with a compound crank shaft, and with means for transmitting the motion from the same.

Mr. George B. Hall, of Fort Plain, N. Y., has patented an improved Peanut Roaster, which consists in a novel arrangement of a stationary outer cylinder, a revolving inner cylinder, and driving mechanism, whereby provision is made for rotating the inner cylinder above a kerosene stove or other heater, and for thoroughly roasting the contents of the inner cylinder.

Brain Capacity.

At a recent meeting of the British Association, Professor W. H. Flower read a paper "On the Methods and Results of Measuring the Capacity of Crania." Of all the measurements by which they could determine the difference between the human skulls of people of one race and of a foreign race, perhaps the most important was that which gave the cubic capacity of the great cavity of the skull which contained the brain. Many ways of ascertaining it had been tried. Some persons laid great stress on the weight of the brain, but for his part he thought that on the whole if the capacity of the skull could be got it would be more valuable. The weight of the brain differed very much according to the age or physical conditions of the person when he died, and there were certain diseases which went to increase the specific gravity. But when the actual capacity of skull was found they had the actual capacity of the brain at the time of health.

There was another very important reason why they laid stress on obtaining the capacity of the crania in preference to the other method. It was because all their museums now contained a number of skulls from different parts of the earth, some of which were very inaccessible to scientific observation, and it was, of course, impossible to ascertain the actual weight of the brains of these people after death.

Then, again, how could they get the capacity of the skull by the weight of the brains in cases where the races had become extinct, such as the Tasmanians, many of the Polynesians, the ancient Britons, and the ancient Irish, and others, specimens of whose skulls they possessed, and by which they could ascertain the capacity of the brain? He supposed he would be expected to say at once whether he attributed any great and direct importance to the weight and age of the brain as an indication of intelligence. Well, he thought it was one of the very many points that had to be considered in this question; but he thought there were a great many other things to be remembered in this view of the question. For instance, many people had large brains and did not know how to use them, and some who knew how to use them did not try to do it. They would see that many of the races that were naturally considered the higher races, and had taken the lead in the civilization of the world, had undoubtedly larger cranial capacities than the peoples who were at the bottom of the ladder of civilization. He would never accept the mere fact of a man's head being large as an indication of superior intelligence, but it was one point to be considered.

The measurement of the skull was not only an important but it was also a difficult work, more difficult in fact than a great many people supposed, and a great many of the uncertain results that had been obtained on this subject were owing to the persons who had taken the matter in hand not having yet discovered the best and most certain method of carrying out the investigation.

A large number of measurements published were only of an approximate value, owing to the numerous fallacies and difficulties experienced in arriving at a satisfactory method of measurement. Nothing, apparently, could be easier than to take a skull and stop the cavities, and pour some fluid into it, and then pour it out and measure it; but they could not do this with the skull, as the bone was very porous and full of minute invisible holes, through which the fluid soaked as it would through a sponge. It was only by making the skull waterproof that they could seek to measure its cavity by a fluid. He had a skull by him which had been so prepared. The large holes had been filled with wax and the skull soaked in melted paraffin, which filled up the minute cavities, and when it was cooled it was as impervious to any fluid as delft. But the materials that had to be used in testing the capacity of the skull must be something solid. Various things, such as shot, grain, etc., had been used. He would pass over the various methods that had been tried and failed, and which would be found recorded in the *Transactions* of the Anthropological Society of Paris, and speak of two methods which, at the present time, meet with the greatest amount of success. One was the method of M. Broca, and the other the method of Mr. Busk. The latter had shown such good reasons for his plan that he thought it particularly safe to try it, and after doing so he had adopted it with some modifications. He filled the skull with mustard seed well shaken, and pressed in with the thumb, and then poured the seed into a long wooden box with glass sides, in which it was well shaken and pressed down. The figures on the glass indicated the spaces filled. This he thought was the most satisfactory way as yet invented, and they could hardly hope for better. He always kept his experimental skull by him when measuring other skulls, in order that he might occasionally go back to it to see if he had gone wrong.

Now, as to the measurement of the skulls of the different races of the human family, a very important point to consider, and a very difficult one, was the sexes, because there was a great difference in the size of the skulls; a much greater difference than there was between men of different races. To get the average of any race they must get a large number of skulls, and he must say their collection was very insufficient at present. According to a comparison between the skulls of sixty-three men of various races, and skulls of twenty-four women, the ratio of the woman's skull to the man's was as 854 to 1,000. The largest no mal skull he had ever measured was as much as 2,075. He knew nothing of its history. It might have been the head of a great philosopher, but unfortunately they were not in the habit of getting the heads of philosophers in their museum. Nearly all the English skulls were those of persons in the lowest ranks of life. It was these they had to compare with the specimens of other races. The smallest head he had measured was 960 centimeters, and that belonged to one of those peculiar people in the center of Ceylon, who were now nearly extinct. The largest average capacity of any human head he had measured was that of a race of long, flat headed people on the west coast of Africa. The Laplanders and Esquimaux, who were a very small people, had very large skulls. The latter gave an average measurement of 1,546. He then came to the English skull, which was nearly the same size—1,542; but, as he had said, they belonged to the lower grades of English skulls. He could not tell them anything about Irish skulls, for there was not a single specimen of the Irish skull in any London museum. The inhabitants of the Canary Islands give a capacity of 1,498; the Japanese, 1,486; the Chinese, 1,424; the modern Italian, 1,475; the ancient Egyptian, 1,464; the true Polynesians, 1,454; negroes of various kinds, 1,377; the Kaffirs, 1,348; Hindoos, 1,306. They then came to the Australian aborigines, who were among the smallest, only giving an average of 1,283. There were two races still below the Australians, namely, the Andamanese, who were a very diminutive people, with a capacity of 1,220, and the Veddahs, of Ceylon, who had an average skull.

The President (Professor Huxley) said he might, without hesitation, offer the best thanks of the Section to Professor Flower for the important and interesting paper he had just read. Persons not ordinarily occupied with scientific pursuits might not be aware of the amount of care that had to be taken when it was desired to do any good in scientific matters in obtaining data, which data would, when obtained, pack into the very smallest possible results. It would be seen what care was required to obtain measurements of the cubical contents of the skulls, and yet the whole of the labor, if Mr. Flower published his paper, as he hoped he would, would go into the space occupied by the three or four rows of figures. There was one very interesting question he wished to put to Mr. Flower—whether it was possible to establish not only a series of absolute measurements of the capacities of the skull, but also some kind of index of capacity in which can be expressed the ratio of capacity of the skull to the stature of the person to whom it belonged; or if it was impossible to obtain that, yet even to obtain such data as would show the relation between the contents of the skull and the length of the part of the skull which was, as it were, the foundation of the skull.

Paper Fiber from Woods and Plants.

According to the experience of the paper manufacturers, De Naeyer & Co., of Belgium, different sources of paper fiber furnish the following percentages:

WOODS.

Common Names.	*Scientific Names.*	*Yield Per Cent.*
Heath	Erica vulgaris	27·14
Filbert trees	Corylus avellana	31·50
Alder	Alnus glutinosa	34·30
Bamboo	Bambusa thonarsu	34·82
White pine	Abies pectinata	34·60
Horse chestnut	Æsculus hippocastanus	38·26
Oak	Quercus robur	29·16
White poplar	Populus alba	35·81
Red pine	Pinus sylvestris rubra	32·28
Elm	Ulmus campestris	31·81
Ash	Fraxinus excelsior	32·28
Black alder	Rhamnus frangula	37·82
Fir	Pinus sylvestris	35·17
Osier	Salix alba	29·50
Canadian poplar	Populus Canadensis	36·88
Beech	Fagus sylvatica	30·90
Pitch pine	Pinus Australis	31·08
Walnut	Juglans reg a	26·52
Willow	Salix alba	37·82
Birch	Betula alba	33·80
Italian poplar	Populus Italica	36·12
Acacia	Robina pseudoacacia	34·10
Lime tree	Tillia Europea	38.16
Rattan	Calamus verus	29.19
Aspen tree	Populus tremula	35·00

HERBACEOUS PLANTS.

Camelina	Camelina sativa	29·16
Bent grass	Ag ostis spica venti	45·82
Buckwheat	Fagopyrum esculentum	30·60
Marsh rush	Scirpus palustris	41·70
Banana	Musa ensete	31·81
Mateva	Hyphœne Thebaica	26·08
Oats	Avena sativa	35·08
New Zealand flax	Phormium tenax	32·71
Asparagus stalks	Asparagus officinalis	32·56
Marsh grass	Glyceria aquatica	38·80
Maize	Zea maïs	40·24
Reed	Phragmites vulgaris	41·57
Canna	Canna	20·29
Rye	Secale cereale	44·12
Giant nettle	Urtica dioica	21·66
Sugar cane	Saccharum officinarum	29·15
Barley	Hordeum vulgare	36·21
Sedge	Carex	33·86
Wheat	Triticum sativum	43·14
Fromenteau	Baldengera Arundinacia	46·17
Blue flag	Enodium cœruleum	40·07
Hop	Humulus lupulus	34·84
Canary grass	Phalari Canariensis	44·16
Wild broom	Spartium scoparium	32·43
Dog's grass	Triticum repens	28·38

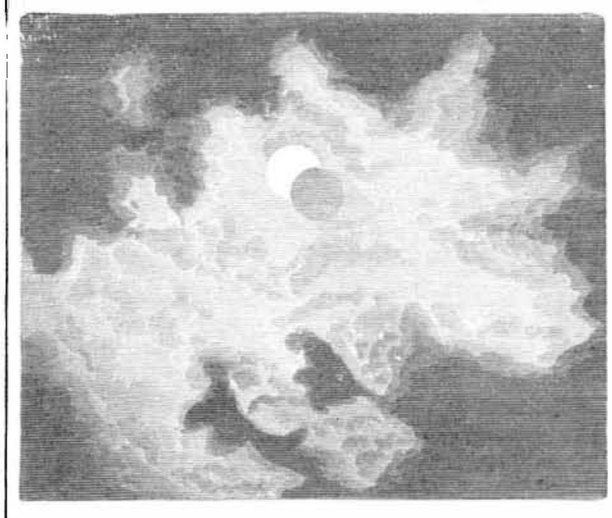
The Whitehead Torpedo in Battle.

Admiral Po ter, U.S.N., has but small regard for the torpedo most approved by European authorities. In his article on torpedo warfare, in the September number of the *North American Review*, he says:

"To show the unreliability of the Whitehead torpedo, I will refer to the engagement between the Peruvian ironclad Huascar and two British men-of-war. The Shah, one of the latter, sent a fish torpedo against the Huascar, which, seeing bubbles of air rising to the surface, avoided the machine, and it ran straight into a harbor near by; there, the compressed air being gradually expended, the torpedo rested quietly alongside a Dutch merchant vessel at anchor, with no power to do harm. The Dutch captain, seeing what he supposed to be a live fish alongside, got out his fishing tackle, but was disgusted at not getting a bite; only after several unsuccessful attempts with a harpoon did he discover the nature of his visitor. The Whitehead may, under certain circumstances, be a destructive instrument, but, owing to its erratic movements, it is liable in the heat of battle to prove dangerous to its friends. The torpedo vessel will, in the end, I am convinced, prove a most effective and certain means of offense, as its movements are at all times under the entire control of its commander, who can select his own time for attack and retreat."

THE RECENT ECLIPSE OF THE SUN.

Our engraving is from a photograph of the eclipse taken July 29 by Mr. J. E. Ender, of Yorkville, Ill. The photograph itself is a beautiful specimen of the art; and although



our engraver has done very well, still the picture does not show the delicate and interesting gradations of light which the original presents.

ASTRONOMICAL NOTES.

BY BERLIN H. WRIGHT.

PENN YAN, N. Y., Saturday, October 5, 1878.

The following calculations are adapted to the latitude of New York city, and are expressed in true or clock time, being for the date given in the caption when not otherwise stated.

PLANETS.

	H.M.		H.M.
Mercury rises	4 54 mo.	Saturn in meridian	11 00 eve.
Venus rises	4 45 mo.	Uranus rises	2 43 mo.
Mars rises	5 34 mo.	Neptune rises	6 45 eve.
Jupiter sets	11 43 eve.	Neptune in meridian	1 34 mo.

FIRST MAGNITUDE STARS, ETC.

	H.M.		H.M.
Alpheratz in meridian	11 03 eve.	Procyon rises	0 19 mo.
Mira (var.) rises	7 27 eve.	Regulus rises	2 22 mo.
Algol (var.) in meridian	2 05 mo.	Spica	invisible.
7 stars (Pleiades) rise	7 13 eve.	Arcturus sets	8 24 eve.
Aldebaran rises	8 32 eve.	Antares sets	7 44 eve.
Capella rises	6 00 eve.	Vega in meridian	5 35 eve.
Rigel rises	10 39 eve.	Altair in meridian	6 47 eve.
Betelgeuse rises	10 24 eve.	Deneb in meridian	7 39 eve.
Sirius rises	0 44 mo.	Fomalhaut in meridian	9 52 eve.

REMARKS.

Saturn will be about 7° south of the moon early in the evening of October 9.

To the amateur telescopist it will be interesting to observe Jupiter's satellites October 9, from 6h. 55m. evening to 10h. 34m. evening. At 6h. 55m. evening the first begins a transit, and with small telescopes seems to disappear at Jupiter's eastern limb, larger ones being able to follow it in its passage across the disk. At 8h. 14m. its shadow also crosses the eastern limb, and follows the course of the satellite, and may be seen with a telescope of very ordinary power and aperture. At 9h. 15m. the satellite emerges from the western limb, and its shadow 1h. 19m. later. At 10h. 34m. evening, his satellites will be disposed as follows: The first is close to the western limb, its apparent motion being from the planet; the second is three times as far east as the first was west, and is approaching the planet; the third is twice as far east as the second, and moving from Jupiter; while the fourth is almost at its greatest distance from the planet east, being about four times the distance of the third and nearly stationary.

Roasted Table Salt in Intermittent Fever.

Les Mondes quotes from a Marseilles medical journal a simple remedy for periodical fevers, which has been used very efficiently for many years by Dr. Brokes in his journeys in Hungary and America.

The directions are to take a handful of powdered white salt, such as is used in kitchens, and roast it in a clean stove (new, if possible) with moderate heat till it becomes of a brown color, like that of roasted coffee. The dose for an adult is a soupspoonful dissolved in a glass of warm water, taken at once. It should be stated that when the fever makes its appearance at intervals of 2, 3, or 4 days, the remedy should be taken fasting, on the morning of the day following the fever. To overcome the thirst excited by the salt, but a small quantity of water should be taken through