Scientific American

NEW YORK, SEPTEMBER 28, 1850.

Genius is Democratic.

It is related that on the evening before the battle on the Plains of Abraham, Gray's "Elegy on a Country Church Yard" was read in a circle of officers, among whom was Wolf, the commander-in-chief. So fascinated was he with that incomparable poem, that he exclaimed, "I would rather be the author of that poem than the conqueror of Quebec." Wolf was right in his estimate of imperishable fame. The conquest of Quebec and the name of Wolf, appear as specks upon the page of history,—but while the sun shines on the hills of England, the prairies of America, and the mountains of Gilboa, the name of Gray will be revered, and his "Elegy" will continue to influence and inspire thousands of hearts in every part of the world. If Wolf had survived, he would no doubt have been made a Peer, as warriors and statesmen seem to be the only kind of men worthy of such honors in England; but what is it to bequeath the family title of Duke or Lord, in comparison with living "with the living for ever," like Gray. Long rows of ducal coronots on gilded escutcheons, nod gloomily in a hundred noble vaults of old England, but what are the titles of the dead to the living?

By late accounts from Europe, it is stated that Robert Stephenson was offered knighthood, and refused it. The reasons for such a refusal he knows best himself, but the title of Baronet could not elevate him, as a man, one step above his present position—it would not confer on him a single honor. Nevertheless, we cannot but say that we like Queen Victoria for the offer. As this is the way aristocratical governments honor their citizens, we feel some pleasure in knowing that engineering attainments are highly estimated by the present British Ministry.

We have also been informed that M. Farrady had been offered knighthood, and refused it from religious motives. That great and good man has no earthly ambition but to do good, and labor for immortality. This reminds us of the offers of knighthood made to Benjamin West, and refused; to James Watt, and refused, and the Peerage to Robert Peel, and refused. Titles could not add honor to the fame of any of these men.

Our object, in this article, is principally to notice the simple dignity, and what we would call "noble humility" of those great men who refused the titles offered them by the admiring sovereigns of their country. It is well known how these honors are coveted by thousands, —some would give their weight in gold to wear such honors, but those men whose names we have mentioned, were made of other stuff.

It would be well if some of our own people —those who are so fond of the titles Honorable, Squire, Colonel, Captain, &c.—would learn a lesson from the conduct of those great men.

Our own Ben West, the great painter, was modest; James Watt, the inventor of the steam engine, was meek and retiring; Farrady, the profound chemist, is humble, and Stephenson, the great engineer, appears to have no desire for honors conferred by one who "can make a belted knight, a lord, and duke, and a' that," but who cannotmake an honest, honorable, nor talented man. Genius is truly Democratic—the names of those great men may go down to posterity untitled, but not unhonored nor unsung—for they were and are noblemen of the human race.

Our Foreign Correspondence.

We call particular attention to our correspondence of this week. Every thing said in it may be relied on, and we can say this much for it,—it is from a source which the proudest paper in the United States might envy. We hope our people will take a lesson from the manner in which justice is administered in Scotland in respect to steamboat accidents. Allison says that justice is perhaps better administered in that country than in any other. Our Southern readers will find something interesting about cotton, and every body will be interested with the valuable discoveries mentioned as having taken place in Nineveh.

Machine for the Artificial Production of Ice.

Our constant readers may remember a communication published in Volume 4, respecting an invention of Dr. Gorrie, for the artificial production of ice. The communication was from New Orleans, and it was answered in a cotemporary paper, seemingly, from the same place, but it was unworthy of a notice from us. Since that time Dr. Gorrie, who is residing at Apalachicola, has matured his invention, after many experiments and many failures, and has succeeded beyond expectation in producing a machine which, by condensation and expansion of air, produces ice artificially in quantity according to the size of the machine, and that is, in great abundance, at no great expense. He employs two force pumps, which are the principal parts of the machine. Into the pump for condensation of air, a smaller pump injects water in a fine shower, while the air is condensing, which thus absorbs the heat of the air that is given out in the act of compression. Between the condensing and expanding pumps there is an air reservoir, which is of considerable size, and made like a steam boiler. This vessel is intended to receive the condensed air and retard its passage, so as to afford time for its effective cooling, and to act as a magazine of force for working the expanding engine. The expanding force pump is the principal and most interesting feature of the whole, because it is the agent in which the expansion of the air and the production of cold first takes place. All the other parts must be nicely adjusted in propertion to this part, for the making of the ice economically. The absorption of the heat is accelerated by immersing this vessel in water, and causing a jet of liquid to be thrown into its interior, as into the condensing pump.

This liquid is not congealable, and is withdrawn from a larger, though properly proportioned quantity, contained in an insulated cistern, into which, after performing its office of imparting heat to, or in other words, absorbing cold from the expanding air, it is returned through the eduction valves of the engine. As the liquid of this cistern has its heat diminished at every stroke of the engine, by the abstraction of the jet at one temperature, and its return at a lower, it is practically a reservoir of cold—an accumulator of the refrigerative action of every cylinder full of expanding air. It is thus fitted to be the laboratory in which ice may be manufactured, and which it produces by abstracting the caloric of fluidity from water, immersed in it in suitable vessels.

Cold of an intensity of even hundreds of degrees below the atmosphere may be obtained by this process, but experiment shows that the temperature of the cistern most favorable for the rapid production of ice, is at about 10° F. The expanded air partakes of the same temperature as the cistern, and, therefore, at 10° F., leaves it charged with a high degree of cold, which the economy of the scheme requires should not be wasted. Instead, therefore, of being allowed to escape into the atmosphere it is directed through an apparatus—made like a brewer's refrigeratory for cooling worts—around which is placed the water it is intended to prepare for congealing.

It has been ascertained that pumps of a cubic foot capacity worked at a temperature of 90 deg. Fahrenheit, and fifteen revolutions a minute, are adequate to make a ton of ice per day.

Dr. Gorrie is not the least estentatious about his discovery, and what speaks volumes for his generosity, like Dr. Arnot, he considers his invention a benefit to the human race, especially in warm climates, hence he gives it freely to the public, and seeks no exclusive privilege from government.

To our Cotemporaries.

We are much obliged to you for the very favorable notices you have given of our new Volume. We are certainly much indebted to you for the good will you have always exhibited towards the Scientific American. Our friends are always increasing—we never had so many favorable notices before, nor so many of such a flattering nature. We are proud to know that the Scientific American is universally regarded with no little pride among our friends of the press. We will try and make it always worthy of their esteem.

A Question for the Curious.---Molten Metals.

Why will all the metals, and most other fusible solids, when in a fusible state, buoy up the same metal in a solid state?

1st. That this is the case is beyond the possibility of a doubt, as any one can easily satisfy himself by experimenting.

2nd. That iron, brass, lead, zinc, tallow, &c., &c., occupies less space when cool than when melted, I consider as certain from their shrinking when cooling.

Now, if it occupies less space when solid it must be heavier than when melted, and so the heavier swims on the lighter. A reason for this is requested. E.

[We publish the above to make a few comments thereon, as we receive a great number of communications of a similar character, which we do not answer, because a critical examination of standard philosophical works would lead the authors to the same conclusions with ourselves.

Our correspondent has overlooked the most singular phenomenon in both of his questions, without even thinking it was anything but what he could give a good reason for; that is, the rendering of metals fluid by heat:—can he explain that? All we know about nature's laws, is only secondary knowledge,—we cannot, and never will be able to judge of prime first causes, because we cannot reach beyond the laws of *our* own creation, which are cognate to those of all created objects. Every mechanic who has had cause to melt metals, knows the facts stated above, but for all this, those who do not know about such things, must suppose that the solid cold metal will keep floating on the molten and remain solid. No. When cold metal is put into molten metal, it floats for a time, but it soon mingles with the fluid, and can, by stirring, at once be made to sink. The cause of the metal floating is, no doubt, owing to electrical repulsion. A needle will float on water from the same cause. Every body knows this, but this is certainly no more curious than the fact of a piece of steel—a magnet—supporting, by the law of electrical attraction, a piece of iron many times its own size—(a piece of loadstone 14½ ounces having carried 16 times its weight.) Now, if the question is put to the most astute philosopher in the world, "why is the magnet thus enabled to lift a weight so many times greater than itself?" he could not answer. Scientific men know that certain things produce certain effects, and by induction they establish a theory, or in other words arrange the facts. This is science. The man who knows the greatest number of facts, is the most scientific man.

We are but partially acquainted with the relations of heat. Caloric is a chain, the middle links of which are all that philosophers see. Heat has the effect of expanding almost every thing, but not all, for it contracts alumina. It is generally supposed that heat hardens clay, and so it does; but apply a more intense heat to clay than is applied to burn bricks, and what have we? A fluid. Clay can be made fluid in a crucible, and a very hard substance when cool, is the result.

We have answered our correspondent, as well as any other scientific man could, and have endeavored to throw out some useful hints to others.

The Sea Serpent.

The sea serpent has been seen and shot at in the Cove of Cork, Ireland. Some of the scales of the sea serpent have been found, which his serpentship rubbed off on the supports of the "Beacon." A rifle ball was fired at him by a Mr. Travers, and it is supposed that he was wounded. He leaped thirty fathoms (150 feet) out of the water—so says Mr. Travers in a letter to the Cork Constitution. He must be a flying as well as a sea serpent, at this rate. Well done, ould Ireland.

War about the Materials of the Washington Monument.

At the late Meeting of the American Scientific Association, it is reported, that Prof. W. R. Johnson said, that the stone of which the Washington Monument, at Washington, is built was of poor quality, and would not last. Mr. Whittlesey, the President, we believe, of the Association, has written the following letter to the Assistant Marshal of Connecticut, denying the statement in terms a good deal more emphatic than courteous:

Dear Sir:—Your favor of the 3rd was received this morning with a slip of newspaper containing the false and infamous statement of Professor Johnson. It is totally unfounded in every respect, as you may perceive by the accompanying reports and article, of which another will appear to-morrow, which I shall send you. Every test and examination gives additional evidence of the superiority of this monument for the purpose of an enduring monument. It is a proper material in every way to build the whole structure of, in place of being used for facing of the main edifice, fourteen feet of the thickness of which is built of gneiss rock, the firmest in the world.

I am sorry that a man who styles himself Professor should so recklessly expose his ignorance. Most sincerely yours,

Elisha Whittlesey.

In addition to this, Robert Mills the architect, and Prof. Page, of the Patent Office, sent a letter a short time since to the Philadelphia Ledger stating that they had tested by a powerful hydrostatic press, the relative power of this stone, in comparison with others, to sustain a crushing force. The letter says the marble was selected by the Board of Managers with great care, after experiments and consultations with competent scientific gentlemen, and when a few courses were laid, Professor Johnson addressed a communication to the Board expressing this opinion, that the material was not durable, and he asserted he could crush it in his fingers like loaf sugar. The Board immediately took measures to test the material, and the result was that the average of eight different blocks tested showed that the crushing force of the marble exceeds ten thousand pounds, equal in strength to the granites, and capable of sustaining a weight four times as great as the Monument. The atmospheric action on the same description of marble was ascertained by Dr. Page to be the fifteenth part of one grain, (the specimens were cut into inch cubes, and the time of action four weeks,) compared with the large crystal marble of New York, (like that used in the facing of the General Post-office,) it was found to be but a moiety, while the Patent Office light sandstone lost 18 60-100 grains.

Perhaps Prof. Johnson may be able to prove his side of the question perfectly clear, the way Dr. Thompson once floored Dr. Ure.

Prizes by the American Institute.

The Institute this year will award a gold medal for the best plan for ventilating steam and sailing vessels; also, one for the best plan of ventilating public and private buildings. Five hundred dollars are also appropriated for premiums to apprentices—a very commendable practice, indeed. The Fair will be open three weeks. Those who desire to have engravings made of their machines for the Fair, can have them done at this office, in a far superior style than they can elsewhere.—Those desiring their inventions examined and noticed, should drop us a few lines, or call at the office.

An Improved Water Wheel.

We have received information from a trusty correspondent about a new Water Wheel, invented by Mr. Daniel Ehle, of Fort Plain, N. Y., who has applied for a patent. It is superseding the wheels in use around that place, and our informant, who is well acquainted with different kinds of wheels, states that it is better than any with which he is acquainted, and is superior to Rich's, which he considers an excellent one. We have a hope that we may be able to present this wheel to our readers, well illustrated, at some future day. Every improvement in prime motors is of great benefit to the world.