

Scientific American

NEW YORK, MAY 25, 1850.

Knowledge, Inventors and Invention.

It has been frequently asserted, that "the greatest inventions have been produced by illiterate men." This is a mistake. In almost every instance, great and good inventions and discoveries have been made by men of education. It is no doubt true that the great majority of them were made by men who had not the benefit, (if a benefit it can be called in all cases) of a collegiate education, but this is no sign, although a common opinion, that they were not highly educated. Every great inventor that we have heard of, or read about, was a man of deep reflection, and devoted to the reading of good authors. With such traits of character, who shall say that "they were not men of education." Knowledge or education, does not consist in a mere acquaintance with the abstract sciences and the dead languages, but it circumscribes the whole domain of truth, whether arrayed in the most common operations of the arts, or decked in the garb of the cloister or cabinet. To assume that inventors have been generally men of little education, is to pay a high compliment to ignorance and is not very complimentary to inventors. Whitney, Cartwright and Watt were highly educated men in every sense of the word, and although Fulton, Arkwright, Telford, and a host of other great inventors, were but common mechanics in the early part of their lives, yet had they not possessed remarkable intelligence, with remarkable concentration of mind, they never would have been distinguished above their fellows. Knowledge strengthens and expands the mental powers, giving them a more powerful and grasping tone, but the grand object is to direct them aright, that they may not expend their strength on "trifles light as air." Let no man suppose that he can get along without information as well as with it—especially in devising new improvements in the arts. Without education an inventor, with a powerful and concentrated mind, may work out a useful and profitable invention. Such a man was Richard Arkwright, but if we look at the men of the present day, whose names stand out on the page of invention, we behold a Morse and a Stevenson, as highly qualified by education as their names are honored by their inventions. The majority of inventors with whom we have become acquainted, are all distinguished for a great amount of knowledge. The man who reads and reflects can generally devise and plan.

There is a common feeling among most all tradesmen about new inventions, which we want to say a few words about. It is "the spirit of despising things at first, which are produced by men out of their line of business." Men who invent something out of their line of business are generally laughed at by those in the business. Why? Because, they say, "how can they know any thing about a business which they have not learned as a trade." This is not a right spirit. It is true that many men invent things which they think are new, but which have long been known to tradesmen in the business, but for all this, every work should be tried upon its own merits, be it the invention of Jew or Gentile. Whitney, Arkwright and Cartwright were neither engineers nor machinists, yet their inventions revolutionized the whole cotton manufacture.

We have often had cause of regret to see what a mass of thought and intelligence was expended by those who are termed the "most highly educated," upon subjects which have no practical bearing on the welfare of man or the advancement of the useful arts. What good will ever result from huge volumes written to prove the unity of the human race, or from long-winded dissertations on the subject of the age of Mother Earth? No good at all; and it must be admitted because it cannot be denied, that such subjects and those of a kindred nature, receive more attention in the College Hall than others of a vastly more useful character. This is the reason why such men from the workshop as Watt and Fulton, Bell and Stevenson have turned the world upside down

by their inventions, while the sages of Oxford and Cambridge have but added some new theorems to the Principia.

A Vegetable Diet.

On Wednesday of last week a Convention of Vegetarians was held at Clinton Hall, in this city, and quite a number of Delegates were presented. A Mr. Jonathan Wright declared that he had been a vegetarian forty years, and had reared a family of eight children on vegetables. He believed that humanity might save itself much labor and excitement if they would eschew flesh meat.

The Convention formed a Vegetarian Association, the objects of which are to induce habits of abstinence from the flesh of animals, and for the dissemination of information on the subject. One resolution that was adopted will show their zeal:—

"Resolved, That if man would return to Paradise and purity,—to mental and physical enjoyment, he must return to a Paradisical diet, and abstain from eating and killing animals as food."

Another resolution adopted will show their excessive modesty, and the complete fulfilment of that old saying, "it's a grand thing to have a good conceit of ourselves."

"Resolved, That as there are intellectual facts and a mental being into which an inebriate can never enter, and delights which he can never enjoy, so there are moral facts and a moral being which, to the flesh-eater, can never be revealed, and a moral happiness in which he cannot fully participate."

Vegetarians must be a moral set of mortals in their own estimation. As they have come to the conclusion that a vegetable diet will make our earth a Paradise again, we have no doubt but some of them will yet try to prove that the forbidden fruit was nothing less than a beef-steak or mutton-chop. Dr. Graham was there, and had a set-to with Dr. Wieting, a beef-eater, who was more than a match for him, and certainly gave evidence, although a vegetarian, that his vegetable diet had not imparted to him a paradisical disposition.

There is one thing which we abominate from the very bottom of our hearts, and that is, a disposition to make all scripture square with conceived opinions, instead of endeavoring to square opinions to scripture. There is not a new society organized for the ostensible purpose of any reform, without bringing scripture to bear upon their peculiar opinions to prove all the world in error but themselves. It is fearful to hear scripture handled as it is sometimes, by audacious enthusiasts. And upon the point of a vegetable diet being countenanced by scripture, to the exclusion of animal food, it is a heresy for which a great many vegetarians are responsible. If men hold opinions that are opposed to those of the scriptures (we only speak now of physical facts) let them be honest and say so. We like an honest though misguided man in preference to a hypocrite.

In looking over an address by the great Graham, delivered before the Agricultural Society of Hampshire, Mass., and published in the Tribune, we were struck with fear at the daring mutilations of Holy Writ in it. He asserts that before the flood, "as men multiplied upon the earth, they increased in sensuality and depravity, creating disease, and shortening life by eating flesh and drinking wine, and rioting in sensual pleasure, till God in mercy sent a flood to cleanse the earth from human pollutions." It is a great untruth to say that there is any evidence of flesh being eaten or wine having been drunk before the flood. It was not till after the flood that Noah received a command to eat flesh; so we have direct proof that the earth was filled with most horrible violence during the vegetarian age of the world—it was the most wicked age of the world's history.

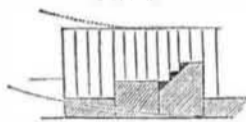
We believe that vegetable and flesh diets are suitable for man, according to his wants, his kind of occupation, and the climate in which he lives, and the scriptures leave us to be guided by common sense and observation in reference to these things. A vegetable diet is best at the tropics, a mixed diet in the temperate climes, and nearly an entire animal diet in the arctic and antarctic regions. The grand thing to observe in respect to diet, is cleanli-

ness, regularity and moderation in partaking of it, and exercise and cheerfulness to enjoy it.

Walls of Buildings.
Concluded from page 277.

Although we have stated that it was best to use the mortar as soon as possible after it was mixed, yet this is only in case it should be exposed, for it is well known that if mortar is kept covered up from the atmosphere in a heap, it is all the better for it. The Romans used to keep their mortar in this way for a year before they used it, and then they pounded it with beetles and made it into a proper thickness for use. Things are done in too great a hurry now to follow after such a good old plan. Neither clay nor sea sand (unless the latter is well washed) should be used along with mortar, as they prevent it from hardening.

FIG. 1.



Along with bad mortar and slender walls there is another evil of perhaps the greatest magnitude of all, viz., the manner of bonding them. As there are quite a number of walls made of brickwork faced with stone ashlar, it is requisite that this should be well done to prevent settling, which is an evil to which walls are liable when composed of different kinds of materials.

Fig. 1 shows a wall with a facing and backing of different courses, such as a brick wall with stone faces, and it exhibits how the wall is liable to settle on the inside as shown by the dotted lines, owing to the greater number of mortar joints in the inside than the outside. The best way to prevent this is to set the backing in cement, or some hard and quick setting mortar. In facing brick work with stone, the stones should be all truly squared and worked to sizes that will bond with the brick work. If this be neglected there will be numerous vacuities in the wall as exhibited in fig. 1. [Bond, in Masonry, consists in the

FIG. 2.

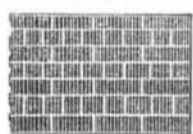
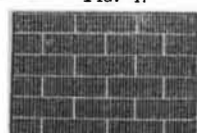


FIG. 3.



placing of the stones, or bricks in such relative positions that no joint in any course shall be in the same plane with any other joint in the course above or below it. This is called breaking the joint.] There used to be only two kinds of bonds made use of by bricklayers, called English and Flemish bond. Fig. 2 is the English, and fig. 3 the Flemish bond. In the English there is one row lengthwise, called stretchers, and the second row is placed in a contrary direction and called headers. In the Flemish bond, the headers and stretchers are alternate in the same course. This is a very neat and excellent bond, and all the old brick houses in New York used to be built in this manner. It is not so strong as the English bond, but infinitely better than the plan at present employed for facing, which has no bonds at all, but is made up of stretchers from top to bottom, like fig. 4. The appearance of this wall is by far the neatest, but strength is sacrificed to appearances. It is a common custom, also, to build the interior walls with five rows of stretchers and one of headers, thereby paying a reckless regard to good bonds and giving bad mortgages for the security of their strength.

FIG. 4.



In building walls which have to sustain a vertical pressure, four things should never be lost sight of, viz., uniformity of construction throughout the whole thickness; the proper bonding of the courses; the right distribution of the load, and good mortar. In all walls there is some settlement, but the danger does not lie in the amount but in the irregularity. This is the cause of fractures, and all their

attendant evils. We have seen in too many walls the ends of joists and other timbers built into the walls. This is liable to lead to irregular settling from the shrinking of the timber, and in all cases, it is recommended to guard against this evil by leaving proper recesses for the ends of the timbers, and the strength of the mason work should be entirely independent of them. It used to be more customary than it now is to employ a great number of cross iron ties in brick walls. This, we suppose, would be considered too expensive to be employed generally and extensively now, but we recommend this good old way and taking care to tar the ties to prevent the iron from oxidizing.

All masons know the evils of poor walls, and those of experience know how to build good walls. The object of these remarks is to draw the attention of others who are interested in the same, to the subject, in order that they may be able to judge between good and evil in the matter, and devote some attention, intelligently, to prevent evils which have become a common disgrace to our city. Masons would rather erect good than poor walls, but it is an old and a trite saying, "the tailor must cut according to his cloth."

The City of Glasgow Steam Propeller.

This fine ship, which we have already briefly noticed, sailed from this port to Glasgow on last Saturday, on her first return voyage. As this vessel is the pioneer of a new line, opening up a regular steam communication with a new country, it is worthy of more than a mere passing notice. She is an iron ship, and the finest model of one that ever entered New York Harbor. She is propelled by a four fluke Woodcroft screw, of 13 feet diameter. She has two engines of the combined power of 350 horse. They are the most compact marine engines that we have yet seen. The beams are overhead above the hot wells, and geared to a shaft with a large cog wheel, with wooden teeth, which gears into a pinion on the propeller shaft, making two revolutions for one of the first shaft. The engines are both on one side, balanced by a large coal bunker on the other. The engines are very built, though not so ornamental as either of the Liverpool steamers. She has three boilers, and carries 6 lbs. of steam only. This vessel is bark rigged and carries a great deal of canvass. Her tonnage is 1600 tons. She is fitted to carry 1200 tons cargo, and 80 cabin passengers. Her accommodations for passengers are of a very superior character, especially for comfort. The builders and owners of this iron ship, from stem to stern, are Messrs. Todd & McGregor, engineers, Glasgow, who unite in themselves the qualities of practical and scientific engineers. Both of them before commencing business for themselves were in the employ of Napier & Co., the one as foreman for a number of years, and the other as first steamboat engineer,—they are therefore self-made men, and now conducting a very extensive business, being considered the best builders of iron steamships in Great Britain, and have now contracts on hand for some years ahead.

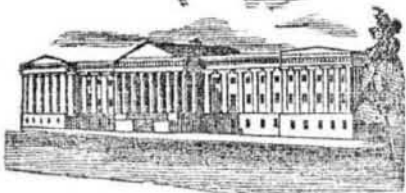
The appearance of this vessel, as she left the wharf on Saturday, was very graceful, as she is so full rigged and has such a clear water run. Thousands of Scotchmen were assembled to witness her departure and gave "shouts repeated," as she was departing on her voyage home to "Bonny Scotland."

Capt. Matthews, formerly of the Great Western, is her commander—he is a very able and successful Captain.

Great Reduction in Telegraph Tolls.

Notice is given that, on the Morse line of telegraph, the rates of tolls between Boston and New York, and between Boston and Portland, will be twenty cents instead of fifty on the first ten words or less of each communication. To New York, two cents for each additional word; to Portland, one cent each added word.

M. Jules Alex., of Paris, has presented a petition to the French Assembly, stating that he has discovered a new method of education whereby a child may be taught to read in fifteen lessons. He asks for an appropriation of 50,000 francs.



Our weekly List of Patents and Designs contains every new Patent, Re-issue and Design emanating from the Department, and is prepared officially, expressly for the Scientific American, and for no other paper in the city, consequently other journals are obliged to wait the issue of the "Sci. Am." in order to profit by the expense to which we are subject, and of course must be one week behind. Those publishers who copy from this department in our columns, will, in justice to us, give proper credit for the same.

LIST OF PATENT CLAIMS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending May 14, 1850.

To O. P. Allen, of Ringe, N. H., for improvement in machines for slitting clothes-pins.

I claim cutting the sides of the outer end of the slot or fork of a clothes-pin on a regular sweep, by means of knives formed alternately on each side of the circular saw which cuts the straight part of said slot, and in the direction explained, whether said knives be made of portions of the plate of said saw, and bent outwards as described, or in separate pieces, and attached to said sides of said saw.

To A. Atwood, of Troy, N. Y., for improvement in Stoves.

I claim the air chamber in which the air is heated previously to its admission to the fuel, in combination with the spiral apertures by which the heated air is caused to impinge on the upper surface of the fuel, substantially as described and for the purpose specified.

To L. Bisell of New York, N. Y., for improvement in connecting rods of steam engines and other machinery.

I claim the application of prepared india rubber, or of any similarly effective substance, in the parts forming the joints of connecting rods of steam engines and other machinery for the purposes of preventing jars and breakage of the parts, when a reciprocating motion is changed to a rotary, substantially in the manner described.

To B. F. Broomell, of London Grove, Pa., (Assignor to I. Jackson), for improvement in steaming grain preparatory to grinding.

I claim, in combination with a steam pipe and grain passage the deflecting partition for directing the steam upward and the grain downward, whereby the current of grain is steamed by direct contact with the current of steam at the moment before entering the mill, substantially as herein described.

To H. C. Brown, of Xenia, Ohio, for improvement in balancing sash.

I claim, in connection, the grooves in the sash, the distribution of the several pulleys and friction wheels, and the cord attached to the bottoms of the sashes instead of their tops, whereby the cord and pulleys are kept entirely out of view.

Second, The combination of the barrel axle, ratchet wheel and pin, with its case or bearings, or their equivalents, with the cord and pulleys, the whole arranged and operating in the manner and for the purpose herein described.

To D. H. Chamberlain, of Boston, Mass., for toothed segment lock for firearms.

I claim the movable toothed segment and escapement or spring pawl, or any mechanical equivalent thereof, (the said segment and escapement being arranged within the trigger,) and the toothed segment or arc of the hammer in combination together, and with the trigger, hammer and stock, and made to operate substantially in the manner and for the purpose above set forth.

To T. M. Collins, of Marion, Ark., for cylinder and trough gold washers.

I claim the separating gold or other heavy substances from others of less specific gravity and water with which it may be mingled by the use of a wheel or cylinder and trough, the periphery of the former and the bottom of the latter being covered and constructed substantially as herein set forth.

To N. Colver, of Boston, (Assignor to N. Colver of Boston, Mass., & W. S. Damrell, of Dedham, Mass.) for Revolving Jaw Wrench.

I claim the revolving jaw block and feather, as combined together, and with the screw shank, and made to operate, substantially as herein specified.

To A. Combs, of Farmington, O., for improvement in connecting the skeins with axles.

I claim the combination with the skein of the screws, for the purpose of tightening the skein on the axle tree, as set forth.

To J. C. Dodge, of Dodgeville, Mass., for improvement in preventing fibres from winding on drawing rollers in spinning machines.

I claim the improved manner of applying and using the roller, the same consisting in placing it not exactly in contact with the lower front drawing roller, but at a distance therefrom, and by means of separate or additional machinery, giving to it a rotary motion at the same velocity and in the same direction with these of the said lower front drawing roller, the whole being in the manner and for the purpose set forth.

To J. Houghton, of Ogden, N. Y., for improvement in machines for washing table furniture.

I claim the construction of a cylinder with a cylindrical rack supported by an upright shaft resting upon and being within and supported by the cylinder, the rack having within it a conical rack and hoop to receive and hold table furniture, in combination with a curb containing a horizontal wheel with buckets to throw water upon the cylindrical rack; the whole supported by a frame, and by these mechanical means cleansing the surface of table furniture without the use of hands, the entire machine being arranged, combined, and operated substantially as herein fully set forth.

To J. L. Mott, of New York, N. Y., for improvement in Cooking Stoves.

First, I claim making the cover of the feeder projecting in front with curved sliding doors, substantially as described.

Second, I claim forming the bottom grate by casting projections from the edge of the fire back, or the equivalent thereof, substantially as described.

Third, I claim giving the required strength to the fire brick lining of stoves to prevent them from breaking or separating when cracked by the heat, by the insertion into them of metal rods, wires, or wire cloth, substantially as described.

Fourth, I claim the combination of the two series of flue tubes arranged one above the other and with a space between them all for the circulation and radiation of heat; for the purpose of giving a greater heat at the bottom of the oven, substantially as described; and this I also claim in combination with the above arrangement of flues, as described.

And lastly I claim the method of supporting and bracing the door or doors by means of the bracing rod hinged to the door and passing through a hole below (or the equivalent thereof) and being against the bottom of the stove, or a stop, or the equivalent thereof, substantially as described.

To H. Patterson, of Templeton, Mass., for improvements in Splint machines.

I claim the combination of the circular or tubular cutters, their lateral wing knives or cutters, their rib knives or cutters, and the waste escape passage for the waste strips, substantially in the manner and for the purpose set forth.

I also claim the improvement by which I am enabled not only to make round or cylindrical splints, but to introduce them to the dipping frames, that is I do not claim the combination of cutters dipping frames and passage leading from the cutters to the dipping frames, as these have been before invented and used for making square splints and setting them in the frames, but I claim, in combination with cutters for forming the round splints and passages, for receiving them and conducting them to the dipping frames, the passages, for the escape of the waste wood or strips, they being applied together and made to operate in connection with the reducing plane iron, and the plates, substantially in the manner and for the purpose herein described.

To A. S. Pelton, of Clinton, Conn., for improvement in threshing machines.

I claim the peculiar serrated and duplex conformation of the beaters, substantially in the manner and for the objects herein described,

that is to say, consisting of a pair of plates, diverging rectangularly from each other, and the latter consisting of teeth chamfered off from their inner side at their points as represented.

To O. L. Reynolds, of Dover, N. H., for improvements in sewing machines.

What I claim is, 1st, the adaptation of the bearded needle, such as is used in knitting or stocking frames, in combination with the manner of closing the beard or hook thereof, previous to drawing it back with the thread, to prevent the point tearing the cloth, by passing through the hole, in the plate, in the manner substantially as herein described.

Secondly, the combination of the spring thread leader or guide, the arched spring, and friction roller, for the purpose of leading the thread under the point of the beard of the needle.

[An engraving of this invention will appear in the Scientific American, in a few weeks.]

To W. Scarlett, of Newark, N. J., for improvement in Suspender Buckles.

I claim the constructing a buckle by combining a curved plate, with an angular lever, substantially in the manner herein set forth.

To J. Trees, of Salem, Pa., for Shell Propeller.

I claim giving the shell of a submerged propeller the form of a section cut from the open extremity of sea shell of the class of which that represented in the drawing may be considered a type, the mouth of the helical tube at which the water enters being of greater area than its hinder extremity at which the water is discharged.

To J. N. Warren, of Buffalo, N. Y., for improvement in the joints of stove-pipes.

I claim the stove pipe herein described as a new article of manufacture.

DESIGNS.

To J. Hutchinson, of Troy, N. Y., (Assignor to Deborah Powers, A. E. & N. B. Powers, of Lansingburg N. Y., for design for painted floor cloth.

To W. Race, of Seneca Falls N. Y., for design for stoves.

More About the World's Industrial Convention.

The following points of principle have been decided by Her Majesty's Commissioners, in answer to inquiries made by the Local Committee for the city of London:

1. Juries will be selected to award prizes; but no competitor for a prize in any section will be allowed to act upon a jury to award the prizes in that section.

2. It is not intended to require of exhibitors that they should of necessity be subscribers.

3. It is not intended to exclude any person, whether he be the manufacturer, designer, inventor, or proprietor of any article, from exhibiting it, whatever may be the regulations under which he may hereafter be required to do so.

4. Some misunderstanding having arisen from the use of the words, 'counting houses' in the building prospectus issued by the commissioners, they intend only to have such officers as will be required for taking money at the doors, distributing tickets, selling catalogues, and conducting the other business of exhibition, and not offices for the sale of articles intended to be exhibited, and not the transaction of commercial business; and the commissioners can therefore give no facilities for the sale of articles, or for the transaction of business connected therewith.

(Signed,) J. S. RUSSEL.

STRAFFORD N. NORTHCOTE.

The Tea Culture in South Carolina.

Dr. Junius Smith, of Greenville, South Carolina, in a letter dated May 1st, speaks of his experiments in growing tea in this country as highly successful. The plant maintains its original physiology and follows its Chinese pattern, putting out its foliage at the same period that it does in China. All Dr. Smith's plants have taken root, the buds began to develop leaves about the 20th of April, though the spring has been backward, and he could then collect a sufficient quantity of leaves to make first rate tea. He says the leaves are most tender and delicate, and he can now understand why it is that we cannot obtain the first quality of tea from China. The first growth of the leaves is so delicate that it is

quite impossible to divest it of humidity by firing or roasting to sustain so long a voyage, besides the almost certainty of utterly destroying its rich and precious aroma. When the tea is cultivated here, this process of roasting may be dispensed with. With variety of soil, abundance of cheap land and facilities of transportation, Dr. S. thinks that if we do not cultivate our own tea, we ought to be tributary to those who call us barbarians.

What is Dirt?

Old Doctor Cooper, of South Carolina, used to say to his students, "Don't be afraid of a little dirt, young gentleman. What is dirt?—Why nothing at all offensive, when chemically viewed. Rub a little alkali upon that 'dirty-grease spot', on your coat, and it undergoes a chemical change and becomes soap. Now rub it with a little water, and it disappears; it is neither grease, soap, water, nor dirt. 'That is not a very odorous pile of dirt,' you observe there. Well, scatter a little gypsum over it and it is no longer dirty. Everything you call dirt, is worthy your notice as students of chemistry. Analyze it! It will all separate into very clean elements.

"Dirt makes corn, corn makes bread and meat, and that makes a very sweet young lady that I saw one of you kissing last night.—So after all you were kissing dirt—particularly if she whitens her skin with chalk or fuller's earth. There is no telling, young gentleman, what is dirt. Though I must say that rubbing such stuff upon the beautiful skin of a young lady is a dirty practice. 'Pearl powder', I think is made of bismuth—nothing but dirt."

Cotton Factories South and West.

It has been estimated that there are now in operation in Georgia 40 cotton mills, employing near 60,000 spindles, and consuming 45,000 bales of cotton annually. In this estimate, which seems to be below the true mark, no calculation is made of the paper mills, bucket factories, iron establishments, flouring mills, &c. In Tennessee, it has been reported to the Secretary of the Treasury that there are 30 factories, employing 36,000 spindles. In South Carolina, the Hon. William Gregg says there are 16 factories, containing 36,500 spindles and about 700 looms, consuming 15,000 bales of cotton per annum. He estimates the capital invested in these establishments at about one million of dollars, and the number of operatives they give employment to, at 1,600. There are in Alabama 12 factories, with a capital of \$500,000, containing 12,580 spindles and 300 looms, and consuming about 5,500 bales of cotton annually. It is said that machinery for others is contracted for, sufficient to make the number of spindles 20,000, and the looms 550. In these four States there are 98 factories and 140,000 spindles. On the Ohio river it is estimated that there are factories which, taking them in the aggregate, run 100,000 spindles.

The Straw Hat Trade in Michigan.

Nearly every day we notice, says the Detroit Tribune, large quantities of straw hats shipping from this city, east and west. The trade has become quite an important one in our State. The Malcomb Gazette says, "we have made some enquiries as to the number of straw hats purchased in this village during the past winter, and found that the number would exceed twenty-five thousand, the estimated value of which is about twenty five cents each, making the aggregate value of the straw hats purchased \$6,250." This is only one county, and there are many others that will show a like result.

Deflexion of Iron Girders.

From experiments made by Mr. Fairbairn, of Manchester, it appears that iron loses a great deal of its strength when heated above 220°, and its uncertainties are great below the freezing point. Mr. Clark, the engineer, has described the effect of the sun of the great Conway Tube, when shining for half an hour, to be so powerful as to lift the tube vertically one inch. It is the opinion of Brunel that iron girders should not be tested with a weight exceeding the greatest load it has to bear, as the object in testing is to ascertain the soundness of the casting, which may be judged of by its appearance under the load.