



Effect of the Air on weighing Grain.

MESSRS. EDITORS:—There is generally much complaint about cargoes of grain falling short, which have been weighed into vessels at the Western shipping ports on the Northern lakes, when they come to discharge at the Eastern terminations of the different routes, as Buffalo, Oswego, Kingston, &c.

It is natural to suppose that grain in these transits should increase in weight to a slight extent, by absorption of moisture; there being scarcely any waste in handling. But lake vessels, or their managers, have become so used to "shortage" that they would readily pay \$10, or \$15, per trip as insurance against shortage, and consider it a good operation. It is really quite a tax upon the carrying trade of that region. The reasons assigned are close weight, management sometimes, &c. But there is one item which works against the carrier and tends to make up a deficiency, which is not taken into account. It is the difference of barometric altitude of the points of shipping and discharge. There is not much difference between Chicago and Buffalo—32 feet only, but between Lake Michigan ports and those of Lake Ontario, the difference of altitude is 325 feet. In figuring the difference of buoyancy of the atmosphere at these two levels, and its effect on a cargo of grain of 18,000 bushels, it is found that the difference is 9½ bushels, after allowing one-third to fill the interstices between the kernels, so that a cargo shall represent a solid of two-thirds its bulk.

The difference of altitude between Oswego and New York is 262 feet, and between Buffalo and New York it is 555 feet, so there must be still another deficiency in reaching tide water.

Nine and a half bushels of wheat at \$2 or thereabouts per bushel, is quite too much to pay for the interference of the atmosphere, which refuses to have that much weighed and accredited. "A pound is a pound, &c.," hardly holds good in such a case, and when a transaction of weighing to and from becomes large, as in these cases, it is sufficient to be felt sensibly. F. A. MORLEY.

New York, April 4th, 1864.

To Curriers.—Wanted, a "Whitening" Machine.

Here is another field for the exhibition of inventors' skill. A correspondent of the *Shoe and Leather Reporter* writes as follows:—

MESSRS. EDITORS:—I would like to call the attention of the public in general, and of inventors and "boss" curriers in particular, to the progress which machinery has made in the currying of leather. We have machines for every department in which machines can be used, except one. We have them for splitting, shaving, and flattening; also for setting out, stoning, glassing out of black and paste, and now one is wanted for whitening. I have not the least doubt but that such a machine could be obtained, but on the contrary am quite sure of success. Why cannot the heads that invented all the other machines invent one for this purpose? It is often the case that as soon as an inventor gets up a machine, that somebody else makes an improvement and thereby obtains the benefits, while the original inventor derives scarcely any. I do not mean to discourage improvements, for this is a right which belongs to all, but why not arrange matters so that the inventor may have a liberal compensation for his efforts? I would propose that the "bosses" club together and agree to present a liberal premium to the person who invents the best whitening machine. By so doing, we would soon have machines for doing the principal part of the work, and there would still be work enough for all, and the "bosses" would never fear further trouble from strikes. S. J.

South Danvers, Mass., April 4, 1864.

Economy of Fuel.

MESSRS. EDITORS:—I noticed in a late number of the *SCIENTIFIC AMERICAN* a few remarks of yours on the waste of fuel. I am satisfied, from my own experience, that this waste is the fault, generally, of

proprietors—not of the engineer or fireman. If there is plenty of boiler, so that the fire will not need to be forced, the coal will be consumed thoroughly, for the simple reason that it is easier to do so than to punch it through the bars when half burned. I have lately put in two boilers, making double the capacity of the one formerly used, and find a saving in fuel, as well as a great saving of labor for the engineer. Again, as to the economy of using steam expansively. When we had only one boiler we could manage to run by careful firing with the cut-off at half stroke, but could not make steam enough to run at the same speed, using the steam at full stroke. We have lately increased our piston speed fifty per cent., and reduced the amount of steam in same proportion, and are, so far, satisfied with the result. As to oiling the cylinder, we find that when the engine lags, from low steam, an application of oil through the steam chest is equal to several pounds pressure by the gage; but as to which is the cheapest—oil or fuel—we have never "ciphered out." J. L. H.

Cincinnati, Ohio, April 4th, 1864.

[Our correspondent's views are correct and to the point. It is a very common error to make boilers too small for their duty; we always advise 15 feet of heating surface to the horse-power, and in many cases even 20 is better than the quantity usually given, which is ten. It is cheaper in every respect to have ten horse-power surplus in the boiler than just enough to keep the engine running. Coal will not burn when it is continually raked up, "poked," "sliced," &c., and it is only by slowly roasting away upon the grates that the greatest economic effect is obtained. Lubricating the cylinder has the effect spoken of by our correspondent, but the question of economy is not between fuel and oil, but between repairs and fuel, caused by the injurious action of the oil or fat. Engines working moist steam generally require little lubrication of the valves and cylinders; but with vapor of a high temperature the case is different.—Eds.]

Well Satisfied.

MESSRS. MUNN & CO.:—I have the great pleasure of acknowledging the receipt of my Letters Patent for an improved Cork-cutting Machine; also your prompt reply to my inquiry for information in regard to foreign patents. I now wish to say a few words to inventors if you will please publish it. If they wish to get their patents "put through" in the least possible time and expense, and the best specifications and claims, and have all their inquiries answered with promptness, dispatch, and reliability, let them employ Messrs. MUNN & Co.; and all will be done as I have stated. The pleasure I have received in employing them has caused me to make these remarks. ISAAC GOODSPEED.

Norwich, Conn., April 10, 1864.

Talk in a Sanctum.

Editor, to a critical friend.—You read all sorts of papers. Now tell me honestly which of all the papers in the United States do you like best?

Critic.—I will tell you. But you will be surprised. Of all the papers that I read, I like the *SCIENTIFIC AMERICAN* best. It is the most conscientious. It has the most real news, i. e., news from the headquarters of the army of progress. I think it a little illiberal toward Spiritualism and such things, and a little apt to be cynical in its criticisms of "erring brethren;" but it clings to the truth closer than any paper that I meet with, and its affinities are with the best class of men in this or any other country, viz: the intelligent progressive workers.

[We copy the above straightforward notice of the *SCIENTIFIC AMERICAN* from *The Circular*, published weekly at Wallingford, Conn., by the Oneida and Wallingford communities. We thank the editor for his friendly criticism.—Eds.]

THE NEW ZEALAND EXHIBITION.—An exhibition of the industry of all nations will be opened in the city of Dunedin, Province of New Zealand, on the first of January, 1865. The schedule embraces every variety of production in art, science, and agriculture. An invitation is cordially extended to the citizens of the United States to send in contributions. The New Zealand agent is P. L. Simmonds, Editor of the *Technologist*, No. 3 Adelaide Place, London Bridge, London, to whom all communications should be addressed.

Recent Southern Intelligence.

From a file of Southern papers recently received at this office we glean the following items:—

"Gold sold at auction in Richmond on the 7th at from 23 to 24 for one. It will be lower before it is higher."

The *Richmond Examiner* gets off the following anecdote, which, as the editor states, portrays facetiously the condition of the "rebs":—

"A correspondent sends us a note of an incident in the army of Virginia, which, while it contains a painful evidence of the sufferings of our soldiers, illustrates also the good humor with which they endure the pain and privation that fall to their lot. It appears that the order announcing the hour of inspection required all to be in line, save those excused by surgeons. It, of course, brought out those who were barefooted.

"It being a cold, frosty morning, one of the soldiers, being entirely destitute of shoes, took off his hat and placed it under his feet. The inspector approaching him, accosted him thus: 'Where's your hat?'"

"Soldier.—'Under my feet.'"

"Inspector.—'Why do you wear your hat on the wrong end?'"

"Soldier.—'I always wear it on the end it does the most good.'"

The following, from the *Wilmington (N. C.) Daily Journal*, contains some facts which show how destitute of the necessities of life the Southerners are:—

"Now is the time to fall back on 'hog and hominy'—if you have them. Next to nothing comes to market, and that must be bought and sold by the ten dollars' worth, or by some multiple of ten dollars. The restaurants and oyster shops are generally closed, partly for want of stock, and partly for want of change. Change is the worst difficulty. It stops things coming in, or being bought or sold. It would be prudent if practicable, for people to fund themselves until after the first of April. As nothing can be done, and no eatables can be obtained, it would be desirable to find holes or caves in the ground to which people could retire for a brief hibernation of four or five weeks, during which time they might derive sustenance and amusement from sucking their paws after the manner of the black bear. Seriously, things have got to a pass positively alarming, and which threatens consequences of the gravest character. We confess ourselves unable to see what people are to do, if things keep on this way, getting worse and worse, as they will do the nearer the first of April approaches."

The following advertisement appears in the *Wilmington (N. C.) Daily Journal*, and is of importance to the farmers in the vicinity of Wilmington, if not of interest to our prosperous farmers at the North. The contrast between the producers of the South and North must be rather apparent to any one reading the annexed advertisement:—

"TO THE FARMERS IN 12 MILES OF WILMINGTON.

YOU ARE HEREBY NOTIFIED that you must pay your tax in Kind. Quartermaster's stores, to Capt. C. W. Styron, as follows: Corn, Fodder, Hay, Ground Peas and Oats. Commissary stores, to Capt. C. S. McKinney, as follows: Bacon, Peas, Wheat, Rye, Rice, &c. The Tax in Kind must be paid by the first day of June, 1864, or five times the value of the estimate will be collected. J. M. MCGOWAN, Capt. and Post Q. M. 4th Congressional District, N. C."

THE LOST FOUND.—A recent number of the *Richmond Sentinel* contains the following advertisement:—

STOLEN, by the Yankees in command of Dahlgren, a small dark bay MARE, blooded, very spirited, nearly fifteen hands high, small limbs and feet, and small white spot in forehead. On inside of right fore foot was a lump arising from a snag, but recently healed. On the outside of the left hind leg, just below the hock, was an old scar, nearly two inches long, with little hair upon it. On her left side, just at the coupling, was a small white spot. There were several white saddle-marks on her back, a large one on each side of the withers. Her age is between five and seven. She is supposed to have been left on the road between Dover Mills, Goochland county, and Richmond, or recaptured in King and Queen county. Should this meet the eye of any one knowing where the above animal can be found, he would greatly oblige me by letting me know as soon as possible. Address Lt. W. A. DEAS, Char's Art'y Batt'n, Army Northern Va.

We suspect Lieut. Deas will find his blooded mare at the great Metropolitan Fair Exhibition, now open in this city. An animal answering this description has been contributed by an officer in the expedition referred to, which is not only on exhibition but is offered for sale for the benefit of the Sanitary Commission. Unless the rebel lieutenant calls early and proves property it is doubtful if he ever sees his pet mare again. There is no time to be lost, lieutenant, and the best thing you can do is to leap on the first mare you can get, speed your way to the Federal lines, take the oath of allegiance, attend our fair and claim your prize mare.

THE full capacity of the saw-mills at Minneapolis (Falls of St. Anthony) Minnesota, is 250,000 feet every twenty-four hours. It is expected to cut during the coming season, 42,000,000 feet of lumber, 20,000,000 feet of lath, and 16,000,000 shingles.

Mental Rest.

When a locomotive is under full headway it cannot be safely stopped in a moment. So when the nervous energy of the human system has been acting on the brain under a "full head" for an hour or more, as in the performance of the most harrowing tragedy, or in the delivery of an impassioned address, or in the execution of some momentous surgical operation, it is not safe to arrest instantly the outgoing of that power through the brain; the fact is, it is not possible if the performers just named were carried direct from the theater of their operations to a prison or vacant room, and were so bound that bodily motion was impossible, the mind would run in ceaseless circles over the performances, would be vainly striking against the air, and sleep would be impossible, except as a result of sheer exhaustion; even then it would not bring its natural renovation; the tragedian, in spite of himself, would go over his part; the orator would rehearse his sentences; the advocate would joint together again his points and proofs; the minister repeat his weighty appeals; and the surgeon perform again his terrible operations, all in the mind, vainly, and with the almost invariable accompaniment, disagreeable and wearing—to wit, measuring the effects which might have resulted from certain variations in their respective performances, the surgeon would think that his operation might have been sooner performed, or would have had a more favorable recovery if he had done this, that, or the other thing which he had not done; the clergyman will have his conscience touched by the reflection that if he had applied another text of Scripture, or presented another line of argument, or had summoned a deeper feeling of the heart, his discourse would have made a more lasting impression, and might have eventuated in more ineffaceable convictions. In one sense, these are vain thoughts; they increase the exhaustion attendant on the previous actual labors, and are altogether unprofitable. The greatest lady tragedienne of modern times, Rachel, after an exciting performance, would go home, and although past midnight, would sometimes spend an hour or more in the physical effort of moving the furniture of one room into another, and in arranging it, as if it were to remain so for months, as a means of calming the mental excitement, so that she could go to sleep; the philosophy of the matter was that the nervous energy was diverted from the brain, and compelled, in a measure, to pass out of the system through muscular action, while the mental exercise necessary was such as to engage a different portion of the brain altogether, allowing those organs opportunity of quiescence, which had been so lately exercised to an unwonted degree. Our clerical readers know it often happens that Sunday night is the worst night for sleep in the week, especially for those lazy and improvident and unsystematic "unfortunates" who put off their preparation for the Sabbath until the very last moment, as it were, and hence have to sit up late on Saturday night, and even encroach on the sacred hours of the Sabbath, thus profaning holy time, in the feeling that the end sanctifies the means, or that it is a perfectly legitimate labor, forgetting that it is an unnecessary labor, as it might and ought to have been done in proper work-days. As we were saying, clergymen sometimes cannot get to sleep for hours after preaching at night; let such take a lesson from the above recital, and instead of going to bed as soon as they get home, let them perform some muscular movements, with the end above-named in view; or, if that be not practicable at times, they should divert the current of nervous energy from the organs of the brain which have been unusually exercised, to the consideration of subjects which will employ other organs. This may very well be done by reading a number of short articles on every variety of subject and by various authors, such as we have strung together in the preceding pages. This is very much on the same principle that one set of muscles are rested by the exercise of another set, which allows them to be quiet.

There are times to all, when the most industrious are utterly indisposed to do a single hand's turn, when the most diligent readers and thinkers lose the power of concentration, and would entirely fail to interest the mind in reading the most exciting history; neither can they go to sleep, which indeed would be the very best thing they could do; and then again, in

times of great calamity, or trouble, or despondency, which unfortunately come to all, sooner or later, it will answer an excellent purpose to divert the mind and rest it by reading a variety of short articles, which require no lengthened thought, no special mental effort to take in; even in these cases the reading may sometimes be almost mechanical, yet every now and then a paragraph will be met with, which will compel attention more or less; sometimes from its incongruity, its oddity, its fun, its ridiculousness, or its profundity. Some of our weekly exchanges are valuable in this regard, by having half a column or more of miscellanies, brevities, jottings-down, &c.; those afford the means of mental diversion, recreation, and rest, which are of great value in connection with the subject in hand. When a man "don't feel like doing a single thing," he is in danger, because he is very apt, under such circumstances, to dawdle or mope about and do nothing, the very state of mind which the great adversary delights to find, and is sure to take advantage of,

"For Satan finds some mischief still
For idle hands to do,"

as the unequalled Isaac Watts has written. Rather than allow perfect idleness under any circumstances read the newspaper with its short and varied articles, even its advertisements, or even an antiquated scrap-book, as a healthful mental diversion, recreation, and rest under the circumstances adverted to. To the Christian heart, to that happiest of human kind who can receive with an unquestioning confidence and childlike trust all that the Bible says, the Psalms of David and the Proverbs of Solomon are of incalculable value in this connection; they make the body forget its weariness, they bring comfort to the desponding, cheer to the broken-hearted, courage to the fallen, and faith and rest and hope and happiness to all.—*Hall's Journal of Health.*

The Influence of Fluxes on the Composition of Manganiferous Cast-Irons.

The following account was recently communicated to the French Academy by M. H. Caron:—

"In a recent note I showed by experiments, supported by analyses, that manganese served, in cast-irons, to expel sulphur, and often silicium; I added, that sulphurous and silicious cast-iron might be improved by cast-iron charged with manganese, which would be the more valuable according to their richness in manganese. Consequently it would be well to possess means of extracting from the ore the cast-iron most charged with this purifying metal. There are two causes, all other things being equal, which singularly influence the amount of manganese contained in cast iron:—1st. The flux employed in the reduction of the ore. 2nd. The temperature at which this reduction is effected. I have ascertained the effects of these two causes by experiments, of which I will here give some description. The ore on which I operated was a carbonate of iron and magnanese, having the following composition:—

Carbonate of iron.....	71.0
Carbonate of manganese.....	13.3
Carbonate of magnesia.....	11.2
Carbonate of lime.....	0.2
Silica (quartz).....	4.3
	100.0

"Several kilogrammes of this ore were finely pulverized and perfectly mixed together. In each of the assays, of which I shall give you the results, I used the same quantity of this ore; the wood charcoal mixed with the ore was in each instance used in the same way; finally, all the crucibles were brasqued with a mixture of graphite and molasses, or coal tar. The following table shows the kind, and the quantity of flux used per cent. of ore, and the colors of the cast-iron obtained, as well as their richness in silicium and manganese. In the experiments from Nos. 1 to 5, inclusive, the temperature employed for the reduction was always decidedly the same;—the temperature for No. 6 was as low as possible (high enough, however to allow the cast-iron to collect). In assay No. 7, on the contrary, the heat must have been great enough to melt several hundred grammes of soft steel:—

No.	Colour of the cast iron.	Manganese per cent.	Silicium per cent.
1. Carbonate of lime.....10	White	7.93	0.33
2. Carbonate of lime.....5	White	4.32	0.08
3. Fluoride of calcium.....5	White	4.70	0.30
4. Silicious earth.....5	Grey	3.81	0.55
5. Silicious earth.....10	Very grey	2.25	0.76
6. Silicious earth.....5	Grey	3.90	0.50 L. t.
7. Silicious earth.....5	Grey	2.10	0.75 H. t.

"Assays Nos. 1, 2, 3, 4, and 5 show that, to obtain

cast iron rich in manganese from a given ore, as much lime must be used as can be introduced without spoiling the fusibility of the slag. It will be found, on the contrary, that the proportion of manganese diminishes as the silicious flux increases, and what is remarkable that, as the manganese disappears, silicium takes its place in the cast iron. The temperature used for the reduction also exercises a notable influence on the richness of the cast iron in manganese. Assays 6 and 7 show that the higher the temperature the less manganese, but the more silicium will be found in the cast iron. As in the preceding experiments, silicium and manganese seem mutually to expel one another. It will not be uninteresting to observe the nature of the cast irons obtained. A sufficient quantity of lime produces white cast irons, while silica produces grey. By simply changing the flux, we may then obtain, at will, either white or grey steel or iron, or cast iron. I will not further enlarge upon these results; they are such as can be perfectly appreciated by metallurgists. I speak now of cast irons obtained with iron ores containing oxide of manganese or mixtures with it. Lime has not exactly the same influence on non-manganiferous ores; but the question should be treated in a special manner, and I trust soon to be able so to treat it. The assays, the results of which I have laid before the Academy, are only laboratory experiments, but still I hope they may prove of some service. Thus, ironmasters who mix ores rich in manganese with their ordinary ores (sulphureted or silicated), for the purpose of ameliorating their products, may without fear gradually increase the usual quantity of flux without seriously diminishing the liquidity of their slag. If the flux thus modified becomes too refractory the addition of sea salt or chloride of calcium soon gives them the desired amount of fusibility. In this case, fluor-spar or cryolite will produce the same effects; but as these bodies, especially the latter, always contain notable quantities of phosphoric acid, which is very destructive to cast iron, the greatest care must be taken in using them."

A Whistling Beetle.

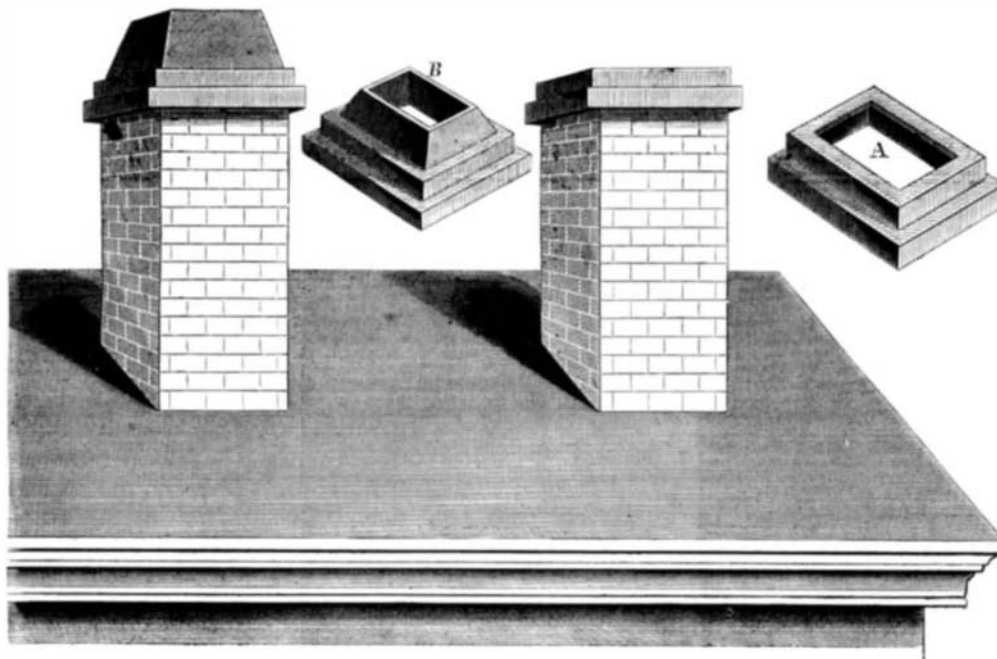
Gosse, in his "Romance of Natural History," says:—"During our ride home (in Tobago), I was startled by hearing what I fully imagined was the whistle of a steam-engine; but I was informed it was a noise caused by a beetle that is peculiar to Tobago. It is nearly the size of a man's hand, and fixing itself against a tree, it commences a kind of humming noise, which gradually quickens to a whistle, and at length increases in shrillness and intensity, till it almost equals a railroad-whistle. It was so loud that, when standing full twenty yards from the tree where it was in operation, the sound was so shrill, that you had to raise your voice considerably to address your neighbor. The entomological productions of the tropics struck me as being quite as astonishing in size and nature as the botanical or zoological wonders. There is another beetle, called the razor-grinder, that imitates the sound of a knife-grinding machine so exactly, that it is impossible to divest one's self of the belief that one is in reality listening to some 'needy knife-grinder,' who has wandered out to the tropical wilds on spec."

FAULT-FINDING WITH YOUR CHILDREN.—It is at times necessary to censure and punish; but very much more may be done by encouraging children when they do well. Be, therefore, more careful to express your approbation of good conduct than your disapprobation of bad. Nothing can more discourage a child than a spirit of incessant fault-finding on the part of its parents; and hardly anything can exert a more injurious influence upon the disposition both of the parent and child. There are two great motives influencing human action—hope and fear. Both of these are at times necessary. But who would not prefer to have her child influenced to good conduct by a desire of pleasing rather than by the fear of offending? If a mother never expresses her gratification when her children do well, and is always censuring them when she sees anything amiss, they are discouraged and unhappy; their dispositions become hardened and soured by this ceaseless fretting; and, at last, finding that, whether they do well or ill, they are equally found fault with, they relinquish all efforts to please, and become heedless of reproaches.—*N. Y. Dispatch.*

Improved Chimney Pot and Cap.

The engravings published herewith represent a new attachment for chimneys which is designed to prevent the evil of smoking, and to protect the chimney itself from the action of the weather. The material of which this cap is composed is potter's clay baked and glazed, and it is set in mortar or cement on the chimney top itself. When in position the cap, A, rests upon the brick-work of the chimney, and the other part, B, which tapers upward, is set on the cap, A. The inventors claim that by this arrangement the chimney is prevented from smoking and that the structure will last much longer than without this protection. Also, that it increases the draft and is a desirable and ornamental addition to the building, giving a neat and finished appearance. The pot and cap may be applied either separately or together; or both attachments can be made in one piece if desired, and any required dimensions can be made to order.

The entire patent or State, county or town rights are for sale. For further information address the inventors, Alonzo L. Sweet, at Norwich, Conn., by whom it was patented through the Scientific American Patent Agency Feb. 16, 1864. For further information address the inventor as above.



SWEET'S CHIMNEY POT AND CAP.

committees, who, however, concurred in the propriety of trying the experiment, for the sake of exploding and putting an end to the theory forever. One would think, however, that the extensive and expensive experience the Government have had of the value of these new theories would, by this time have given them sufficient confidence to say 'No' to ex-

perimenting with any further crotchets, except at the inventor's own expense."

PATENT REFLECTOR LANTERN.

This ingeniously-arranged lantern is intended for burning coal-oils without a chimney; the formation

lantern is such that it will, no doubt, be extremely popular; it can be swung around or carried in strong draughts without extinguishing the flame; it is entirely without solder in the upper part, making it much more durable, and it has the glass sides so arranged that they are much less liable to break than others; when they are broken an ordinary glazier can replace them. This lantern is also fitted with convex reflectors, A and B, which serve to increase the light and also afford a protection to the eyes of the person carrying it. The flame is regulated from the outside by the button, C, and the top is hinged at D, to the lantern so that the oil may be poured in at E; there is also a device over the wick at E, which causes the flame to burn brightly and steadily without a chimney, even if the outer case be removed. This burner is well adapted for hand lamps, and will be furnished to dealers separately if desired. The lantern is convenient in form and size for general use. Patented April 28, 1863, through the Scientific American Patent Agency. Further information can be had by ad-

ressing Archer & Pancoast, 9, 11, and 13 Mercer street, New York.

The Iron-clad "Ironsides."

We have been furnished, by an eminent naval officer, with the following table, exhibiting the performances and the capacity for resistance of the *Ironsides* frigate in Charleston harbor—proving her by the severest and most continued hostile tests, to be the most perfectly armored vessel in the world. It will be perceived that she was struck by the shots of the enemy 241 times, one hundred and forty of which thundered against her in the short period of two days; but notwithstanding, she has passed through the terrible ordeal without having sustained any serious damage, and with the loss of only one man killed. This is a most satisfactory evidence of her great powers of endurance. The table, we may promise, is entirely authentic, and the information contained in it has, we believe, never before been made public. It is as follows:—

DATE.	SHOTS FIRED.	TIMES STRUCK.
April 7, 1863.....	8 rounds.	Several.
July 18.....	305 rounds.	10 times.
July 20.....	168 rounds.	13 times.
July 24.....	220 rounds.	12 times.
July 29.....	210 rounds.	2 times.
July 30.....	366 rounds.	3 times.
Aug. 17.....	428 rounds.	30 times.
Aug. 18.....	158 rounds.	Not struck.
Aug. 19.....	64 rounds.	Not struck.
Aug. 20.....	168 rounds.	Not struck.
Aug. 21.....	114 rounds.	1 time.
Aug. 22.....	182 rounds.	Not struck.
Aug. 23.....	88 rounds.	5 times.
Sept. 2.....	50 rounds.	7 times.
Sept. 5.....	504 rounds.	15 times.
Sept. 6.....	238 rounds.	3 times.
Sept. 7.....	152 rounds.	50 times.
Sept. 8.....	488 rounds.	90 times.
Total.....	4,561 rounds.	241 times struck.

[Newark Advertiser.]

[The items wanting to make the account complete are omitted. What was the range, the size, and velocity of the shot?—Eds.]

WATER FOR JERUSALEM.—It is proposed by a company to construct sewers, and supply water conduits in the city of Jerusalem. There are still evidences remaining that water was once had there in great abundance. The great reservoir beneath the Temple, 736 feet in circuit and 42 in depth, held two millions of gallons, and there were upwards of thirty smaller reservoirs connected with it. The Pool of Bethesda, now dry, contained 21,874,742 gallons; and the Pools of Solomon, about seven miles distant from the city, held 50,136,320.

Experiment on a Wool Target.

The *London Times*, in an account of experiments at Shoeburyness, has the following:—

"Another theoretical novelty in the way of targets was tested at this practice-ground on Wednesday week, and, like most of the extraordinary novelties that are brought there, was proved to be utterly worthless in two shots. The target was one composed of compressed wool, made after Mr. Nasmyth's plan; that gentleman and a very large number of others also, entertaining a confident opinion that a good thickness of wool, when pressed tight, would offer an amount of resistance to shot which, if not sufficient to keep it out altogether, was, at least, certain to be enough to justify the Government in making experimental inquiries on the subject. We do not know, even if the discovery had been successful, how it was proposed to utilize it—how, for instance, to recoat our ironsides with 10 or 12 feet of pressed wool, or how to apply so bulky and cumbrous an appliance in any way. Fortunately there is no necessity for considering such embarrassing speculations now, inasmuch as the experiment of Wednesday proved the wool rather more permeable to shot than almost any other novelty that has yet been fired at. A very few words is sufficient to tell the result. The target, if we may so call it, was a wrought iron tube, like a boiler or iron funnel, open at both ends, 10 feet in diameter and about 11 feet long. The wool part of the target was constructed by tilting this on end and filling it with wool as tightly as men could trample it down till the cylinder was full. It was then laid on its side fronting the gun, so as to present the appearance of a large white circular target or drum, 10 feet in diameter, and 11 feet thick of solid wood.

"The first shot was fired from the Armstrong 100-pounder, with a 10-lb. charge, and this not only passed through the target from end to end, but buried itself in the earth behind. A second shot was fired from the 68-pounder, with the usual service charge, and this also went through, burying itself in the bank, and as a means of resistance the target was such a palpable and utter failure that even Mr. Nasmyth was satisfied with these two shots, and concurred in the uselessness of firing any more. The result exactly fulfilled the anticipations of the iron-plate and ordnance



of the lantern itself being such that it constitutes a chimney and creates a draught for the maintenance of the light without employing the glass tubes generally used for that purpose, thus obviating the trouble and expense which they cause. The construction of this