

## SCIENTIFIC MUSEUM.

## Steam Hod Carriers.

During the three days previous to the 12th inst., the solar heat was so great in our city that no less than two hundred persons died from its effects. This number, together with those who died on the 13th and 14th, swelled the list to at least 250. We carefully examined the Coroner's reports as they were published from day to day, which, so far as could be ascertained, gave the places of nativity of each. These reports reveal the astounding fact that six-eighths of those who died were natives of Ireland, and only about two-fiftieths natives of the United States, all the rest being foreigners. Those who died were mostly hard-working people, and the majority of them, we have no doubt, were hod-carriers. There is no toil so severe as that of carrying mortar and bricks up three or four stories upon men's shoulders in hot summer weather: it is an occupation which we would like to see abolished as soon as possible, and we cannot perceive any difficulty in the way of doing this. Those builders who undertake and execute large contracts in our city, we believe, would find it profitable to use portable steam engines for the purpose of elevating stones, brick, timbers, and mortar, instead of raising them by manual power—such as by men working the crank of the derrick, and carriers going up the ladders with hods. The steam engine could work the crank shaft, to wind up the rope or chain on a windlass, and the rope could pass over a pulley attached to a movable beam secured alternately on successive scaffolds of the building. Men on the ground would only have to load the buckets to carry up the brick and mortar, and those at the top would only have to unload and carry the materials to different parts of the scaffolding. All the running up and down on ladders would be saved, severe labor would be abridged, and consequently both employers and employees would be benefitted. Even if a steam engine were not adopted every builder could easily erect a portable crane on the scaffolds and elevate the building materials with it.

We have directed attention to this method of elevating building materials more than once during the past seven years, and it has given us some pleasure to see our suggestions adopted on a number of buildings now in the course of erection in our city. We are aware that we are recommending nothing new to those who have travelled over many lands, but it is something new to many of our builders, so far as their practice is concerned. In view of the awful mortality to which we have alluded, we hope our builders will not forget nor neglect to provide, as soon as possible, a remedy for manual hod-carrying. The steam hod-carrier is perfectly practicable and economical, and will not injure but benefit the builder and laborer "in both purse and pro-vender."

## Great Telegraph Cable.

We learn by the "Paducah (Ky.) Pennant," that a telegraph cable was laid across the Ohio River at that place, on the 26th inst. by Tal. P. Shaffner, Secretary of the American Telegraph Confederation, assisted by J. B. Sleeth, Mechanical Engineer. It is composed of a large iron wire, covered with three coatings of gutta percha, making a cord of about five-eighths of an inch in diameter.

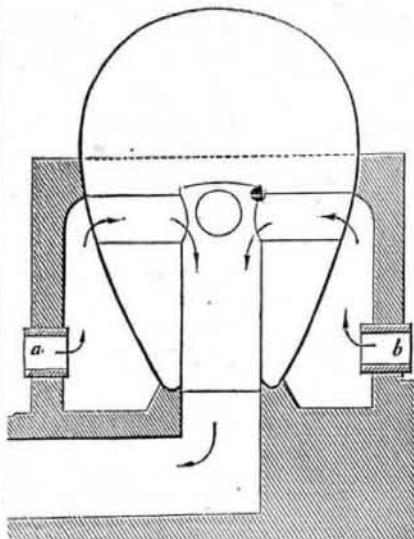
To protect this from wear, and for security of insulation, there are three coverings of strong Osnaburg, saturated with an elastic composition of gutta percha, and around this are eighteen large iron wires, drawn as tight as the wire will bear, and the whole is then spirally lashed together with another large wire, passing around at every  $\frac{1}{4}$  of an inch.—The whole forms a cable of near two inches in diameter.

This wire conducts the electric current beneath the bed of the Ohio for a distance of 4,200 feet, and is said to be the longest telegraph cable in the Union. The company was much troubled before on account of unsuccessful efforts to cross the river with the wire, and secure it against accident. It is believed that this cable will effect a great saving to the company, and at the same time obviate much trouble.

## The Egg-Shaped Vertical Boiler.

Having presented a great number of engravings of boilers in our last volume, and also a great amount of information on this very important subject, we present the following engravings of the "egg-shaped boiler."

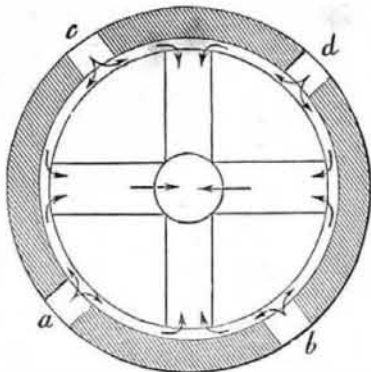
FIG. 1



er," much used in some parts of England. A description and diagram appeared in a communication in the last number of the "London Artisan," by Robert Armstrong, the author of the best work ever published on steam boilers.

This boiler is well adapted to be worked by the waste heat of puddling furnaces in iron works, and for this purpose it was originally contrived. Two boilers of this description, 9 feet in diameter and 18 feet high, in an iron works at Wolverhampton, England, made steam sufficient to work an engine of 80 horse power from the spare heat proceeding from four puddling furnaces—two furnaces to each boiler. Figure 1 is a vertical section, and figure 2 a plan view. The arrows show how the heated gases are admitted by the flues, *a b c d*, from the puddling furnaces. These meet at the centre, and pass down and out through the vertical flue, the greatest heat being applied nearest to the surface of the water, the correct principle.

FIG. 2.



Having presented a new puddling furnace in the last number of the Scientific American, and having stated in describing it, that it was especially adapted for using waste heat for raising steam to work the engines, this boiler will form a useful accompaniment to the same.

## Poetry and Science.

"The National Association for the Advancement of Education," met at the city of Pittsburgh, Pa., on the 9th inst., and had an interesting time of it. Professor Henry, of the Smithsonian Institute was chosen Chairman, and made an excellent introductory speech, in which he gave a sketch of his own life. He has been a watchmaker, school-teacher, engineer, and professor in a college. On the second day Prof. S. S. Haldeman, of Pa., delivered a fiery and able address on the ignorance of science displayed by poets and mere literary men, and the evil resulting from the same. He believed that the judgment—the most important faculty of the mind—was not so much cultivated as the imagination. The judgment could only be cultivated by a study of physical and natural science, while the imagination thrived on fiction; the former dealt with rigid truth, the latter with slipshod falsehood. He exposed the ignorance of science displayed by Montgomery in the poem of the Pelican Island, wherein he in-

roduces a "nautilus" as sailing on seas where it is never found. Goldsmith, the poet—a reader *only* of scientific works, ignorantly described the crab and the tortoise as belonging to the same class, and Mrs. Sigourney wrote of the zoophytes as insects. In a room of 50 or 60 students studying Butler's Analogy, he had heard the question asked, "how many legs has a fly?" and not one could answer it. He gave the shallow literati of the press a severe flagellation about the Paine Light. He said:—

"Education should teach us to think, not to imagine. The prominence given to imagination crowds the world with superficial pretenders, expounders of false reforms, educated people who were never taught to reason.—We flatter ourselves upon our intelligence, yet we have seen almost the entire newspaper press—that index of the public mind—giving credence to the unphilosophical, but (to the the ignorant) plausible, explanation of the apparatus to produce the Paine light; in which the prominent feature of its tremendous power was increased weakness. Mathematics keeps its votaries so perfectly in the proper track, that they are not generally good investigators where observation and judgment are required, and we consequently find that mere mathematicians are generally not remarkable for making logical deductions in general sciences, although mathematics is the most logical of the sciences. It is only when the mathematician cultivates the sciences of observation that we see the triumphs of the human mind, as in astronomical research, where minute observation, careful manipulation, exact comparison, and profound judgment are brought into action. Research in other branches of natural philosophy, in mechanics, engineering, natural history, and chemistry, also bring the reasoning powers into activity, and afford facilities to a much greater number of inquirers."

He also gave Harper's Magazine a severe drubbing for dabbling in science, in an article for July, on shells, which he characterized as "a tissue of absurdities." He also gave Putnam's Magazine a rebuke for some mistakes in treating of the natural sciences. The object of the professor was to show the evils of imaginative studies, by giving them a too prominent place in education. Bishop Potter replied to the professor, and considered the arguments presented to be against the study of natural sciences in schools. A number of others came up to the defence of poetry and imaginative literature; but Prof. Haldeman was right. The true alone is the beautiful, and poets and literary men, when they write upon any subject, should understand it or keep mum. It is indeed true that too many men write about subjects (making a great pretence to profundity) of which they are perfectly ignorant, and we have had abundant evidence of the truth of what we say in respect to the very case mentioned by Professor Haldeman. When the Ericsson also created such an excitement in the months of last January and February, and nearly the whole newspaper press of this city, in their ignorance of science, became *non compos mentis* about "the good time coming," the "Philadelphia Ledger" stated that the "Scientific American" stood alone, as it did on the Paine Light, when it had an array of talent equally great against it, and it, the "Ledger," would wait for future developments. The result has justified the confidence which that paper reposed in our opinions, and yet for all this, we do not pretend to be perfect—all men are liable to make mistakes. There is a great and general ignorance of science and philosophy, but this, we believe, is not owing, as Professor Haldeman said, to the super-cultivation of the imagination, but the general disinclination in mankind to severe mental toil.

## LITERARY NOTICES.

ELEMENTS OF ANATOMY AND PHYSIOLOGY.—By Justin R. Loomis; New York City: Lampport, Blakeman & Law. A very good book—the best book of its size, treating upon these important subjects, we have ever seen. There is a dignity and conciseness about the style which admirably fit it for its purpose. We have looked in vain for the diffuseness diluted and the senseless repetitions of some of our popular text books. We expect for Prof. Loomis a brilliant success as a book maker.

MINIFIE'S MECHANICAL DRAWING BOOK.—For self-instruction. Part 10. A useful and practical work. Published by Wm. Minifie, Baltimore; Dewitt & Davenport, New York, agent.

MARK HURDLESTONE; or, The Two Brothers—By Mrs. Moodie, author of "Roughing it in the Bush," "Enthusiasm," &c. Dewitt & Davenport, publishers, 156 Nassau st., New York. This is a work of consummate interest, and is written in a style of elegant refinement, characteristic of the gifted authors, who is a sister of the celebrated Agnes Strickland. It forms a 12mo. book of over 350 pages, on excellent white paper and in faultless typography.

## NEW PROSPECTUS

(OF THE)

## SCIENTIFIC AMERICAN

SPLENDID PRIZES!

The first number of the NINTH VOLUME of the SCIENTIFIC AMERICAN will be issued on the 17th of September. We are grateful for the very liberal encouragement which we have received from our readers, and take this occasion to express to them our gratitude. We are also under many obligations to our cotemporaries for favorable notices.

The next volume will be commenced with *new and beautiful type*, printed on paper manufactured expressly for this publication, of *greatly increased weight and finer quality*: this item alone will increase our yearly expenses over \$3000; in addition to this we shall increase our present able Editorial force as it is our intention to continue the Scientific American, "THE LEADING AND MOST RELIABLE PRACTICAL SCIENTIFIC JOURNAL IN THE UNITED STATES." It will continue the unflinching advocate of all *useful improvements*, and it will fearlessly expose all unreliable and deceptive schemes appertaining to its character; [in this respect it has gained a reputation superior to any other work of the kind in the world.]

The opening of the CRYSTAL PALACE in this city forms an object of rare public interest; we shall devote a full page of the paper every week to careful criticisms, reviews, and illustrations of the objects most worthy of attention. We hope to render this department especially interesting to all our readers, whether they visit the Fair or not. The copious and FINELY EXECUTED ENGRAVINGS of Machinery, New Inventions, etc.—the FOUR HUNDRED PAGES of valuable *Scientific and Practical Reading*—the USEFUL RECEIPTS—the full Report of all the PATENT CLAIMS, and the reliable character of the journal on all branches within its field of labor—render it worthy of the support which it has so liberally received from its intelligent class of readers.

The circulation of the Scientific American during the present volume has exceeded EIGHTEEN THOUSAND COPIES PER WEEK. The edition on the new volume will be commenced with *twenty-three thousand*, [which we feel confident will not be an over calculation. Subscribers, to ensure the numbers from the commencement of the volume, should send in their subscriptions early, as many were disappointed in not obtaining the complete set of the present volume.]

The Scientific American is in form SUITABLE FOR BINDING, and each volume is accompanied with a full Index of all the subjects, which renders it an ENCYCLOPEDIA OF USEFUL, SCIENTIFIC, and MECHANICAL INFORMATION, for present as well as future reference.

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\$5 for the twelfth ditto.

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