

SCIENTIFIC MUSEUM.

Scientific Memoranda.

NEW PROPELLER.—Mr. Seydell, naval architect at Stettin, (Eng.), and Mr. Ruthven an English engineer, have constructed a ship which is impelled neither by wind, oars, nor steam, but by retro-active hydraulic power. The essay they have made is said to have entirely succeeded.—[Ex.]

[The above means that water is forced by an engine through tubes at the sides or stern of a vessel, which, by its re-action (the resistance the escaping water meets) propels the vessel. This was the principle of propulsion invented by our Rumsey sixty-seven years ago. The above gentlemen live in Edinburg, Scotland; we believe Mr. Ruthven has a patent for his improvements, as they are termed. The Scotch engineers of note do not seem to value the plan much. Its principle is not at all to be compared to the Paddle Wheel or the screw.]

THE GREAT POLAR OCEAN.—At the last meeting of the London Geographical Society, Lieut. Osborne, a member of one of the British Arctic expeditions, argued, at some length, in support of the existence of a great Polar Ocean. He said that in Wellington Channel he had observed immense numbers of whales running out from under the ice, a proof that they had been to water and come to water, for every one knew they must have room to blow. He further said that there were almost constant flights of ducks and geese from the northward, another proof of water in that direction, since these birds found their food only in such water. He added, that it was his deliberate opinion, from observations made on the spot, that whales passed up Wellington Channel into a northern sea. In reference to the abundance of animal life in the latitude of this supposed Polar Sea, he remarked that while on the southern side of Lancaster Sound he never saw game enough to keep his dog, Melville Island, one hundred and fifty miles to the northward, abounded in deer and musk oxen. It was thus clear, he continued, that animal life did not depend on latitude, but increased, if anything, after passing the seventieth degree. Moreover, while in Baffin's Bay the tide made for the southward, coming from the Atlantic, in Barrow's Straits it made for the northward, which could only be explained on the hypothesis of a sea in that direction.

A CLIPPER FROM MAINE.—The largest clipper-ship ever built in Maine, the Grecian, of 1131 tons, is now at New York, for California. Her length over all is 193 feet 6 inches, 37 feet beam, 8 feet between decks, and 11 feet 9 inches lower hold. Her model promises great speed, while at the same time her capacity for freight is larger than ordinary ships of her class. She rates at the underwriters at the highest point.

GOLD IN AUSTRIA.—A report will soon be presented to the Imperial Geological Society of Vienna relative to the production of gold in Austria. Austria produces the most gold of any European State. It amounts yearly to 7,500 marks, which promises a sum of \$1,206,000. Much of this is obtained by the Gipseys, by sand-washing, in Hungary and Siebenburgen. There are two ways in which the gold is found—one is in the deposits of sand and soil; the other in the strata of ore. The latter is the most common method of finding it in Hungary and Siebenburgen. A famous place for finding it in Hungary, is near Weisskirchen, where, by the Convent of Slatiska, a piece of gold was found, weighing three-quarters of a mark, and worth 126 dollars. The Gipseys are very clumsy in gold-getting.

NEW SUGAR PLANT.—Representations have been made by a cultivator in the Rhine Provinces, that he has in his garden a bulbous plant, called the "Russian Potato," four or five feet in height, and yielding a third more sugar than the beet-root. It is of inestimable value to a region unfavorable to the growth of the beet, and it is afforded at a much cheaper rate. Measures are taken to bring it into notice. Thus, we see, sugar must soon become a necessary article of food to the poorest serf in Europe.

On Boilers.—No. 14.

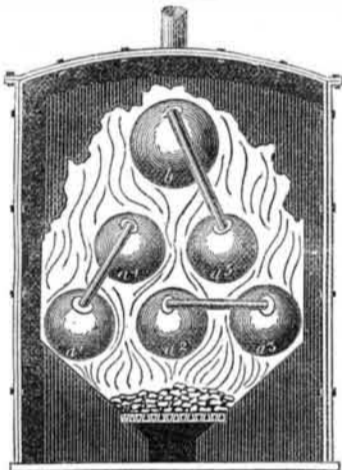
McCURDY'S BOILER.—The accompanying figure, 24, is a longitudinal section of a boiler invented by Mr. McCurdy, of New York, who took out a patent for his invention in England in 1824, and afterwards sold it for a large sum of money. *a* is a tube of considerable thickness made of wrought iron. Its length is 11 feet, is of six inches diameter at the large end, and it tapers gradually to the other end. It is bent, and an injection barrel, *c*, is inserted at *b*. This barrel is perforated and is connected at the outer end with the

Fig. 24.



force pump: *d*, is the tube which conducts the steam to the engine. This invention was made before the nature of water in a spheroidal state was known, for this vessel was placed in a furnace, and after it was red-hot, water was forced in by the pipe, *c*, and being finely distributed by the perforations over the interior surface, it was instantly to be converted into steam of a very high pressure. It was asserted that this boiler was capable of generating as much steam as a common one of 150 cubic feet magnitude. It was, as we now know why, an entire failure.

Fig. 25.



This figure is an end view of another boiler, invented by Mr. McCurdy, and patented in 1825, in London, where he took up his residence. He denominated it "Franklin's Duplex Steam Generator." A number of large tubes were closed at both ends; on one end of each a head was fixed which could be taken off at pleasure. Inside of each of these tubes there was inserted a tube of smaller size, and leaving a space all around. These inner tubes united at the ends of two large tubes or pipes, which were placed in the furnace-like gas retorts. The top one was a reservoir for the steam. The lower large pipe, *a*', like the one in figure 24, is connected to a force pump which forces water into it; it passes from that to *a*², *a*³, *a*⁴, *a*⁵, and then into the steam reservoir, *b*, from thence to the engine. It was an improvement on figure 24.

In the same year, 1824, a Mr. Thompson, of Chelsea, England, along with a Mr. Barr, took out a patent for revolving boilers. Four cylinders were mounted on axes, each with a spur wheel, and these were placed in a furnace, and a rotary motion by machinery given to all the cylindrical boilers, (large tubes). The water was fed in through the axis of each tube, which was hollow and had a spring valve on its inside.

Electricity—Its Uses.

AMPUTATING LIMBS.—Some operations have been performed lately at Vienna, Austria, by means of platina-wire heated red-hot, which had been found to sever the flesh with as much ease and celerity as a knife. One great advantage offered by this method, is the very slight effusion of blood caused by the wire as a dividing instrument. The way in which the platina is kept hot is by making it a part of a galvanic circuit. If the two poles of a galvanic battery are united by a copper wire

of uniform thickness, no heat will be developed in the wire, but if part of the copper wire is taken out, and its place supplied with a thin strip of platinum, this strip will become red-hot, owing to the resistance (this is all the name yet used for the phenomenon) offered by the platina, because it is not such a good conductor as the copper. This principle is, we see, now employed to the noble object of surgical operations. It is an ingenious application of science. Electricity is now applied to send messages thousands of miles away in a few seconds; to record the transit of stars; to measure the flight of time; to deposit metals from aqueous solutions, and to make them assume any form we choose—that of the flower or "the human form divine;" to move ponderous machinery; and now it is applied to surgery. We cannot limit its applications; it is a versatile agent, recording the flight of the rolling spheres, and riving asunder huge rocks buried fathoms deep in ocean's bed.

Hussey's American Reaping Machine.

The Doncaster Gazette, Eng., states that in a trial in cutting down wheat stubble by Hussey's machine, which was introduced into the northern counties of England, by Mr. Crosskill, of Beverly, it did its work finely. The trial took place at a Mr. Ingles' farm. Here is what the Gazette says about it:—

"In some parts of the field the stubble was nearly rotten, and also much trodden down by the crowd of visitors present: but fearless of the bad season and the effect of the late frosts, Mr. Taylor started the reaper across ridge and furrow, and fully proved its superior cutting propensities, notwithstanding so many unfavorable circumstances. The trial was witnessed by many of the principal practical farmers in the neighborhood of Pontefract, who expressed their full approbation of its efficiency, in a certificate to Mr. Naylor, and we very willingly add the names of several other enterprising gentlemen, well known in this locality, who have given orders to Mr. Crosskill for reaping machines, viz:—Captain Newton, Womersley, Pontefract; M. Flaviell, Esq., Snayd Hall, C. Charnock, Esq., Ferrybridge, Pontefract; J. Brown, Rossington, Doncaster; E. Brook, Esq., Hampole, Doncaster; W. Poskitt, Esq., Birkin, Knottingly; W. Boulton, Esq., Kensall, Snaith. Doubtless many more will adopt this most valuable invention; and the plan of testing one reaper in every parish at this season of the year, upon stubble or winter tares, is deserving of consideration as it may enable many to decide to cut by the machine before next harvest."

We rejoiced when we heard of the success of McCormick's Reaper in England, and we now rejoice at the success of another American Reaper there.

Effects of Using Tobacco.

It is frequently asked whether the use of tobacco is injurious to the teeth and the health. In answer to which the inquirer may be respectfully invited to turn to his Cyclopædia, and when he reads of the powerful principles it contains, namely, empyreumatic oil and nicotina, the action of both of which is highly poisonous,—(a drop of the former placed on the tongue excites convulsions and coma, lethargic drowsiness, and may prove fatal in a few minutes; and a quarter of a drop of the latter will kill a rabbit, and a drop a dog), will he not rather inquire how it can be otherwise than most injurious, not only to the teeth and gums, but indirectly, if not obviously, to every part of the frame? Beyond an unsightly discoloration of the teeth, and an empyreumatic infection of the breath, of those accustomed to the use of this narcotic acid poison, its deleterious effects may not for a considerable period be detected; but after long habitual use, the whole system becomes impregnated; and although habit may reconcile its action when used moderately, nothing can secure the body from its irritative property and ultimate absorption when employed in excess or incautiously. Its action on the heart, or probably the nerves of the heart, manifest itself by lower positions, and an indulgence in an intemperate and excessive use of tobacco, by smoking a number of pipes and cigars, has caused death. Under the action of the nervous system, the motions of the heart, and

subsequently the general quickness of the course of the blood, are quickened or retarded. All irritants and stimulants urge and force to a more vehement, and, consequently, a more rapid outlay of the strength or capacity for exertion; and it is an invariable law of organization, that outlay is succeeded by depression, and whatever unduly depresses, whether resulting originally from a stimulant, a narcotic, a sedative, or any other powerful principle, has the effect of lessening improperly the action of the heart and arteries; and it is on this account that neither intoxicating drinks, nor tobacco, nor anything else producing an affect which issues in depression, can be recommended for the promotion of health and longevity. I would therefore strongly recommend abstinence from the use of tobacco in all or any of its forms; not only on the ground of its rendering the teeth unsightly and the breath disagreeable, but because it is clear, to a demonstration, that it finally depresses the natural powers. Its use even in the forms of snuffs and errhines is very objectionable; the membrane of the nose becomes thickened, its sensibility impaired, and the power of discriminating odors greatly lessened.—[Miles on Teeth.]

LITERARY NOTICES.

CHARACTERS IN THE GOSPEL.—Illustrating Phases of Character at the present day: by E. H. Chapin; J. S. Redfield, publisher Clinton Hall, N. Y.—This volume of 160 pages, embraces six discourses by one of the most gifted minds of the age. The reasoning is logical, the applications finely made, and the style finished, replete with beauty and eloquence. The work will be found peculiarly interesting, and is published in Redfield's usual excellent style.

GODEY'S LADIES BOOK, for March, is received through Messrs. Long & Bro., 43 Ann st. In No. 22 we reflected somewhat severely upon the publisher of this popular Magazine, and now take occasion to state that he has explained the matter to our entire satisfaction, and we fully exonerate him from all blame. The number before us is replete with fine engravings and a choice contents from able contributors.

GRAHAM'S MAGAZINE, for March, is splendidly illustrated with a dozen engravings, executed in the highest style of the art, and embraces 112 pages of original matter from such authors as James, Neal Gilmore, Herbert, and others. Graham furnishes an excellent magazine. Dewitt & Davenport, Agents.

LIFE OF GEN. SCOTT.—We have received from the press of A. S. Barnes & Co., publishers, 51 John st., a copy of the life and military exploits of Gen. Winfield Scott. The book is neatly printed and copiously embellished, containing 290 pages, and sold in paper covers for 30c.

LITTELL'S LIVING AGE, of this week, is a most excellent number. It is for sale at Dewitt & Davenport, Tribune Buildings, this city.

Dewitt & Davenport have sent us the March number of Peterson's Ladies National Magazine. It is well illustrated, and contains a fine list of interesting contributions. The Editress, Mrs. Ann S. Stephens, is at her post.

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N. B.—The public are particularly warned against paying money to Travelling Agents, as none are accredited from this office. The only safe way to obtain a paper is to remit to the publishers.