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O. D. MUNN, S. H. WALES, A. E. BEACH.

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IMPROVEMENTS IN PAPERMAKING.



IN the manufacture of paper, every improvement, however small, is of consequence in the community, because this material is so extensively employed in literature to convey information and communicate thought. A new material applied to its manufacture, or an improvement in the processes, whereby its cost is reduced, affects the welfare of all, as it is the great agent which conveys food to the general and individual mind. Every plant of a fibrous character is capable of being converted into paper, but the processes necessary for reducing most of them into proper "stock" have hitherto been so inefficient as to preclude all competition with linen and cotton rags, especially for the finer qualities of paper. There are many paper materials which can be obtained much cheaper than rags, and much money has been expended in operating with straw, grass, weeds, shavings, and almost every conceivable vegetable fiber, but doubtful success appears to have attended the experiments made with most of them. White paper has been made from common straw, but it was so hard and brittle, and contained so many specks, that it could not be well employed for printing purposes. With a large admixture of cotton pulp, we know it has been employed in some instances for daily papers, but the great object has been to remove all its defects, so as to secure a perfect white and fibrous straw paper pulp. This, we think, has been to a great extent accomplished by simple processes now practiced by Messrs. Howland & Palser, paper manufacturers, of Fort Edward, N. Y., on which they have recently obtained patents. We find an article on this subject by Professor Poulton, in a late number of the *Fort Edward Institute Monthly*, which states that the straw paper made by this company is of a very superior character for printing and writing, and that the *New York Ledger* and *Sun* are now printed upon it. We know something about this paper, and the improved processes by which it is manufactured from straw, and can add our word of testimony to its good qualities. Hitherto all the processes employed to reduce straw to a proper pulp resembling that of cotton rags did not embrace the complete removal of the bitumen; hence it was almost impossible to bleach the raw material, while the paper made from it could not be otherwise than hard and harsh. By the new process the straw is submitted to a much higher temperature in close vessels and in alkaline solutions than had been done formerly, and by this means all the natural bitumen and glutinous impurities are removed, and a very pure fiber obtained. The other operations are similar to those in common use. The paper produced from straw by this mode of manufacture is of good color, and of fair quality for printing.

As paper is the greatest item of expense in the publication of books and periodicals which have a large circulation, every improvement in its manufacture is of great interest to the public, as it tends to furnish cheaper literature for the millions. *Apròpos* to this, the *London News* (of the 7th of January) states that a new method of bleaching paper pulp has been discovered by M. F. Didot, of France, which consists in causing carbonic acid gas to be employed in conjunction with chlorine, and the process is thus described in the *Repertoire de Chimie*:—"While the chloride of lime is in contact with

the fiber to be bleached, a current of carbonic acid proceeding from the combustion of charcoal is introduced in a highly divided state into the midst of the liquid. The gas uniting with the lime, the hypochlorous acid is set at liberty, and acts much more energetically as a decolorizer than the hypochlorite. The process is so simple that wonder has been excited that it was not invented sooner."

We "wonder" that any "wonder" has been excited by this alleged new discovery. By the use of sulphuric acid, the same results are secured in a more simple and economical manner, which is the old *discharge* process, so well known to calico-printers.

THE BUFFALO BIG SHIP.

We always like to say a word in favor of a new project, when it is based upon reason and science; and the more lofty and grand the design of the projector, the more we admire his genius and endeavor to encourage his efforts. On the other hand, when a great scheme founded upon erroneous scientific data, is brought before the public, we endeavor to point out its futile character, not only as a useful warning, but that its subsequent failure (as fail it must) may not be laid to the blame of science. In the first volume of the new series of the SCIENTIFIC AMERICAN—on page 305 and 352—we gave a brief account of, and expressed opinions regarding, the great steamship projected by Mr. R. Germain, of Buffalo, N. Y., by the side of which the *Great Eastern* was to be like a minnow to a whale, and about which the people of that city had been so much excited by public meetings and lectures. The designer of this great ship proposes that it shall be, not hundreds, but thousands of feet in length, and that by his calculations it may be made to run at the rate of about one hundred miles per hour (far surpassing the velocity of the railroad train) and that merchandise and passengers may be carried at much less expense by it than by common steamers, or even the railroad. We pointed out (on page 352) that the calculations of Mr. Germain were not based upon correct scientific data; that while he was to achieve so much with so little, by obtaining a double-speed with a quadruple power, a cube power was required to secure such results; and that his project was therefore in a manner visionary. Our opinions so expressed have been endorsed by a respectable and able committee of the citizens of Buffalo, composed of Messrs. George Hadley, A. T. Chester, Chas. E. West, David Bell, William Allen, William Moses, C. D. Delany, and F. N. Jones, who were appointed to examine the whole scheme and make a report of their investigations. This they have done. A large meeting was held on Feb. 11th, in Buffalo, presided over by Ex-President Fillmore; and Professor C. E. West read the report of the committee, which we would give *in extenso*, if space permitted, because it is so cautiously worded in language, and so sound in the tone. We however, can only give the leading points. These gentlemen discussed all the questions—theoretical and practical—relating to the mathematics, machinery and building of such a vessel, and they say that they have been "embarrassed in considering the conflicting statement of authors; some maintaining that the mechanical power necessary to overcome the resistance of a body moving in a liquid increases as the square of the velocity, while others are equally explicit, that it increases as the cube of the velocity. A solution of this problem is of the utmost importance to the practical engineer, for if the motive power be as the cube of the velocity (which is the conclusion of the committee), it is apparent that the very high rates of speed contemplated by Mr. Germain must be attended with an enormous expenditure of mechanical force."

According to this opinion they consider the scheme to be visionary; and they clinch this idea by stating, in another part of the report, that "a boat so built may be made to attain a speed of 30 or 35 miles per hour"—quite a reduction from the hundred-mile velocity of its projector. Notwithstanding the unfavorable report on this steamer, so contrary to the opinions of Mr. Germain (who was present at the meeting, and expressed himself surprised), the people of Buffalo have taken measures to organize a company for the construction of such a steamer. The idea which seems to possess them is that, as the railroads have taken away much of the lake trade of their city, this steamer will certainly bring it back by its great speed and cheap

carrying capacity. We advise them to be cautious; though we have not a word to say against their making an experimental boat, but we suggest that, whatsoever is new in the form of the vessel or in the arrangement of its machinery, these can as well be tested, comparatively, on a boat 100 feet in length as on one 4,000 feet long. We are well aware that large vessels of the common form are more economical of power than small vessels, because they possess, proportionally, less resisting surface; but this has nothing to do with the testing of a new vessel like that of Mr. Germain's. Its merits can be as fairly tested and compared, on a small as a large scale, with another common steamer of the same capacity in all other respects.

ENGLAND ON OUR NAVAL ARCHITECTURE.

Our venerable cotemporary, the *London Mechanics' Magazine*, quotes the brief report of Senator Murphy's lecture, published on page 26 of the present volume of the SCIENTIFIC AMERICAN and with a very self-satisfied air in regard to its own intrinsic capacity for treating such subjects, it says: "We cannot fail to observe the thing which passes for scientific naval architecture across the Atlantic." Such self-congratulation may be all very fine in London, but it is neither sensible nor just towards the naval architects of America. That which passes for scientific naval architecture in New York, we assert, is as sound as that which passes current in the British metropolis or any other part of the world; but the lecture of Mr. Murphy was given before a mixed audience and for the entertainment of an hour, not before a select audience of naval architects and as a scientific disquisition on the art. None of Senator Murphy's conclusions have been criticised, and none of his errors (if any) have been pointed out. We must tell our cotemporary that "the thing which passes for scientific naval architecture" on both sides of the Atlantic, is not words but deeds; and we believe that our shipbuilders have rather the advantage on this head. The swiftest ship in the English service, at present, is the *Lightning*—an American-built vessel; and we have "several others of the same sort left."

TESTIMONIAL LETTER FROM EX-COMMISSIONER BISHOP.

We have much pleasure in presenting herewith a flattering testimonial letter from Hon. W. D. Bishop, late Commissioner of Patents. His opportunities of judging correctly in such matters, none will presume to question:—

Messrs. MUNN & Co.—Gentlemen: It gives me much pleasure to say that, during the time of my holding the office of Commissioner of Patents, a very large proportion of the business of inventors before the Patent Office was transacted through your agency, and that I have ever found you faithful and devoted to the interests of your clients, as well as eminently qualified to perform the duties of Patent Attorneys with skill and accuracy. Very respectfully,

Your obedient servant, WM. D. BISHOP.
Bridgeport, Conn., Feb. 22, 1860.

APPLICATIONS FOR THE EXTENSION OF PATENTS.

Magnetic Printing Telegraph.—Royal E. House, of Binghanton, N. Y., has applied for the extension of the patent granted to him on the 18th of April, 1846, for an improvement in magnetic printing telegraphs. The petition is to be heard at the Patent Office on the 11th of April next. The testimony closes on the 27th of March.

Block Tin Spoons.—Joel Hall (2d), of Wallingford, Conn., has applied for the extension of the patent granted to him on the 25th of April 1846, for an improvement in the manufacture of block tin spoons. The petition is to be heard at the Patent Office on the 23d of April next. The testimony closes on the 9th of April.

COAL OIL IN THE CARS.—The Naugatuck Railroad Company, upon the recommendation of Conductor Beach, have introduced coal oil as an illuminator of the interior of their passenger cars. The light is more brilliant than that produced by the car gas apparatus. Conductor Beach has contrived a simple plan of making the flame of the coal oil lamps burn with as much steadiness when the cars are in motion as common oil or any other illuminator.

A SMALL ERROR.—In our article last week upon "American Naval Architecture," in the third line from the bottom of the last column on page 131, the diameter of a pipe is given as being "small" at six feet. Now it is evident that a pipe six feet in diameter is no juvenile, but a full-grown subject. It would be nearer the truth, if the word *smoke* were substituted for "small."