SCIENTIFIC MUSEUM.

Paper on Room Walls.

Bed rooms should never have papered walls; they should either be painted, or if of common plaster, simply whitewashed, two or three times every year. Painted walls allow of their being washed frequently, which is positively necessary for health and cleanliness. This cannot be performed on papered walls, therefore, let all consider that "there should be none of them." Various reasons might be adduced to back up what we have asserted, but we think this is not necessary; the annunciation is just a plainly-stated fact—a self-evident one.

In papering walls, some upholsterers and others, as we have known, sometimes employ corrupt paste, under the wrong impression that it makes the paper adhere to the wall much better than when fresh. Flour paste and glue size are both employed to put on walls for paper, and both are equally pernicious when put on in what is called a *sour state.* It is quite common for newly papered rooms to have a most unpleasant smell, and when the paper-hanger is spoken to on the subject, he will make the excuse, "oh, a few days will set all right—the smell will soon go off." A putrid odor from a newly papered wall is an evidence that the paste is corrupt, that it emits a gas—an effluvia dangerous to health, and which God has given our noses to detect, or of what use are they at all. There is nothing so sweet as fresh air, not all the perfumed waters ever made can purchase a substitute for the pure inodorous atmosphere for a room, by using them as a substitute to banish the evil smell of putrid paste arising from newly papered walls. The offensive odor will not depart until the paste is perfectly dry.

It is a very bad plan to paste new over old paper on a wall, merely to save trouble by pulling the old off. There are instances on record, of disease and death being caused by gas arising from the decaying paste of old papered walls which had become damp.

Rooms should be thoroughly dried after being papered, before they are inhabited. Some alcohol put into paste prevents its fermentation until it dries. No person should allow old paste to be used for putting on paper, and then it should be dried as soon as possible afterwards.

Use of Colored Glasses in Fogs.

The following curious observation is made by M. Luvini, of Turin:—

"When there is a fog between two corresponding stations, so that the one station can with difficulty be seen from the other, if the observer passes a colored glass between his eye and the eye-piece of his telescope, the effect of the fog is very sensibly diminished, so that frequently the signals from the other station can be very plainly perceived, when without the colored glass, the station itself could not be seen. The different colors do not all produce this effect in the same degree. The red seems the most proper for the experiment. Those who have good sight prefer the dark red, those who are short sighted like light red better. The explanation of this effect depends upon the fact that the white color of the fog strikes too powerfully upon the organ of light, especially if the glasses have a somewhat large field."

Cotton Oil.

A few days ago, says the "Mobile Register," we published a telegraphic dispatch, briefly stating that a chemist in Egypt had discovered a method of extracting oil from cotton seed. We thought it a strange announcement at the time, as the process could not be attended with much difficulty. It now appears, however, from fuller accounts, that the novelty and utility of the discovery consists in clarifying the oil, and rendering it fit for burning fluid, for manufacturers' uses, and for making soap. For these purposes it is said to be well adapted. The Viceroy of Egypt has conferred on the discoverer the exclusive right to clarify and sell the oil for ten years. We shall look with interest for further accounts of this discovery, and of the value and uses of the clarified cotton oil, as it may prove to be an invention of importance to southern planters.

Well Sinking---Artesian Wells.

We commence a series of articles this week, on boring for water, (which will be illustrated with wood engravings in our usual style), and which we are sure will prove very acceptable and interesting to many of our readers.

Artesian wells are so named because the operation of *boring* is practiced to reach the water, and because this practice was carried on anciently with great success, in the province of Artois, in France. They differ from the common well in not being dug of a large diameter into the spring, but to a certain distance above it, and then bored with a hole of small diameter, down to the spring, which rises up and overflows. In any case, where boring for water is attempted, the water must lie under some impermeable strata, of a basin-like structure, for if such disposition exists, it follows, that when this strata is perforated, the water will rise to a height corresponding to the hydrostatic pressure. It is, therefore, only under certain conditions of geological structure, that Artesian wells can succeed.

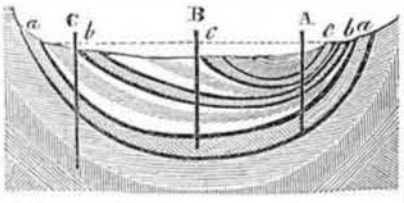
Figure 1 is a diagram of geological conditions requisite for Artesian wells; *a a* is an impervious or retentive stratum, as clay; *b b* a pervious or water-bearing stratum of gravel or sand below it; both of them resting upon another impervious bed, *c c.* If the clay be pierced by small borings, as at *d* and *e*, the water will rise to the surface or above it.

Fig. 1

In some places the basin is of such a geological character that water may be obtained at various depths, and in quantity and quality, according to the strata in which the waters are contained. This is exhibited in figure 2.

An Artesian well, sunk at the point A, would first raise the water passing into the smallest basin, which would perhaps be inconsiderable in quantity. On reaching the second basin, the volume of water would be increased, and, on penetrating to the third, or lowest basin, the whole body of water passing into the rims or gravel of all the valleys would be obtained. If the well were sunk at the point, B, the waters of the two larger basins would be obtained, and if sunk, injudiciously, at the point, C, so as to pass through the bottom of the great basin, the latter would be emptied far below the surface, and the labors and hopes of the operator frustrated.

Fig. 2.



Quite a number of artesian wells have been sunk in Alabama, and Marengo County, in that State, is supposed to have contained, at one time, a large lake, where several water basins, below one another, as shown in fig. 2, are said to exist. The first margins of the lake are represented by *a a.* This lake had been partially filled up, or its bed shifted by natural causes, when it contracted within a smaller space, and was bounded by the shores, *b* and *b.* A second change occurring, reduced the lake to the dimensions indicated by the marginal letters, *c* and *c*, and finally the lake became entirely dry, and formed the little valley between its recent shores.

Some time ago Prof. C. S. Hale furnished a very interesting article to the "Mobile Tribune," on the Geological basin of Alabama in reference to Artesian wells. The first or upper stratum is 150 feet of mottled clay and sand; the second is 150 feet of limestone; the third, 25 feet of yellow sand; the fourth, 15 feet of a clay oyster bed; the fifth, 70 feet of marly limestone; the sixth, 20 feet of a clay oyster bed; the seventh, 15 feet of sand; the eighth, 40 feet of lignite and clay bed; the ninth, 500 feet of blue marly limestone and the tenth a bed of sand. Here, then, there are three water basins or seams, as shown in fig. 2, for well boring. To reach the lowest water stratum, above, only about 300 feet have to be bored through. Quite a number of such wells have recently been sunk in Alabama, and at Millwood, in that State (near Greensboro), Dr. Withers has a mill supplied with six Artesian wells, which are in depth from 300 to 600 feet, and afford a supply of about 1000 gallons of water per minute. This water drives one of Whitelaw and Stirratt's Wheels, which is employed to run the saws in the mill.

At Cahaba, Ala., J. E. Mathews has an Artesian well 735 feet deep, which sends up a stream of 1,300 gallons per minute. This well was bored by a Mr. Reid for water to supply a cotton mill. First, a well was dug in the ordinary way, 32 feet through the red clay sand and gravel lying upon the rotten limestone. A large pine log was then procured, and a hole 3¼ inches in diameter bored through it. After sharpening the end and putting an iron band around it, the log was put down and firmly driven and forced into the rock. The well was then filled up, the upper end of the log appearing about a foot above the surface. The boring then commenced, and with the various tools and contrivances of the art, the earth was rapidly penetrated. As each lower sheet of water was reached by the tools, the water was thrown up by the whole in great quantities and with more violence. When the first water, that is, the water just below the first sand stone, was reached, the upward flow of water did not exceed seven gallons per minute. It was increased to one hundred gallons per minute when the second sandstone was perforated, and on reaching the third sheet of water, upwards of 300 gallons per minute rushed up through the orifice, seemingly impatient of its limits. Thinking that the quantity of water would be increased by enlarging the hole, they rimmed out 9¼ inches in diameter and 538 feet deep to the sand stone lying above this third bed of water, and inserted a tube from the first and resting upon the third sand stone. They were not disappointed; the water from a small stream became a large column, rushing upwards with violence at the rate of 1,300 gallons per minute, and running off in a considerable rivulet.

At Chicago they are now boring a well for the machine-shop of the Galena and Chicago Railroad; they are now down 200 feet. The well is now constantly full of soft good water. But the design of the company will not be satisfied without a good fountain. For this purpose they will bore to a depth of at least 600 feet.

In various places, beside Alabama, these wells have been sunk in our country, and the salt springs of Syracuse, N. Y., are Artesian wells; but we speak of those only which supply pure water. In Charleston, S. C., a great experiment was made two years ago, to obtain water by sinking an Artesian shaft, but after much expense and boring to a great depth, we believe the work was given up as a fruitless effort. No water can be obtained by boring unless in a basin where the hydrostatic pressure is equal to the height of the elevated land forming the brim of the depression. To sink a shaft at the outcropping of a basin is futile,—water may be reached in any quantity, but it will not be forced up for want of pressure. Care, therefore, must be exercised in examining every locality before a well is commenced, to see that geological evidences warrant, not only water, but an abundance of pressure to throw it above the surface when reached.

Boring for water is an ancient art, yet, at one time, it was nearly lost; it is now common in all parts of the civilized globe. In Egypt and Syria, and various parts of the East, there are remains of ancient Artesian wells which overflow the surface. They have long been known in China: a French missionary, named Abbe Imbert, relates that he had seen many bored wells there, of six inches diameter, and 1500 to 1800 feet deep.

In London there are a number of Artesian wells, but it is said that the supply of water from some unknown cause, has greatly decreased in them during the past two years One well in Grenoble, France, is 1800 feet deep, and sends up 1000 gallons per minute.

(To be continued.)

LITERARY NOTICES.

Ancient History of Egypt under the Pharaohs—By John Kenrick, M A., 2 vols.: J. S. Redfield, N. Y., publisher.—The work to which the above title is prefixed, consists of a History of ancient Egypt, from the most remote period until its conquest by Alexander the Great, and fills up a great vacuum in our knowledge of Ancient History anterior to the Greek and Romans For our present information of those early periods, we are mainly indebted to the researches of modern travellers, who have dug out of the bowels of the earth the sculptured records of their history. These, however, although revealed to the gaze of man, were yet sealed secrets, from the fact of their being written in symbolical characters called hieroglyphics, until by the labors of Champollion and others, they were reduced to a certain language. We are, therefore, now enabled to decypher those strange characters that appear on the monuments, tombs, and even mummies of Ancient Egypt, and to read their contents like a modern book. The present work is the fruit of these researches, and is replete with vast study and learning. It enters minutely into the history of the country, political and social, and leads us back to periods of so remote a date that we are fairly bewildered at the prying curiosity of modern civilization. At the end of the first volume there is a general phonetic alphabet, of the Egyptian characters, by means of which their Hieroglyphics can be understood.

Turnbull's Lectures on the Telegraph.—This is a new book by Laurence Turnbull, M.D., Lecturer on Technical Chemistry at the Franklin Institute, Philadelphia. The lectures were first published in the Franklin Journal, and are here collected into a respectable volume, illustrated with a great number of wood cuts. We have a great number of works on the telegraph and electrical apparatus, but this is the best and ablest of them all. It contains a brief history of telegraphing, and gives descriptions with illustrations of all the important telegraphs in use, also those which have been illustrated in other works. He speaks in high terms, and justly, of the ingenuity displayed in the House Telegraph, and the beauty of its operations Those who wish to be posted up on telegraphs, must consult this book: it is for sale by J. Hamilton, Actuary of the Franklin Institute. The price is $1,50.

The Macrocosm or the Universe without.—This is a neat volume by Messrs. Fowler & Wells, of this city, the author of which is William Fishbough, of Williamsburgh, N. Y.; so well known as being very intimately interested in Davis's first work.—We would advise every person acquainted with science, to read this work, as a curiosity, purporting to be a work of science. Our opinions about its philosophy, will be found on another page.

Maury's Sailing Directions.—The Fourth edition, improved and enlarged, of this great national work, by Lieut. Maury, Superintendent of the National Observatory, has just been issued at Washington. We noticed the former edition of this work in our previous volume; this edition contains information about voyages to California, and surveys of portions of the Pacific coast, not found in the other editions. It is a most valuable acquisition to every captain who sails from the Atlantic to the Pacific, and no one should sail without it.

Book of the World—No. 3; Weik & Wieck: Philadelphia. This is an agreeable periodical for family reading, and combines instruction with amusement Each number contains 32 pages in 4to. illustrated by one steel engraving and three colored plates. Price 25 cents.