

SCIENTIFIC AND SANITARY.

For some time past transparent glass bricks have been let into the walls to afford light at places where a window would interfere with the architectural plan. But now it is proposed to cast glass, not necessarily transparent, into large blocks of buildings. This material is practically indestructible, perfectly non-absorbent and, therefore, damp-proof in a manner which few bricks are, and in this way coarse glass of this kind could be made nearly as cheap as concrete, stone or baked clay. A plan has also been put into practice by which broken glass of various colours is mixed up, placed in moulds lined with silica, talc or some other resisting material and fired. The result is a firmly coherent mass, which can be dressed and cut into blocks, which are, of course, irregularly coloured, and may be employed in place of artificial marble. If decorative effects are desired, designs in relief can be obtained by pressure while the block or slab is still plastic.—*Philadelphia Ledger*.

It sometimes happens that peat bogs swell and burst, giving out a stream of dark mud. Herr Klinge, as we learn from *Nature*, has made a study of this rare phenomenon (*Bot. Jahrb.*), of which he has found only nine instances in Europe between 1745 and 1883 (seven of these being in Ireland). Heavy rains generally occur before the phenomenon, and detonations and earth vibrations precede and accompany it. The muddy stream which issues, of various fluidity, rolls along lumps of peat, and moves now more quickly, now more slowly. After the outbreak, the mud quickly hardens, and the bog sinks at the place it appeared, forming a funnel-shaped pool. The bogs considered by Herr Klinge have been almost all on high ground, not in valleys. He rejects the idea that the effects are due to excessive absorption of water by the bog. The peat layers, which often vary much in consistency, have each a certain power of imbibition, and the water absorbed does not exceed this limit. Excessive rain affects chiefly the upper layer not yet turned into peat and the cover of live vegetation, which gets saturated like a sponge, after which the water collects in pools, and runs off in streams. The theory of gas explosions is also rejected; and the author considers the real cause to lie in landslips, collapses, etc., of ground under the bog, permitting water or liquid mud to enter. This breaks up the bog, mechanically, mixes with it and fluidifies it, and an outburst at the surface is the result. The limestone formations in Ireland, with their large caverns and masses of water, are naturally subject to those collapses, which, with the vibrations they induce, are more frequent in wet years. The heavy rains preceding the bog eruptions are thus to be regarded as only an indirect cause of these.—*Science*.

"German Syrup"

Here is something from Mr. Frank A. Hale, proprietor of the De Witt House, Lewiston, and the Tontine Hotel, Brunswick, Me. Hotel men meet the world as it comes and goes, and are not slow in sizing people and things up for what they are worth. He says that he has lost a father and several brothers and sisters from Pulmonary Consumption, and is himself frequently troubled with colds, and he **Hereditary** often coughs enough to make him sick at **Consumption** his stomach. Whenever he has taken a cold of this kind he uses Boschee's German Syrup, and it cures him every time. Here is a man who knows the full danger of lung troubles, and would therefore be most particular as to the medicine he used. What is his opinion? Listen! "I use nothing but Boschee's German Syrup, and have advised, I presume, more than a hundred different persons to take it. They agree with me that it is the best cough syrup in the market."

From a recent issue of the *Chicago Tribune* we learn that the Illinois Central Railroad Company believes it has at last found an engine that will run without smoke. The smokelessness is due to the fact that it will successfully burn anthracite coal. The engine whose construction will admit of this novelty in coal consumption is a monster of its kind. It has just been built at the Baldwin Locomotive Works; it has made a mile in forty-seven seconds; its weight on the drivers is 91,000 pounds, and its total weight, when fully furnished and in running order, is estimated at 158,000 pounds.—*New Orleans Times Democrat*.

An English firm is introducing to the attention of bicycle riders abroad the novelty illustrated herewith. The device consists of a neat arrangement of a number of small bells, tuned to scale, with corresponding spring keynotes, attachable by a light screw clamp to the handle bars. The keynotes being set at a suitable distance from the hand, the rider is enabled to manipulate them with his fingers quite easily. By special arrangement sets of bells to play in harmony can be supplied for the use of clubs, and, with a little practice, some excellent effects may thus be produced. Even with a single octave a rider has an opportunity of relieving the monotony of a solitary ride in an agreeable manner.

WHILE improvements have been made in every direction to secure comfort and elegance in vehicles, yet the method of lighting them is still primitive, the candle holding its place against all comers. There is every evidence, however, that the incandescent lamp will solve the problem of an efficient and tasteful method of lighting carriages. A specially designed incandescent lamp is suspended on springs in front of a silver plated reflector. This is enclosed by a bevelled plate glass mounted in a brass rim that screws on the reflector, a compact arrangement requiring a space of but three and one-half inches in diameter and projecting less than three-fourths of an inch from the top of the carriage. Lamps mounted in the same way or in small sockets are placed in the outside lanterns. A switch is located at a convenient point in the carriage to light or extinguish the lamp, and an additional switch may be placed within reach of the driver for the outside lamps. A case containing a few storage batteries is placed under the driver's seat or inside the carriage. The batteries will run lamps equal to six candle power for ten hours. The weight of the entire equipment is thirty pounds.—*Philadelphia Record*.

In the construction of locomotives there is a limit to the weight which can be carried on each driving wheel, and this cannot be exceeded to any great extent without involving an undue strain on the roadbed and the wheel tires. There is also a difficulty in increasing the number of driving wheels on account of the curves in the road. In order to provide an engine that would give more tractive force, Mr. F. W. Johnstone, of the Mexican Central Railway, has designed a locomotive which practically consists of two engines joined together. The whole machinery is, however, mounted on a single rigid frame, while the driving wheels are grouped on one or more revolving trucks, which also carry the cylinders. The engine is of the compound type, in which the steam is used twice before escaping, a design that is coming into use in this country. A novel arrangement has been introduced in placing each high-pressure cylinder inside the corresponding low-pressure cylinder, the steam space of the latter, therefore, being at an annular chamber. Contracts will soon be awarded for the construction of a number of these engines for use in Mexico.—*Philadelphia Record*.

FROM the mass of books which appeared under the auspices of the Church, immediately after the condemnation of Galileo, for the purpose of rooting out every vestige of the hated Copernican theory from the mind of the world, two may be taken as typical. The first of these was a work by Scipio Chiaramonti, dedicated to Cardinal Barberini. Among his arguments against the double motion of the earth may be cited the following: "Animals, which move, have limbs and muscles; the earth has no limbs or muscles, therefore it does not move. It is angels who make Saturn, Jupiter, the sun, etc., turn round. If the earth revolves,

it must also have an angel in the centre to set it in motion; but only devils live there; it would, therefore, be a devil who would impart motion to the earth. . . . The planets, the sun, the fixed stars, all belong to one species—namely, that of stars—they therefore all move or all stand still. It seems, therefore, to be a grievous wrong to place the earth, which is a sink of impurity, among the heavenly bodies, which are pure and divine things." The next, which I select from the mass of similar works, is the *Anticopernicus Catholicus* of Polacco. It was intended to deal a finishing stroke at Galileo's heresy. In this it is declared: "The Scripture always respects the earth as at rest, and the sun and moon as in motion; or, if these latter bodies are ever represented as at rest, Scripture represents this as the result of a great miracle. . . . These writings must be prohibited, because they teach certain principles about the position and motion of the terrestrial globe repugnant to Holy Scripture and to the Catholic interpretation of it, not as hypotheses, but as established facts. . . . It is possible to work with the hypotheses of Copernicus so as to explain many phenomena. . . . Yet it is not permitted to argue on his premises except to show their falsity."—*From New Chapters in the Warfare of Science, by Dr. Andrew D. White, in the Popular Science Monthly*.

SINCE the Darwinian theory of the origin of man made its first victorious mark twenty years ago, we have sought for the intermediate stages which were supposed to connect man with the apes; the proto man, the *pro anthropos*, is not yet discovered. For anthropological science the *pro anthropos* is even a subject of discussion. At that time in Innsbruck the prospect was, apparently, that the course of descent from ape to man would be reconstructed all at once; but now we cannot even prove the descent of the separate races from one another. At this moment we are able to say that among the peoples of antiquity no single one was any nearer to the apes than we are. At this moment I can affirm that there is not upon earth any absolutely unknown race of men. The least known of all are the people of the central mountainous district of the Malay Peninsula, but otherwise we know the people of Terra del Fuego quite as well as the Esquimaux, Bashkirs, Polynesians and Lapps. Nay, we know more of many of these races than we do of certain European tribes; I need only mention the Albanians. Every living race is still human; no single one has yet been found that we can designate as simian or quasi-simian. Even when in certain ones phenomena appear which are characteristic of the apes—*e. g.*, the peculiar ape-like projection of the skull in certain races—still we cannot say that these men are ape-like.—*Professor Virchow, before the last Anthropological Congress in Vienna*.

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THE Erie road will adopt a block electric system of train signals this spring. By the method of operation to be used, a circuit is formed between the semaphore and the instrument of the operator in such a way that it is impossible to use the wires when the semaphore points to safety. This keeps the signal turned to danger, and prevents the passage of trains through by mistake of the operator.

ONE of the prettiest sights in Madras is afforded by the waters of the Adyar River after dark. They are highly phosphorescent, and contain myriads of fish, both large and small. As the latter dart about on the surface or into the depths below, they leave streaks of pale blue light behind them, and the effect is the most charming imaginable. As far as one can see from a boat, the whole river seems filled with lambent flames.

In fever the tissue rapidly wastes, and great quantities of waste poison are poured into the blood. These poisons affect the nerves, and are the cause of quickened respiration, and often of quickened circulation, which are necessary in order to get the excess of poison oxidized; when, therefore, unconsciousness supervenes, we may say pretty confidently that the rapid circulation and the rapid breathing have not been sufficient to oxidize and neutralize the mass of poison which is being carried to the brain. So, again, in pneumonia the quickened breathing shows both the effort of Nature to make up for the loss of that part of the lung which is ineffective, and also the stimulus which the increased waste poison in the blood (increased owing to diminished lung capacity, and therefore diminished oxygen) exerts upon the respiratory machinery. So, again, when less blood is carried to the lungs, owing to the artery which leads from the heart to the lungs being partially blocked with a clot, the same effect is produced. Probably a somewhat similar condition arises after hard work, either in old age or in a feeble state of health. The tissue, not being in the firm condition of the tissue of a vigorous person accustomed to daily work, breaks down in large quantities, while at the same time the circulatory and respiratory machineries are no longer at their best, and therefore the oxidation is imperfect. On the next day the infirmed man is poisoned by the unusual quantity of waste in the system, and feels discomfort in many parts of his body or limbs. So, also, the discomfort acutely felt by some persons during east winds probably arises from the poison that ought to have been got rid of by the skin, but, owing to the closing of the pores, has been thrown back into the system.—*From Bad Air and Bad Health, by Harold Wager and Auberon Herbert, in the Popular Science Monthly*.