

electric shock. In order to provide the means of conveying intelligence along the underground line, he placed at each end of it a clock, with a dial bearing twenty letters inscribed. In front of the dial was a disk, revolving with the second hand, forming a screen with a small opening cut in it, so that as the disk revolved only one letter could be seen at a time, and this only for a second. The two clocks were made to go isochronously, the one always presenting the same letter as the other at any given second of time; and the moment chosen at one end was indicated at the other by the sudden collapse of a pair of pith ball electrometers, suspended at each station close to the clock dial and connected with the telegraph wire."

Attempts to enlist government aid in proving the value of his invention being unsuccessful, Mr. Ronald turned his attention to other subjects, and devised several valuable self-registering instruments now in use at the Greenwich and other English observatories. He was knighted in 1870 as a reward for his public services.

Short's Patent Loom.

That very ingenious and useful improvement in the loom, for weaving fabrics of any width, invented by Mr. James Short, of New Brunswick, N. J., which, it will be remembered, was described and illustrated in our columns some time ago, has been made the object of a corporation known as the Short's Patent Loom Company, which, with a capital of one million dollars, has been recently formed under the presidency of Mr. Christopher Meyers.

There is little that we can say, in the present connection, which will tend to augment the praise which we unhesitatingly bestowed upon this invention on our first inspection of its merits; unless it be the fact that others have added the weight of their favorable opinions, and that the device has excited a widespread interest and elicited repeated commendation in the mechanical circles of both this country and Europe.

Under the management of the well known gentlemen who comprise the officers of the new company, the Short loom will not be long in making its way into our manufacturing towns.

THE PERSIAN PAVILION AT VIENNA.

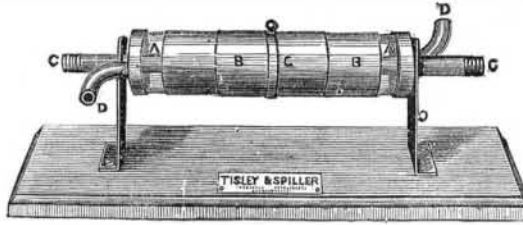
The grounds occupied by the Vienna Exposition comprise five hundred and seventy acres in extent.

In addition to the main building, which occupies a space half a mile long and five hundred feet wide, there are no less than one hundred and forty detached buildings scattered through the grounds, which are devoted to represent special exhibits, some of them illustrating the architecture of various nations. One of these structures, the "Persian Pavilion," is represented in our engraving. It shows in general the modern buildings of the Persian nobility. In its exterior it represents the best forms of domestic Persian architecture of to-day, while its interior contains a large amount of products which illustrate Persian industry.

New Ozone Generator.

Mr. Tisley, of the firm of Tisley and Spiller, has designed a new ozone generator presenting considerable improvements.

A A is a piece of glass tube, of a little more than an inch in diameter, and of as uniform a bore as can be obtained. On each end of this tube is placed a brass cap, bored with two holes, and coated internally with shellac: in the interior of this glass tube, and of a diameter scarcely less than that of the tube itself, but not quite so long, is placed a thin hollow brass box, B B, with its surface made as true as possible by turning in a lathe: this brass box is placed concentrically with the outer tube, and is completely coated on its exterior surface with tin, the tin being acted upon to the smallest extent



by the ozone. This hollow box communicates with the exterior of the apparatus by means of the tubes, C C, passing through the center of the caps. It is intended that a current of water shall be kept circulating through the interior of this box, the water being brought into direct contact with its sides by means of a small spiral placed within it, the box being of a slightly less diameter than the glass tube; a small annular space will remain between the two, and through this space the gas to be ozonised is passed by means of the tubes, D D; the box itself is made one of the electrified surfaces, and a strip of tin foil, G, fixed to the outside of the glass tube, forms the other; two binding screws, E and F, serve to make the necessary connections with an induction coil. The water may be kept cool by means of ice.

This instrument is adapted to the purposes of the lecture table, while it is at the same time easily worked. Abundance of ozone can be generated with an induction coil giving a half inch spark only.

We shall be glad to hear of the construction of larger forms of this instrument, which physicists will find very useful in their study of the properties of ozone.—*Telegraphic Journal.*

A Railroad Fire Engine.

The Virginia (Nev.) *Enterprise* gives an account of a new fire engine which the Virginia and Truckee railroad company have had constructed and fitted upon one of their locomotives, in view of the frequent occurrences of fires in wood piles, tunnels, buildings and other property along the line of their road. It stands upon the boiler of the locomotive between the steam chest and the bell, and not a little resem-

bles an iron monkey riding the iron horse. The locomotive, with the little fire fighter mounted upon its back, was recently brought up to the depot, and a trial of its squirting capacity made, which proved highly satisfactory. In case of a fire anywhere on the line of the road, the locomotive and engine, with cars fitted with water tanks, will at once be dispatched to the scene of the conflagration. Meanwhile the locomotive will not remain idle, as it can do switch duty and other work just as well as though it had not the queer little fire monkey riding about on its back.

The Mental Atmosphere.

The probability of the existence of a mental atmosphere, as recently discussed by a writer for the *Reporter*, is a question which has attracted considerable attention, and which in time will probably throw much light on the nature and action of mental phenomena.

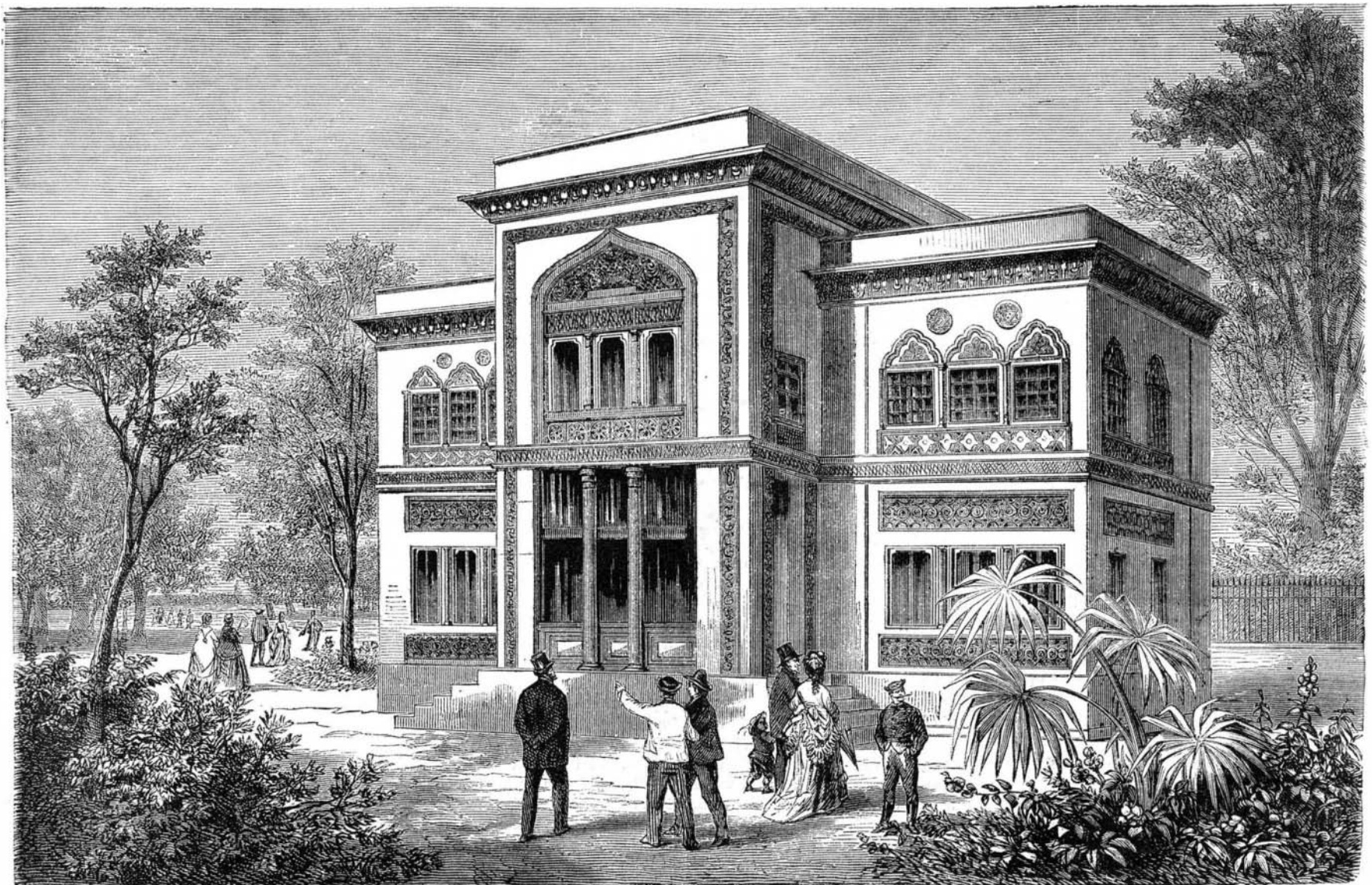
We all know that any mental action results directly in molecular change; it is performed at the expense of certain constituents of the nervous system, notably phosphorus. It transmits a definite wave of motion, at a rate which has been accurately measured, to the distal extremity of the appropriate nerves; how much further, we do not know. Many instances also illustrate the high quality of mental force. It can produce the most important changes, even ulceration or gangrene, in the remotest parts of the body, and aid with equal power in processes of restoration and growth.

That the superficies of the body does not bound its activity numerous facts demonstrate. To pass by the less remarkable and more familiar ones, there is the most positive evidence that those gifted with "second sight," as it was once called, do possess an undefined power of knowledge which transcends the senses. The presence of danger is often felt before any warning reaches us through the senses. Men who live lives of peril know this perfectly well, and are the last to underestimate such feeling.

Another form of this external mental power is that by which a strong emotion or a fixed attention on an object will excite a similar emotion or the picture of a similar object in another person without any communication. A certain natural analogy and a special training is required to bring this about. The French "magician" Houdin has established such a mental relation with his son, so that the latter, though blindfold, would at once name an object shown to his father, though the width of a large room intervened.

Undoubtedly as emotional influences are clearly epidemic and contagious, there is nothing incredible in the belief that ideas should also possess equal powers beyond the superficies of the body or the limits of expression.—*Medical and Surgical Reporter.*

J. C. S. says: "I believe John Chinaman strikes the heaviest blow at you newspaper men, as he crowds out other citizens and never buys a paper himself."



THE PERSIAN PAVILION AT THE VIENNA EXPOSITION