Foreign Scientific Memoranda.

Colored Signals.—Colored signals have for some time been used, upon French Railroads, as a means of acquainting the engineers of approaching trains with the state of the track, during the night. Each guardian has three bull's-eye lanterns, one white, one green, and one red. White is significantive of perfect security; the green and red are indicative of danger and the necessity of precaution. But it seems that this system will have to be abandoned. Many people are incapable of distinguishing one color from another, and accidents have positively happened, by the engineer's seeing the green light through the red, or vice versa, and taking the interposed and mingled colors for white.—Instead of holding up and looking out for "track loosened by rain," or "rails upheaved by the frost," he would count on "perfect security," and dash on into obstructions and devastation. This affection of the eye is denominated by physicians *chromatopseudopsii*; and the "Moniteur" says it is much more common than is generally supposed. Prevot affirms that one person in twenty has it, and Seebeck that fully five men in forty are afflicted with it. Prof. Thomson, of Glasgow, has for several years declared the employment of colored signals on railroads to be attended with great danger. Green and red are precisely the colors most likely to be mistaken the one for the other. The same journal mentions a person of its acquaintance who was commissioned by a lady to buy her a green silk at Lyons. On his return he brought her a red one, thinking that he had discharged his duty with extreme propriety. It says, too, that this incapacity to distinguish colors is frequent even in persons whose professions would seem to render great delicacy of eye necessary; and quotes four well-known painters, three surgeons, two paper-makers, two dyers, a shawl washer, a tailor, and a worker in enamel. Several employees on the Northern Railroad have been convicted of it. Gardeners are often obliged to squeeze an apple or pear to find out whether it is ripe. Its color is no guide. The "Moniteur" also knows a stationer who offers you white sealing-wax for red, and cites the case of a manufacturer of paper-hangings who could not tell red from pea-green, and who made so many mistakes that he had to go out of the business. In consideration of all which facts, the Directors of Railroad Companies in France are urged to hit upon a surer method of communication between the guards and the conductors.

That there are many persons who cannot distinguish one color from another, we have no doubt, but they cannot be numerous, and they must certainly have a knowledge of their own defects. We do not believe that there is a single painter or dyer so defective in distinguishing colors in the world—not one. It has never been our lot to become acquainted with a single person who could not distinguish colors; it is our opinion, therefore, that colored signals are perfectly safe.

Compressed Air Carriage.—The Paris *Presse* says that it has seen upon the Champs Elysees, a carriage containing two persons, proceed for twenty minutes, at the full speed of a horse, by means of a cylinder of compressed air, of so small a volume that you might put it in your pocket. The inventor thinks he has obtained a practicable plan of utilizing compressed air, and has discovered a means of compressing it at a merely nominal cost. A paper on this subject has been read to the Academy of Sciences. M. Julienne proposes to adapt the principle to carriages and street vehicles merely, to which it may be applied with great economy and perfect safety. With a small cylinder, a party may take an airing at the Bois de Boulogne at any rate of speed, from a walk up to a gallop.

Table Moving in Germany.—It seems that experiments upon the moving of tables, as practiced in the United States, are very common in Germany. The "Gazette d' Augsburg" was the first paper that called attention to the phenomenon, and described the manner of producing it. Dr. Loew, of Vienna, who seems to be a man of note, gives an explanation, by experiments upon a light wooden table—persons enough to surround it completely must place their hands upon it, and join them to those of their neighbors by the extremity of their little fingers. After a space of time, varying from half an hour to an hour and three-quarters, the persons surrounding the table feel a slight shock; the table seems to dilate and to crack, as if it were standing too near the fire; it then turns half round upon its axis, and starts off toward the north. A person may even withdraw from the chain and another take his place, without damaging the experiment, if it be quickly done; but everything is lost if a person not in the chain places his hand upon the table.

Dr. Loew explains this phenomenon, which he says he has seen produced time and again, by the negative and positive electricity contained in the left and right sides of the human body. When a circular chain thus formed of persons whose left side touches the right side of their neighbor, and vice versa, acts for a length of time upon a table or any other body, this body would undergo the same change as a bar of iron when placed in the current of induction from the magnet; that is, one of its sides is magnetized positively and the other negatively. The body thus becomes a magnet, and turns upon its axis, till its southern half points toward the pole, and then will continue to advance towards the north as long as its magnetized condition undergoes no modification.

Inspection of Boilers.—In France there has not been one explosion of a steam boiler for every hundred in our country, and it would be well to copy her plan of preventing such disasters. Every steam boiler in that country must be tested to three times the pressure it is intended to bear, and this test is repeated annually. Cylinders of steam engines are tested in the same manner.

Faraday on Lightning Conductors.—On the 22nd of last month (April,) Prof. Faraday delivered a lecture on electricity before the Royal Institution, London, in which he directed attention particularly to those conditions of electric force exhibited in the phenomena of conduction and insulation, and which is of no small interest to all our people, as it relates to lightning rods. He commenced by showing the difference between the conducting powers of metals—iron and copper—and the difference between the travel of heat and electricity through them. The charge of a Leyden jar was sent through a long wire suspended from the top of the theatre to show that no perceptible interval occurs in the transmission of electricity through such a length of wire; as proved by Mr. Wheatstone, electricity travels at the rate of 300,000 miles in a second. Many electricians suppose that there are conductors and non-conductors of electricity, but this is not altogether correct. The discovery of the conducting and non-conducting properties of the bodies exhibiting this difference were quite distinct, but there are no substances in nature that conduct electricity without offering resistance, whilst the most perfect of what are called *non-conductors*, transmit some portion of the electric fluid. Conduction and non-conduction resolves itself entirely into a question of degree. When a prime conductor of an electrical machine was touched with a glass rod, no sensible effect was produced; a walking stick discharged the conductor entirely; a small copper wire discharged electricity as fast as it was produced in the machine, whilst a dry lath of wood conducted only part of the fluid. By reducing the thickness of the lath its conducting power was diminished, but by shortening the said lath its conducting power was increased.

The resistance which the very best conductors offer to the passage of electricity, has an important practical bearing in reference to the efficacy of lightning rods. It is essential in the construction of lightning conductors that they should be of sufficient size to carry off the lightning to the earth. A French commission had decided that a rod of iron of seven-tenths of an inch square is sufficient. In England the lightning rods fitted to the light-houses were of copper, about one quarter of an inch thick. The capacity of copper to conduct electricity was seven times greater than that of iron, and yet in last January, although the Eddystone Light-house was protected with such a copper rod, it was much damaged with lightning. As a long rod offers more resistance to the passage of electricity than a short one, it is very evident that one which would be perfectly suitable for a house would not be so for a steeple; the higher the spire or house, the thicker should the conductor be for it.

Telegraph for Parliament.—Another application of scientific ingenuity serves to illustrate the various uses of electricity in a rather striking manner. The House of Commons has set up an electric telegraph of its own, connected, of course, with the telegraph offices in the Strand, by means of which the Honorable members will be able to communicate with their constituents, touching the divisions and debates, and the progress of nightly legislation in general. The convenience cuts both ways, and the electors on their part will be able to transmit significant hints to their Representatives of their wishes, and occasionally, perhaps, of their commands on any particular question, while a discussion is going on, so that no member will be able to plead ignorance of the feelings of those who sent him to St. Stephen's. A new electric clock, coupled with an apparatus on the electrical principle, for ringing thirty bells, notifying torpid or absent M. P.'s that a division is at hand, is also a fresh Parliamentary appurtenance.

Humboldt on Table Moving.—The "Silesian Gazette" publishes a letter by Alexander Von Humboldt, to a friend who had applied for his opinion upon the supposed magnetical phenomena of table moving, which has been described in several journals. The veteran physicist remarks that it is always easier to destroy a false theory, than an inaccurately apprehended fact. He then adverts to a long series of pseudo-scientific discoveries, which have been made and exploded in the course of his eighty four years' experience, and advises the table movers to "try their chaff upon some younger bird."

[For the Scientific American.] Railroads---Their Improvements for Safe Travel.

The many sad accidents which are occurring, almost daily, in our country, on railways, demand that some efficient means may be put in operation to check the great sacrifice of human life on these roads, and the ruin of so much property. The railroad system is widely extending throughout our country, and except, in their plan and construction, we can insure safety to the passenger we shall only increasing the evil and trifling with human life. The fearful speed now attained on railroads adds to the risks now run by the passenger in case of meeting any obstruction, however slight, which would cause the wheel to fly the track. The exposed state of these roads makes them liable to injury, and the facility of producing a ruin is a strong temptation to the unprincipled highwayman. Before our railroad companies enter upon any new works of this kind, they should institute an inquiry whether there is any improved plan of railroad which combines safety of travel with economy of construction: any plan which would secure and insure the wheels from running off the rail under any degree of velocity given the train: any plan which would be free from the common accidents, including collisions, which now occur on railroads; that will do away with the necessity of road guards, signals, switches, and such-like attendance; and last, though not least, a plan which will not cost even a moiety of the sum now paid per mile on the present plan of railroads. In the name of a suffering community we wonld urge that these inquiries should be made, and if there is any practicable plan of railroads which promises this immunity from such evils, these companies are bound to avail themselves of it, and put an end to the sad record which now, almost daily blots the pages of our history. The undersigned can, with confidence, say that there is hope of such an exemption from these evils, by the consummation and the perfecting of a plan of railroad embracing all the requisites of safety to the traveller. The Pacific Railroad will be soon stretching its lengthened line across our country, and such security should be given its travel, that our people may reach its distant terminus in as many minutes as there are miles of distance. The locomotive engine which is to accomplish this desirable speed, is already perfected, and needs only the perfecting of the rail upon which it is to travel,—this, as has been said before, is near its accomplishment.

Robert Mills, Engineer and Architect.
Washington, D. C., 1853.

Storm Pointer Camphor.

Messrs. Editors—Seeing an article in your paper of the 14th inst., on the Storm Pointer, I was reminded of one I made about eighteen years ago, under the direction of a sea captain who first saw one in use by a Frenchman, a passenger on board his vessel, and being so fully satisfied with the indications given by it, that he ever after carried one on shipboard, placing (as he said to me) more confidence in it than in the best barometer, from the fact that it had, in more than one instance, given earlier indications; and once in particular he prepared his vessel for a storm, while others near him, using the common barometer, had no indications by it of its approach. It was made of a tube of glass filled nearly full of a saturated solution of camphor in alcohol, the top of the tube being covered with porous leather or parchment, with pin holes made in it.

At the time of making the one I used, I could give the particular appearance of the camphor on the approach of wind or storm, it has now escaped my memory, but could be easily revived, or any person can make one and try for themselves. C. Leavitt, Jr.

Rockville, Conn., May 13, 1853.

[The objection which may be urged against the use of the above solution, is that the alcohol will soon evaporate through the porous piece of leather.

Flying.

Messrs. Editors—In view of the many aerial projects which are proposed, I beg leave to offer the following suggestion:

I propose that some of our enterprising naturalists examine into the relation, existing between the weight and the volant strength of birds. By the volant strength of birds I mean, of course, that part of their power which is applied exclusively to their aerial propulsion. The proportion between this strength, and their weight, has never been ascertained, at least to my knowledge. Let this ratio be determined and we shall be in possession of an important, and, indeed, almost indispensable premise on which to base our reasonings in respect to aerial navigation. There is surely enough of mechanical science in the land to calculate, before-hand, the weight and power of any proposed flying ship, and to bring them to this test provided by nature.

It is evident to every one that if the ratio between the power and weight, of any machine, is less than the ratio between the power and weight of birds, such a machine must inevitably fail to sustain itself in the air; and that there can be no hope of success, unless this ratio is as great, or greater, in the one case than in the other. And it seems to me that a due apprehension of this fact, would put an end to so many baseless projects of aerial navigation, that we so frequently meet with now-a-days. Cannot some of our scientific friends, favor us with their views on this subject. A Subscriber.

[The above is a good suggestion; but to it we must necessarily add another, viz., the means of *sustaining* that power—the relation between the food which sustains the force of the fowl and that of a machine.—Ed.

A Gigantic Steamship.

The following are said to be the dimensions of an iron steamer about to be built by Mr. Scott Russell, of London, for the Eastern Steam Navigation Company. She is to be 620 feet long, 100 feet beam, 6,000 horse power, and 12,000 tons burden. She is to be propelled by four paddles, and a screw. The horse power will be proportioned as follows: 2,000 for the screw, 2,000 for the mid-ship paddle-wheels, and 2,000 for the fore-paddle wheels.

Goods are arriving in this city daily from abroad for the Worlds' Fair.