

## Miscellaneous.

## American Association for the Advancement of Science.

Having mentioned last week that this Association met at New Haven on the 19th inst., Prof. Bache, the President, in the chair, we will now proceed to give an abstract of their proceedings:—

## ELECTRICITY.

Professor Olmstead, of Yale, opened with remarks on electrical discharges. He said the city of New Haven was peculiarly liable to be struck by lightning owing to the soil being sandy, and in dry weather during the season of thunder storms it presents to the conductor a highly resisting medium. Spots habitually damp invite an electric discharge. In Stamford, Conn., a house of public worship furnished with rods, was once struck, and from the base of the rods the mud was thrown up as high as the eaves of the building. It was a common opinion South that pine trees were more liable to be struck by lightning than others, but they only exhibited greater marks of its action from its resinous character. When trees are full of sap or wet with rain, they are good conductors and transmit the charge without receiving marks of violence. Lightning rods should be constructed of good conducting materials, and should be conducted freely into a well or some moist place.

Prof. Loomis, of New York, made some singular remarks about electrical phenomena in New York. There are some electrical houses in which a stranger, upon entering and attempting to shake hands, receives a shock, and ladies on attempting to kiss each other are saluted with a spark. A spark was perceived when the hand was brought near the metal knob of the door, and a great number of such phenomena. The Prof. had come to the conclusion that the electricity is created by the rubbing of the shoes over the carpets. He had tried experiments with rubbing leather upon woollen cloth, and found a quantity of electricity generated, and he had come to the conclusion that electricity must be generated when a person walks across a carpet with a shuffling motion, and heavy velvet carpets produce this effect best.

[We know of a case where some loose wool of the carpet was set on fire by electricity generated in this way.]

Prof. Silliman related an instance where, on the return home of a navy officer he was met with the affection of a fond wife, and experienced a shock of electricity. She was in a state of electrical excitement.

Prof. Henry stated that electricity moved along the surface in the case of shocks. A needle in a coil of wire, or in the interior of a gun barrel, was not magnetized, while one on the exterior was.

Prof. Bache stated that all the phenomena in respect to electrical shocks on bodies, could be explained by the high repulsion of the parts and by the action on the side of the least resistance. The question respecting what kind of trees were most liable to be struck was a difficult one.

## LIGHTNING RODS.

Professor Loomis was then heard upon the proper height of the lightning rod. He said—The rule prescribed by the French Academy of Science, and copied into almost all the works of electricity for determining the proper height of a lightning rod, is that a rod will protect a circle whose radius is twice the height of the rod. A case recently occurred in Tallmadge, Summit Co., Ohio, which appears to demonstrate that this rule is unsafe. On the afternoon of July 27th, about six o'clock, there was a slight shower of rain, accompanied by a few flashes of lightning. One flash was remarkably vivid, and was succeeded almost instantly by a loud report. In an instant afterwards, a large pile of shavings, lying on the west side of a carriage shop, was found in full blaze. The shavings had recently been carried out of the shop, and were quite dry, and as no fire had been used in that vicinity for several weeks and no other mode is known

in which the shavings could have been ignited, it is inferred to have been caused by the electric discharge. The carriage shop was furnished with a lightning rod, and it was a matter of surprise that the fluid should have struck the ground so near to the rod. The top of the rod was fifty-nine feet high, above the shavings, and the shavings were 100 feet distant from a point vertically under the top of the rod. According to the rule above quoted, this rod should have afforded complete protection to a distance of 118 feet from its base: whereas, the shavings were struck at a distance of 100 feet, and that, too, where, being elevated only a few inches above the general level of the ground, they might be presumed to afford no peculiar attraction for the lightning. This rod appears to have been constructed in accordance with the usual rule. It is terminated by three points, which are gilded, and appear to be in tolerable good condition. About ten feet from the top is a break in the rod, and the two portions are looped together. From this point, the rod is continuous to the bottom, and enters the ground to the depth of about three feet, where the earth, at the time referred to, was quite moist. The rod is about five-eighths of an inch in diameter. This case demonstrates to my mind, that it is unsafe to rely upon a rod to protect a circle whose radius is more than once and a half the height of the rod, at least upon the west side being that from which thunder showers generally come to this latitude.

Professor Henry gave an account of some experiments in Washington, where a rod was surmounted by a ball, which was struck by lightning in three places, during a storm after its erection.

With regard to trees struck by lightning, he had found, upon examination, that there would not be the slightest mark of electricity on the upper branches, but it appeared to strike at the trunk, at that part from whence the branches spring out. He then told a curious fact of a man having been killed in a house, by lightning, and, afterwards, the outline of his figure remained on the wall as if the electricity had gone into it.

## COMPOUND OF ROSIN AND LARD—USEFUL INFORMATION.

Prof. Olmstead read a paper on some curious properties of a compound of rosin and lard. He said "an accident first led me to observe something remarkable in this compound, and I have since made a few experiments, with a view of further investigating the relation between these two substances. Wishing to fit the brass of an old air pump, so as to make a close joint with the receiver, I had been accustomed to apply to the plate a disk of leather, saturated with lard. With the hope of rendering it more completely impenetrable to air, I added to the lard a small quantity of rosin, and melted them together. I expected the rosin would give greater hardness to the lard, and make it fill the pores of the leather more effectually, but was surprised to find that the change produced by the rosin was to impart to the lard a tendency to remain in the fluid state, so that, in a winters day, the compound, when cold, remained in the state of a semi-fluid, at the temperature of a room moderately heated. I found, also, that this preparation, when applied to the leather of the air pump, rendered it peculiarly soft, and, at the same time very impermeable to air, so as to form a good joint with the receiver. But what more arrested my attention particularly, was, that having inadvertently left the leather on the plate of the pump for nearly a year, during which time the use of the apparatus was discontinued, I supposed, when I took it out again, that I should find the brass plate much corroded, as I had sometimes seen it before, when exposed for a much less time to the action of the oiled disk of leather; but, on the contrary, the brass was entirely free from the corrosion, and I have uniformly found the same to be the case since, however long the leather may have remained in contact with the plate. This observation suggested another and more important use of the same preparation for lubricating the piston, which being

likewise of brass, and moving in brass barrels, had before occasioned me much inconvenience, by their liability to corrode by the action of the oil used on lubricating on the brass. Moreover, the tendency of the preparation to assume the fluid state by the friction of the piston, made a very convenient and effectual application for this purpose. I have recently made a few experiments, with a view of ascertaining the melting point of this compound, and the proportions of the ingredients which give the lowest melting point. The best proportions are by weight—lard three parts, rosin one part. If the rosin be added in fine powder, and the mixture well stirred, (without the application of heat,) it softens and so nearly approaches a fluid as to run freely when taken upon a stirring-rod, at a temperature of 72 degrees. On melting the mixture, and in setting aside to cool, the following changes take place:—At 90 degrees it remains transparent and limped; at 87 degrees, a pellicle begins to form on the surface, and soon after it begins to grow slightly viscid, and as the temperature descends, it passes through different degrees of viscosity, like oils of different qualities, until at 76 degrees, it becomes a dense semi-fluid. It is an unexpected result, that the addition of one part in four of rosin, whose melting point is near 300 degrees, to lard, whose melting point is at 97 degrees, should render it more fluid, reducing its melting point to 90 degrees, imparting to it the properties of a semi-fluid, at a temperature as low as 76 degrees, and even rendering the preparation of a softer consistency than lard itself, at a temperature as low as 60 degrees. This compound of lard and rosin has, therefore, two somewhat remarkable properties:—1. It prevents in the lard, and probably in all the animal oils and fats, their tendency to generate an acid, and thus to undergo spontaneous decomposition. A much smaller portion of rosin than one-fourth, gives to lard this property, destroying as it does the tendency of these substances to oxidation. Several important practical applications result from this property. Its use for lubricating surfaces of brass or copper has already been adverted to. It is equally applicable to surfaces of sheet iron. I have found a very thin coating applied with a brush, sufficient to preserve Russia iron stoves and grates from rusting during summer, even in damp situations. I usually add to it a portion of black lead, and this preparation, when applied with a brush in the thinnest possible film, will be found a complete protection to sheet iron stoves and pipes. The same property renders the compound of lard and rosin, a valuable ingredient in the composition of shaving soap. The quality of shaving soap is greatly improved by a larger proportion than is usually employed, so as to completely saturate the alkali, but such soap easily becomes rancid when wet with water, and suffered to remain damp, as it commonly is when in use. If a certain proportion of compound is added to Windsor soap, (say one-half its weight) the tendency to grow rancid is prevented. A very soft and agreeable shaving compound, or "cream," may be made by steaming in a close cup a cake of any common shaving soap, so as to reduce it to a soft consistence, and then mixing intimately with it, half its weight of our resinous preparation, adding a few drops of some odoriferous substance. The same compound forms an excellent water-proof paste for leather. Boots, when treated with it, will soon afterwards take the usual polish when blacked, and the soles may be saturated with it without danger of soiling the floor, as it does not rub off, while the leather is rendered, in a high degree, impervious to water. The perfect solution into which rosin passes when heated with oil, suggested the possibility of improving, in this way, the quality of oils used for illumination, and by its reducing the melting point of lard, to render that more suitable for burning in solar lamps. I therefore, added powdered rosin to lard oil, in the proportion of 8 ounces of rosin to one gallon of oil and applied a moderate heat, sufficient to produce perfect solution. I then filled two solar lamps, equal in all respects, the one with lard oil, the other the same, holding the rosin solution, and regulating the flames so as

to be as nearly the same size as possible. I measured by the method of shadows, the comparative intensities of light, which I found to be as 7 to 5 in favor of the prepared oil. This burned with a flame of peculiar richness, plainly exceeding in density that from the simple oil; but after two hours the flame of the prepared oil began to decline slowly, and soon became inferior to the other, an effect which doubtless arose from the clogging of the wick. I had hoped, on account of the perfect solution which the rosin seemed to undergo, that the compound would burn freely without encountering this impediment; but in this respect I was disappointed, and can only say that if some means can be devised for avoiding the tendency to clog the wick, the addition of a small portion of rosin to lamp oil or lard, will add essentially to its value for burning in solar lamps, by rendering it less liable to congeal, and by increasing its illuminating power.

## NATURAL HISTORY.

Professor Agassiz, in his comparison of the face of fishes with that of other vertebrates, drew figures of each on the exhibition board, and created some laughter throughout the meeting. He said there was no one who has not been led some time or other, when looking at the face of a friend, to see a resemblance between it and some animal. He had seen such resemblance, and it had led him to make inquiries why it was so. He was satisfied that such a thing exists, and the unity which exists between all classes of vertebrates, shows that there must be some foundation for such resemblance. We find one common structure of the face in general. Fishes, as a class, rank the lowest as vertebrates; there are peculiarities in them which are not observed in any other—the fins, the moveable regions about the eye, and the moveable regions of the lower jaw, &c. &c. The learned Professor then described certain peculiarities in the formation of fishes, and illustrated them by drawings.

[It is possible that Prof. Agassiz may have embraced a theory by which he can trace certain resemblances between every species of vertebrates, just as people can trace out figures and scenes in the ruddy coal fire. Or it may be he has a taste for that kind of uniformity which Sir Walter Scott describes as belonging to a Scottish laird, who, having hanged up a criminal on one side of the road, was so offended at the oddity of the scene, that he hanged up the first man who came along, "to make things look uniform!"

## LITERARY NOTICES.

SARTAIN'S UNION MAGAZINE.—The September number of this popular and beautiful magazine has been sent us by the New York Agents, Messrs. Dewitt & Davenport, Tribune Buildings; it contains a steel portrait of President Fillmore, Fredrika Bremer, besides fifteen large wood engravings of views in Oregon and California. This number is a beautiful one.

GODEY'S LADY'S BOOK.—The September number of this standard Magazine has made its appearance, and abounds as usual with the choicest and most seasonable matter of the day. This number contains contributions from thirty-two of the most talented literary writers of the day, besides twenty fine engravings, some of which are superb, and have never been equalled by any other periodical. H. Long & Bro., Agents, 43 Ann street.

DISCOVERY OF THE CAUSE AND CURE OF THE CHOLERA.—S. X. Ball, Esq., Chemist, 151 Fulton st., has just issued in neat form a little pamphlet of 36 pages, in which he gives some important directions as to the proper treatment of the Cholera in its first stages, and also the remedies to be applied to effect a cure. Mr. B. also gives some useful hints in his little book on avoiding epidemic influences and for the preservation of general health, which should be known by every one. Price of the book 25cts.

THE OHIO HARMONIST.—A collection of Psalm and Hymn tunes, by celebrated authors: compiled by Alexander Auld, and published by him at Cincinnati, Ohio. It also contains a supplement of Temperance Songs, as well as the rudiments of music for new beginners.

HOLDEN'S DOLLAR MAGAZINE, for September, is now ready. Messrs. Fowler & Deitz, publishers; it contains a well executed engraving of the late Sir Robert Peel, besides several other engravings, and a choice contents.

Shakespear's Dramatic Works, No. 22, Phillips, Sampson & Co., publishers, Boston; for sale by Dewitt & Davenport. It contains the first part of King Henry VI., with an elegant steel engraving of Joan of Arc.