

the cause of these post-mortem effects to be connected with electricity, yet affirmed that they were due to some especial modification of that unknown agent, residing solely in the animal system, and consequently bestowed upon it the appropriate name of animal electricity. The celebrated Volta was the first to successfully dispute this view of the subject, and to establish the identity of the origin of galvanic and electric phenomena. Recent experiments have confirmed the theory that animal electricity does not owe its origin to the formerly imagined action of the nerves or muscles, but emanates directly from a purely chemical source, the exciting cause being generated by the contact of the air with the incipient decomposition of the freshly-killed animal. Bearing in mind that a liquid, but very slightly saline, in contact with animal substance is an electrometer, it is easy to perceive that the so-called muscular current is nothing more than the current produced by their contact. To put beyond a doubt the question that a live muscle would generate electricity, which it could not produce when dead, contact has been made between the muscles of a live animal and the wires of a galvanometer, without the latter evincing the slightest sign of an electrical current. Moreover, if a portion of muscle be separated from the body of an animal freshly killed, and placed in communication with a galvanometer, a feeble degree of electricity is demonstrated. According to the opinion of a member of l'Academie Française, this is due to the influence of oxygen upon the flesh, a cause always existing when the muscles retain their normal state of irritability. Assuming that animal electricity was due to the cause surmised by Galvani, the evidence of the current would cease so soon as the muscles become completely inert, or, so to speak completely dead. But the reverse is the fact. The more decomposed the flesh becomes the stronger are the advances of its electrical condition, and when it has acquired a state of almost total putridity it imparts the maximum deviation to the astatic needle. That the presence of a saline liquid is necessary to these electrical effects is proved convincingly by several circumstances. One is that meat newly salted becomes electrical in proportion to the penetration of the solution, and the other that cured meats, whether beef, pork, or fish, evince a high state of electrical excitation, but becomes capable of affecting the galvanometer so soon as the animal is killed, and its power increases with the putrefaction of the body. A small addition of common salt to the blood immediately increases its electrical sensibility. If the epidermis of an animal be removed the under layers of cuticle are highly electrical, as experiments upon frogs have demonstrated, and this condition is still further augmented by the addition of a saline solution. From these results we are justified in assuming that animal electricity in its original symptoms is a delusion, and that without the intervention of some slightly saline liquid the nerves and muscles are *per se*, powerless to afford the smallest evidence of an electrical current. Unless a chemical action can be set up there is nothing to indicate the presence of that vital muscular agency which the first experiments in connection with the subject led the older philosophers to insist upon and adhere to. The animal current, which they so fondly propounded and believed in, is simply an ordinary electrical current produced chemically by the contact of a saline solution with animal matter, in which combination the salt acts the part of the electrometer. Adopting this view of the question it is easy to perceive that the development of animal electricity, in invalids and diseased organs, instead of being due to the cause originally entertained, is solely the consequence of chemical decomposition. Thus, for instance, the mucous membrane of the mouth becomes electrical in patients suffering under disease of the stomach or digestive organs, and strong evidences of it are manifested in malignant, cancerous, and other ulcers of a dangerous and fatal type. All animal excretion are electrical, and urine possesses this property in so remarkable a degree as to cause the needle of a galvanometer to make a complete revolution of the dial. The electricity of fishes results from an alkaline solution in the cells of the electric organs, and manifest itself very powerfully. All the effects of animal electricity may therefore be regarded as closely resembling those of fermentation and putrefaction, and to depend not upon any muscular or nervous hypothesis, but solely upon an incipient chemical decomposition in combination with chemical electrometers.—*The Engineer*.

**Preserving the bottoms of iron ships.**—Welch's preservative cement is the last of the many compositus tried in England for preserving the bottoms of iron ships. It is an elastic cement composed of certain stone grits and bituminous substances, and with this the ship's bottom is coated with a layer about 1/32d of an inch thick. When firmly set a liquid cement is laid on with a brush, and on this latter is transferred a metallic facing of copper-dust, a liberal dusting of the copper facing with fine stone grit completing the process. Two vessels partly coated with this composition just returned from a twelve-month's voyage to China were covered with barnacles except where the composition was applied which was perfectly clean and presented the appearance of bright copper.

**Counterfeit Creosote.**—A large proportion of ordinary creosote is simply carbolic acid. But the pure creosote, which constitutes the la-hrymosal property and peculiar smell of smoke, is quite a different substance, and may be distinguished from the false, as shown by Rust, by its behavior with collodion. A mixture with this latter and carbolic acid gives a gelatinous precipitate, while with true creosote the collodion remains clear. Dr. Hager gives another test. To a weak solution of iron, a few drops of

ammonia are added until the precipitate which originally forms is dissolved. Carbolic acid communicates a blue or violet tinge to the solution while genuine creosote gives a green color, afterward turning to brown.

**The Appearance of the Sun from the North Pole.**—To a person standing at the north pole, the sun appears to sweep horizontally around the sky every twenty-four hours, without any perceptible variation during its circuit in its distance from the horizon. On the 21st of June, it is 23 degrees and 38 minutes above the horizon,—a little more than one-fourth of the distance to the zenith, the highest point it ever reaches. From this altitude it slowly descends, its track being represented by a spiral or screw with a very fine thread; and in the course of three months it worms its way down to the horizon, which it reaches on the 23d of September. On this day it slowly sweeps around the sky, with its face half hidden below the icy sea. It still continues to descend; and, after it has entirely disappeared, it is still so near the horizon that it carries a bright twilight around the heavens in its daily circuit. As the sun sinks lower and lower, this twilight grows gradually fainter till it fades away. On the 20th of December the sun is 23 degrees and 38 minutes below the horizon, and this is the midnight of the dark winter of the pole. From this date the sun begins to ascend, and after a time his return is heralded by a faint dawn, which circles slowly around the horizon, completing its circuit every twenty-four hours. This dawn grows gradually brighter; and on the 20th of March the peaks are gilded with the first level rays of the six months' day. The bringer of this long day continues to wind his spiral way upwards till he reaches his highest place on the 21st of June, and his annual course is completed.—*ib.*

**The Sky an Indicator of the Weather.**—The color of the sky, at particular times, affords wonderfully good guidance. Not only does a rosy sunset presage good weather, and a ruddy sunrise bad weather, but there are others tints which speak with equal clearness and accuracy. A bright yellow sky, in the evening, indicates wind: a pale yellow, wet: a neutral gray color constitutes a favorable sign in the morning. The clouds are again full of meaning in themselves. If their forms are soft, undefined, and full feathered, the weather will be fine; if their edges are hard, sharp, and definite, it will be foul. Generally speaking, any deep, unusual hues betoken wind or rain; while the more quiet and delicate tints bespeak fair weather. These are simple maxims, and yet not so simple but that the British Board of Trade has thought fit to publish them for the use of sea-faring men.—*ib.*

#### NECROLOGICAL INTELLIGENCE

—Dr John Ogilvie, author of "The Imperial Dictionary" and other educational works of merit, who died on the 21st inst., at his residence, in Aberdeen, was a native of Banffshire, and after finishing his University course, he devoted himself for some time to teaching. He was for upwards of thirty years mathematical master in Gordon's Hospital, from which position he retired some seven or eight years ago. Since then he has devoted himself principally to the labours of a lexicographer. His chief work is "The Imperial Dictionary," a book of considerable worth. Dr. Ogilvie was a quiet, unostentatious, scholarly man, and was highly esteemed by all who knew him.

**The late Earl of Rosse.**—An obituary notice of the late Earl of Rosse, Baron Oxtantown, Knight of St. Patrick, who died some days ago, at his town house, in Dublin, aged sixty-seven, appeared in our last publication. This distinguished nobleman, whose family name was Parsons, was a member of the House of Commons from 1821 to 1834, and a member of the House of Lords since 1845, being elected in that year one of the representative peers of Ireland. He was President of the Royal Society and Chancellor of the University of Dublin. He stood high in his own neighbourhood as a good landlord and country gentleman; but it is by his great merits as a practical astronomer and as a patron of astronomical science, more especially as the constructor and proprietor of the most powerful telescope in existence, that he has gained a world-wide renown. The matchless instrument erected by his Lordship, at a cost of more than £20,000, in the park adjoining his mansion of Birr Castle, Parsonstown, in the King's County, occupied sixteen years in its construction, under the noble owner's personal direction and superintendence. It is a reflecting telescope, consisting of a speculum or mirror, 6 ft. in diameter, placed at the lower end of a huge tube, which is suspended to massive scaffolding, between piers of solid masonry, about 50 ft. high, with step-ladders, platforms, and galleries affording convenient access to the point of observation near the upper end of the tube; as the astronomer, while using this kind of telescope, does not look towards the star or other celestial object itself, but looks into the interior of the tube, and sees the image of that object reflected upwards from the mirror. The manufacture of the circular disc of bronze, measuring 6 ft. across and weighing about four tons, with a very slight concavity of its upper surface, which must be shaped not exactly as part of a sphere, but must depart from the spherical proportions only to the ten-thousandth part of an inch, was a most difficult task of metallurgy; and the history of Lord Rosse's studies and experiments, for the purpose of solving this problem, shows him to have been a man of great ingenuity and extraordinary perseverance. In all the processes of compounding the metals, designing the mould, casting the bronze, grinding and polishing the mirror, and in contriving special machinery for