

hesitated to proclaim his independent sovereignty. Such was the origin of the house of Othman. The name is a vernacular epithet of the royal vulture, and signifies a "bone-breaker."—"Turkey and Christendom." in a late *Edinburgh Review*.

A Lunar Daguerrotype of the Moon's surface has at length been obtained; although hitherto, scientific men deemed it impossible to obtain one. Five have recently been taken by Mr. S. D. Humphrey, of Canandaigua, N. Y., with a half-size American camera, on a medium plate. The first was obtained by an exposure of two minutes, the camera remaining permanent. During this short interval the Earth had moved forward so rapidly, that the figure of the moon was elongated to an oval shape. On the fourth picture, obtained in *three seconds*, the representation was strikingly clear and distinct. The figure was round, and the representation so perfect that its appearance under a microscope resembled the full moon as seen through a telescope. These pictures, which were exhibited at the American Cambridge Scientific Association, Dec. 1849, conclusively show that lunar light possesses the chemical principle, or force, in a high degree; and it is to this source that we may reasonably attribute its supposed action in producing phosphorescence and other changes in animal or vegetable substances.

Velocity of Light determined by Actual Experiment.—A very ingenious method of determining the velocity of light has lately been contrived by a French philosopher, M. Fizeau: Two telescopes are placed some miles apart, but so that the image of the object glass of each is formed in the focus of the other. A glass at an angle of 45° in the first telescope, sends the light, admitted through the side of the telescope, towards the second, where it is reflected directly back from a mirror placed in the focus, to be viewed at the first telescope. A disc with 720 teeth was placed in front of the first telescope so as to close and admit the passage of the light alternately. This disc is moved by clock work. It is evident that, when the ray escaping by the aperture returns after reflection to find a tooth in front of the object glass, no light will be seen. The first eclipse took place when the disc was revolving at the rate of 12 6-10ths revolutions per second with a double velocity, the point again shone out, was eclipsed with a triple rapidity, re-appeared with a quadruple one and so on. The result agrees remarkably with the velocity assigned by astronomical observation, being 192,000 miles per second.

Ancient Monuments in the Island of Nicaragua, Central America.—The Hon. E. G. Squier has lately furnished to the American Ethnological Society a most interesting account of ancient monuments discovered by him in the Islands of Nicaragua. He says "they are very different from those discovered by Mr. Stephens at Copan. Instead of the heavy and incongruous mass of ornament with which those were loaded, most of these are simple and severe, and though not always elaborately finished, are cut with great freedom and skill. There is no attempt at drapery in any of the figures. Some are erect, some seated, and others are in crouching or reclining postures. One which our men called "Gordo," "the fat," might pass for one of Hogarth's beer-drinkers petrified. He is seated, or rather thrown back in his seat, with an air of the most intense abdominal satisfaction. The material, in every case, is a black basalt. The figures are supposed to represent deities of the Aztec Pantheon, and bear a striking resemblance to the symbolical heads in the ancient Mexican ritual. These monuments, like those of Copan, do not seem to have been originally placed upon the teocalli, but erected around their bases. These teocalli are composed wholly of stones, but uncemented and in their rough state.

Imitative Galvanism.—To imitate the combination requisite to produce galvanic action: use a solution of ferrocyanate of potash, a compound of iron, nitrogen, carbon, and potash, with a little alkali for one side; a solution of the red ferrocyanate for the other side, and connect the two with a solution of chloride of sodium, or common salt.

How Chronometers are tried at Greenwich.—They are ranged round "the Chronometer Room" the first or second week in January, and each is daily compared with an astronomical clock, and its rate carefully noted. This is continued until the middle of July, during which time the temperature of the room is considerably varied: the windows are opened during six or seven weeks of the coldest period, and for about the same time the heat is raised 80° or 90° by fires, which are attended at intervals of two hours night and day. For an extreme trial, an iron tray is provided for such chronometers as are to be rested over the stove, the mean temperature being about 100° Fahrenheit, and for the cold, they are placed outside a window on the north side of the building.

An Incident in Arctic Navigation.—As extraordinary public interest is now being felt in the fate of the heroic Franklin, an extract from a recent paper in the *United Services Journal*, illustrative of the extreme danger of that sort of navigation in which it is to be feared, like the ill-fated *President*, the *Erebus* and *Terror* have mysteriously perished, may be interesting: "While the *Hecla* was struggling with accumulated perils, the *Fury* was continually grazed, and sometimes heeled over by a degree of pressure, which those unacquainted with

Arctic Navigation would be unable to conceive. A heavy floe, some miles in length, drove fast down upon the ships; in a few minutes it came in contact at the rate of $1\frac{1}{2}$ miles an hour, with a point of land ice, breaking it up with a tremendous crash, and forcing countless masses, each being estimated at many tons in weight, to the height of fifty or sixty feet, from whence they rolled down on the inner or land side, and were quickly succeeded by a fresh supply. Thus threatened by the danger of being crushed and overwhelmed by these stupendous and gigantic masses of ice hurled as in the classic fiction of the war of Titans and threatened with instant annihilation under the uplifted and violently convulsed mountains of ice, the crews remained quiet spectators of the terrific struggle; being within five or six hundred yards of the spot where nature was playing this gigantic and fearful game." Both ships, however, escaped.

Opening of the Britania Tubular Bridge.—On the 5th of March the opening took place of the great Britania tubular bridge across the Menai straits. A train with 700 passengers passed through it, and it was tried with laden wagons of 300 tons in the centre of each span. The utmost deflection produced was 4-10ths of an inch, which was not so much as would be produced by half an hour of sunshine, it being also believed that it could bear a deflection of 13 inches. The occasion was one of great excitement and rejoicing, and the structure will now constitute one of the greatest wonders of modern science.

Equestrian Statue of Frederick the Great.—The papers announce that the colossal equestrian Bronze statue of the great Frederick, the marvellous production of M. Rauch, will be raised and uncovered, on the 15th of October next, the birthday of his present Majesty. This vast work of art, which, with the exception of the horse and its immortal rider, are still incomplete, will equal, it is said if it does not exceed, all others, ancient or modern, in majesty and dignity of conception, in characteristic fidelity of portraiture, and in the wonderful variety and yet complete harmony of its component parts. The whole, taken from its base to the summit of the mighty soldier's hat, will exceed forty-seven feet in height, of which the crowning equestrian statue will occupy nearly eighteen feet.

Ancient Antiquities.—Nineveh was 15 miles, by 9, and 40 round, with walls 100 feet high, and thick enough for 3 chariots abreast. Babylon was 60 miles within the walls, which were 75 feet thick, and 300 high, with 100 brazen gates.

The temple at Diana, at Ephesus, was 429 feet high to support the roof. It was two hundred years in building.

The largest of the pyramids is 471 feet high, and 653 feet on the sides; its base covers, 11 acres. The stones are about 30 feet in length, and the layers, are 208. 360,000 men were employed in its erection.

The labyrinth of Egypt contains 300 chambers and 12 halls.

Thebes, in Egypt, presents ruins 27 miles round. It had 100 gates.

Carthage was 25 miles in circumference.

Athens was 25 miles round, and contained 250,000 citizens, and 400,000 slaves.

The temple of Delphos was so rich in donations, that it was plundered of £100,000 sterling, and Nero carried from it 200 statues. The walls of Rome were thirteen miles in length.

Vicissitudes of Watt, the Inventor of the Steam Engine.—A young man wanting to sell spectacles in London, petitions the Corporation to allow him to open a little shop, without paying the fees of freedom, and he is refused. He goes to Glasgow, and the corporation refused him there. He makes acquaintance with some members of the University, who find him very intelligent, and permit him to open his shop within their walls. He does not sell spectacles and magic lanterns enough to occupy all his time; he occupies himself at intervals in taking asunder and re-making all the machines he can come at. He finds there are books on machines, written in foreign languages; he borrows a dictionary, and learns the languages to read those books. The University people wonder at him, and are fond of dropping into his little room in the evening, to tell him what they are doing, and to look at queer instruments he constructs. A machine in the University collection wants repairing, and he is employed. He makes it a new machine. The steam-engine is constructed; and the giant mind of Watt stands out before the world—the author of the industrial supremacy of this country the herald of a new force of civilization. But was Watt educated? Where was he educated? At his own workshop, and in the best manner. Watt learned Latin when he wanted it for his business. He learned French and German; but these things were tools, not ends. He used them to promote his engineering plans as he used lathes and levers.—[Sir. R. Kane's Inaugural Address.

Miniature Steam-Engine. We have this week had shown to us, under a glass shade of the size of a lady's thimble, a steam-engine that might have served for a cotton mill in Lilliput. The whole machinery, fly-wheel included, stands upon a twopenny piece; yet so exact and skillful is the workmanship, that when a steam-pipe is applied (for there is no boiler), the engine is immediately set in motion, and works with admirable precision.—[Gateshead Observer.