

miles in circumference, but as its soil is absolutely and entirely volcanic, it is extremely fertile, and has long been famous for its wines. The vine occupies, indeed, the attention of its inhabitants so exclusively that all the necessaries of life have to be brought to them from the neighbouring islands, upon which they are dependent even for their supply of drinking water. In its population of some 13,000 souls are comprised some six or seven hundred Catholics, gathered around one school of Lazarist missionaries, and another of Sisters of Charity, both of which schools are noted for the liberality with which they afford instruction to all the inhabitants without regard to their forms of faith.

Santorin presents the form of a crescent, but with the islands of Thersia and Aspro-Nisi it makes a circle so complete as to indicate, what geologists believe, that it represents the vast crater of a submerged volcano long since flooded by the sea. The parti-coloured strata of Santorin are continued in the order, and at the same levels in the formation of Aspro-Nisi and of Thersia. Since the convulsions of 236 B. C., the region of the Archipelago all around Santorin has witnessed a wonderful succession of geological revolutions. Strabo tells us that in the year 197, B. C., the island of Miera suddenly rose to the surface, blazing with sulphurous fires such as those which, in 1868, made their appearance in Santorin. Miera has long been known as Palai-Kaimene, or "the old burning island." In the year 46 of our era, another island came up, known as Miera-Kaimene, or "the little burning island." A. D. 726, and again A. D. 145, Palai-Kaimene was suddenly enlarged by fresh elevations of the submarine volcanic cones. In the year 1570 the southern end of Palai-Kaimene suddenly sank into the sea with a shock which submerged the ruins of an ancient city bearing the famous name of Eleusis; and three years afterwards, in 1573, a short eruption elevated and enlarged the mountain cone of Miera-Kaimene. In 1656, a formidable eruption in and around the island of Santorin lasted for nearly three months, raised perceptibly the level of the sea, and sent the waves high up over the shores of Ios and Pikitso. In 1707, a new crater came up and opened between Palai-Kaimene and Miera-Kaimene. For more than a year it vomited forth lava, ashes, flames, and smoke, and gave birth to new islets, one of the whitish pumice, the other of black trachyte, which four years later, in 1711, were united and formed a cone rising to a height of 100 yards above the level of the sea. This cone also burned and blazed, and received the names of Nea and Megale-Kaimene, the "new" and "great" "burning islands." After this eruption of 1707-11, it was observed that the Island of Santorin had perceptibly sunk, and the Island of Melos or Milo (where the Comte de Marechius discovered the beautiful statue called the Venus of Milo, now in the Louvre) began from this period to be wasted by the mephitic exhalations, which have gradually converted it from a perfect garden of fertility into a desolate and sterile rock. In more recent times a trachytic plateau began to rise around Santorin at a rate so rapid, that the water off one end of the island, which, in 1830, had a depth of eight French metres, in 1834 retained a depth of no more than five metres. Off the southeastern point of Santorin again, about forty years ago, a curious space of yellowish water began to mark the blue surface of the sea. This is the effect of a submarine spring of very acid ferruginous waters, so strong as in a very short time to clean the sheathing of vessels anchoring in the neighbourhood. Whenever this spring subsides, the people of Santorin have learned to look for earthquakes.

The town destroyed in Santorin, as we have said, is probably the capital of the island, Thera. This town lies in the centre of the semicircle described by the island, and crowns the formidable cliffs which here rise suddenly and steeply from a depth of water so profound that no anchorage exists in front of the town. Over the whole surface of the island, among its green and glowing vineyards, lie scattered the traces of other towns, which, in ancient days, rose and flourished here. When we remember that no longer ago than last January an earthquake shook to pieces and destroyed the island town of Santa Maura in the Ionian Sea, quite on the other side of the Greek mainland, and that violent shocks have since then, at three different times, startled Southern and Central Italy from its prosperity, one at least of the three having been attended with considerable loss of life and property, it is impossible to doubt that the Eastern basin of the Mediterranean is just now the theatre of some as yet unmeasured but serious and most important subterranean revolution.

"OLD MORTALITY" AND THE BONAPARTES.—It is well known that the Napoleon family are connected with the Kirkpatricks of Closeburn through the marriage of Eugenie, Countess of Thera, and granddaughter of William Kirkpatrick, with the present Emperor of the French; but it is not so generally known that the Bonapartes are closely allied to another but humbler Dumfriesshire family, that of Robert Paterson, the "Old Mortality" whom Scott has rendered for ever famous. Paterson, we need scarcely say, spent a large portion of his life in travelling from place to place for the purpose of renovating the tombstones of the martyred Covenanters. Some years before entering upon this mission he was married at Closeburn Hall, by the Rev. John Lawson, minister of the parish, in 1743; and by his wife had three sons and two daughters. The youngest son, John, on growing up to manhood, emigrated to the State of Maryland in America, and eventually became a wealthy merchant in the City of Baltimore. In due time a daughter was born to him, who was endowed with much personal beauty, and, as she was also a wealthy heiress, many suitors sought her hand, among others Jerome Bonaparte, youngest brother of Napoleon the Great, and at one time King of Westphalia. Miss Paterson was won as well as wooed by her royal lover; but Napoleon, then in the plenitude of his power, was indignant at the match, caused it to be set aside, and Jerome agreed with little reluctance to repudiate his bride, and to marry in her room a European princess. By his first and, strictly speaking, only legal marriage he had one son, also named Jerome, whose death at Baltimore has just been announced, and which circumstance has induced us to pen the preceding remarks. He died at the age of 63 years, his mother, Madame Paterson-Bonaparte, the granddaughter of "Old Mortality," still surviving at the advanced age of fourscore and ten. Jerome Bonaparte, the deceased gentleman, was first cousin to Napoleon III., and half-brother to Prince Napoleon and the Princess Mathilde. He has left many descendants, some of whom, on the establishment of the second empire, sought without success to obtain an acknowledgment from the French courts of the validity of

the American marriage. They need not care much, however, for the decision of these supple tribunals, as their progenitors, the King of Westphalia and Miss Paterson, were regularly united in wedlock according to law, both human and divine. We started with a reference to the Closeburn Kirkpatricks, and it is worth while noticing that the remains of William Kirkpatrick, from whom the Empress of the French is descended, and the remains of "Old Mortality," whose granddaughter married the cousin of Eugenie's husband, lie in the same churchyard, that of Carluverock. It may be interesting to add further, that when "Old Mortality" took ill and died in 1801, at Bankend, he was on his way to find out if possible the last resting-place of other members of the Kirkpatrick family, especially the grave of Roger Kirkpatrick, custodian of Carluverock Castle, who was basely murdered there by his guest, James Lindsay, in 1358, and who, on what authority we know not, is said to have been buried in the churchyard of the palace.—*Dumfriesshire Standard.*

THE CATHERINE CROWLEY MONUMENT.—Most of our readers will remember the affecting story of the death of little Catherine Crowley of Pugwash, Cumberland county. On the night of the 14th of October last, the house of her father, Mr. Cornelius Crowley, was discovered to be on fire. All the inmates escaped early except Catherine and a younger brother and sister, who occupied the same room. The noise outside awakened the girl, who went to the window and asked what she should do, as the lower part of the building was a mass of fire, and the flames were then coming through the floor. The people outside cried to her to jump out of the window, but she refused to do so while her brother and sister were yet in the room. Returning through the smoke and fire she took the little ones severally and dropped them from the window safely, a work of some difficulty, as one of them, becoming frightened, struggled against being thrown out. The girl then dropped down herself in an exhausted condition. When taken up she said "Mother, all is over with me now, but I have saved my brother and sister." Twenty-four hours later she died. In the House of Assembly on the 24th of March last, Mr. White, of Cape Breton, drew attention to the circumstance, and moved a resolution authorizing the Government to purchase a suitable memorial stone for the little heroine. The monument has just been completed by Mr. J. H. Murphy, and will shortly be placed over her grave. It is a marble block surmounted by a cross, and resting on a granite base. On the cross are the words "In Memoriam," and on the face of the stone the following inscription: "Catherine Crowley lies beneath this sod, a victim to fraternal love. Having rescued a younger brother and sister from the flames of her parent's dwelling, she exclaimed, 'Mother, all is over with me now, but I have saved my brother and sister.' She expired twenty-four hours after; October 15, 1869, aged 12 years. 'Greater love no man hath known.'" On the side of the stone is inscribed, "This memorial was erected by the Legislature of Nova Scotia."—*Halifax Chronicle.*

A SIMPLE WEATHER GLASS.

This little instrument is prepared in the following way:—Take a glass about three inches in length and one inch in diameter, and fill it up nearly to the top with the following liquid:—Two parts camphor, one part nitrate of potash, and one part sal ammoniac, and dissolve in strong spirits of wine; then add water until you have partially precipitated the camphor. The extremity of the tube can be left open or hermetically closed. The glass tube thus prepared is then fixed in a horizontal position against the wall or a board.

- The changes in the weather are thus indicated:—
- 1st. If the weather is to be fine, the composition of the substance will remain entirely at the bottom part of the tube, and the above liquid will be perfectly clear and transparent.
 - 2nd. Before the weather changes to become rainy, the precipitate will rise by degrees, and small crystallizations, similar in shape to stars, will be seen to move about in the liquid.
 - 3rd. When a storm is imminent, the precipitate will nearly all rise to the top of the tube, assuming the shape of a leaf, or an assemblage of crystals; the liquid will appear to be in a state of effervescence. This change very often takes place 24 hours before the change in the weather.
 - 4th. The side from which the wind will blow in a squall will also be indicated through the direction and the elevation of the crystallization in the tube, the crystallization always forming on the side from which the wind will blow.
 - 5th. In the winter season the crystallization will maintain itself higher in the tube; snowy and freezing weather are also indicated by the particles of the substance floating in the liquid and assuming the shape of long hairy needles.
 - 6th. In summer time, the weather being dry and warm, the crystallization will have a tendency to remain lower in the tube, and the liquid will also be more transparent.
- The amount of crystallized particles which will be seen floating in the liquid is a sure indication of fine or bad weather, but will depend entirely on the suddenness of the change in the weather which is to take place, acting in the most energetic way on the composition above described. The value of this simple instrument to forewarn of an impending storm, and also to indicate the continuance of fine weather, will be readily appreciated by those whose occupations are affected by changes in the weather.—*Journal of Applied Chemistry.*

METEORITES.

Scientific men are making progress in their knowledge of meteorites. It has recently been found that three meteoric masses, which fell at a great distance from one another, were closely related. A mass of meteoric iron and stone found in the Cordilleras of Chili, proved on examination to be identical in structure with a mass of iron which fell at Caille, in the Alps, and a mass of stone at Setif, in Algeria. This connection is thought to establish two new facts; first, that some meteorites are empyrean rocks, now proved for the first time; second, that the stones and iron have been together in the process of stratification. M. Stanislaus Meunier, of the Museum of Natural History in Paris, has undertaken to generalize from these and other facts, and to propound the following theory: Meteorites are fragments of one or more heavenly bodies which have, at a period comparatively recent, revolved round the earth. No traces of their fall are found in the tertiary strata, or below them. They have parted with all their original heat, as the moon is rapidly doing, and have reached

a stage of molecular action where the disruptive forces overpower the cohesive, and have fallen to pieces, the fragments naturally arranging themselves in concentric zones, according to their relative density.

The attraction of the earth gradually prevails over their centrifugal force, on account of the resistance of the medium which they move, and they fall to the earth. Formerly the heavier fragments nearest the centre fell, composed of iron. Now the stone fragments are falling. Possibly, by and by, may come fragments resembling our crystallized rocks or stratified beds. It is a curious fact that formerly no stones fell, but only iron; now iron is rare and stones are abundant.

M. Meunier thinks the meteorites represent a process through which the whole solar system is passing—from luminous to non-luminous bodies—to cold bodies, to worlds falling to pieces, and drawn within the attraction of some living centre—and he predicts that our earth will repeat their history, and finally fall into the sun.

A SUNBEAM.

The greatest of physical paradoxes is the sunbeam. It is the most potent and versatile force we have, and yet it behaves itself like the gentlest and most accommodating. Nothing can fall more softly and more silently upon the earth than the rays of our great luminary—not even the feathery flakes of snow, which thread their way through the atmosphere as if they were too filmy to yield to the demands of gravity like grosser things. The most delicate slip of gold leaf, exposed as a target to the sun's shafts, is not stirred to the extent of a hair, though an infant's faintest breath would set it into tremulous motion. The tenderest of human organs—the apple of the eye—though pierced and buffeted each day by thousands of sunbeams, suffers no pain during the process, but rejoices in their sweetness, and blesses the useful light.

Yet a few of those rays, insinuating themselves into a mass of iron, like the Victoria Tubular Bridge, will compel the closely knit particles to separate, and will move the whole enormous fabric with as much ease as a giant would stir a straw. The play of those beams upon our sheets of water lifts up layer after layer into the atmosphere, and hoists whole rivers from their beds, only to drop them again in snows upon the hills, or in fattening showers upon the plains. Let but the air drink a little more sunshine in one place than another, and out of it springs the tempest or the hurricane, which desolates a whole region in its lurid wrath. The marvel is, that a power which is capable of assuming such a diversity of forms, and of producing such stupendous results, should come to us in so gentle, so peaceful, and so unpretentious a guise.—*British Quarterly Review.*

THE ASTRONOMER ENTRAPPED.

We find in a recent number of the *Eclectic* the following amusing anecdote, which occurred some years since at a celebrated observatory in the suburbs of London. A visitor was desirous of observing a celestial object which was nearly overhead, and having the run of the observatory at the moment, he directed the telescope towards the star, set the clock-work in motion, and placed himself on his back in the observing frame attached to the floor of the observatory. The frame is so constructed that the observer can fix the head rest in any position, and as the whole frame revolves round an upright in the middle of the observatory floor, it is easy to place the frame so that the observer can look in perfect comfort at any object on the celestial vault. In the present instance, as we have said, the observer lay on his back, the object being nearly overhead. But while the frame remained, of course, at rest, the clock-work was slowly driving the telescope after the star, and as the star happened to be approaching the point overhead, the eyepiece of the telescope was being brought continually lower and lower. Intent on observing the aspect of the star, (a celebrated double) our astronomer failed to notice that this movement of the eyepiece was gradually imprisoning him. His head was fixed by the head-rest, and the eyepiece was beginning to press with more and more force against his eye. The telescope was a very heavy one, the very slowness of the movement made it irresistible, and the observer's position prevented him from helping himself. Fortunately his cries for assistance were quickly heard, the clock-work was stopped, the head-rest lowered, and the prisoner released; otherwise, he would undoubtedly have suffered severely. He would, in fact, have had as good reason to complain of his telescope as the celebrated astronomer Struve had in the case of the Pulkova refractor, "which," Struve said, "was justly called a refractor," since it had twice broken one of his legs for him."

So many kinds of steel are now manufactured that an exact and permanent nomenclature for them is needed. Dr. Wedding, of Berlin, has endeavoured to supply the want. He classes all kinds under two heads, "Raw Steel" and "Fine Steel." Of the former he distinguishes five varieties; while fine steel has a much larger number, each of which is named according to its mode of preparation, or after its inventor.

DYING HORNS BLACK.—According to C. Burnitz, of Stuttgart, horn may be dyed black by a cold process in the following way: The horn is first to be soaked in a solution of caustic potash or soda, until the surface is a little dissolved, and feels greasy. Then the article is to be washed and treated with Lucas' aniline black, after which it is to be slowly dried and again washed. By exercising a little care, we read that combs with fine teeth may be died in this way. The articles look of a dark brown colour by transmitted light, but seen by reflected light they are deep black.

BEAUTIFUL EXPERIMENT WITH LIGHT.—Choose a room where the sun shines in through the window, and then black out all the light, by means of a shutter or otherwise, taking care that all cracks are stopped. Then cut a hole about six inches square in the shutter, and stop the hole with two or three thickness of rich deep blue or bluish-purple glass. A broad beam of deep blue or purple light from the sun will thus stream down into the otherwise dark room. Then hold in the deep blue light a bottle or other article made of uranium glass. Ornamental bottles made of this glass, which is sometimes called "canary" glass, because of its light yellow colour, are commonly on sale in chemists' shops. They are plentifully made to hold smelling salts, and may cost from sixpence to three shillings each. The blue light should be deep and not very brilliant. When the uranium glass bottle is held in it, the bottle will appear to glow with great beauty, with all the brilliancy of a glow worm, as if white hot.—*Septimus Piesse.*