

## No. 21.—THE DOWAGER COUNTESS OF DUNDONALD.

The death of the venerable Countess Dowager of Dundonald, at a great age, on the 25th ult., at Boulogne, recalls one of the romances of history. The marriage of the gallant earl to this brave and high-spirited lady was what he calls "the silver lining to the cloud." Lord Dundonald, in 1812, made the acquaintance, he tells us, of Miss Catherine Corbett Barnes, of a family of some standing in the midland counties. His rich uncle, the Hon. Basil Cochrane, who had destined his large Indian fortune to the re-establishment of the fortunes of the House of Cochrane, left Lord Cochrane his heir on condition that he married the daughter of an admiralty official who had amassed great wealth by the practices which Lord Cochrane had always denounced in parliament. Lord Cochrane refused, and, when the uncle pressed, put Miss Barnes, who was quite as brave as her lover, into a post-chaise, and they were privately married, August 8, 1812, at Annan, in Scotland. The lady shared her husband's dangers by sea and his prosecution on land; her spirit cheered him when under fire, which she bore as bravely as himself, and how her constancy sustained him under that more pitiless fire from unscrupulous political foes, who degraded him and exposed him to obloquy of the grossest kind—is well known to readers of the current history of the day, and of that gallant record of pluck and fortitude, "The Autobiography of a Seaman, by Thomas, Tenth Earl of Dundonald." The noble lady saw her injured husband restored to his rank in the navy and in the Bath. The "last public appearance" of the venerable lady was before the House of Lords on the occasion of the investigation above mentioned. The noble lords all but rose to receive her, and treated her with all honour, while, with the same admirable calmness and self-possession which she had shown under fire, she defended her own and her husband's first marriage.—*Morning Post*.

## IV. Papers on Scientific Subjects.

## 1. THE CHANGES CAUSED BY WATER.

A very superficial glance at the economy of nature in carrying on the daily routine of operations on our globe will satisfy any one that the circulation of water, from the ocean and through the atmosphere, upon and beneath the surface of the land, and so back again to the sea, is in the highest degree important; and the more the phenomena of water are studied, the more important do they appear. Not only does the water in its circulation modify the main features of the surface, but a large part enters beneath the surface, and emerges only after travelling far and penetrating deep. In its journey through strata and among the deep recesses of the earth it performs work that most of us dream but little of. Distilled from the ocean as warm vapor, the atmosphere becomes saturated, and, either as invisible vapor or cloud, the water is drifted along for hundreds of miles with little change. But no sooner is it converted into rain, and passes through the lower strata of the atmosphere to the earth, than it absorbs carbonic acid and a few other ingredients. With these powerful but simple implements it soon works wonders. It dissolves a way for itself; where it cannot run through porous rocks back to the surface, it makes its way downwards, now removing from, now adding to, the strata or the fissures through which it passes. As it goes down it acquires the temperature of the earth's interior—a temperature increasing gradually with the depth of the greatest depths hitherto reached, but no where becoming excessive. The warmer water is with respect to some minerals a stronger, with respect to others a weaker solvent. The water makes its way silently, but as it goes it everywhere promotes change. Some rocks it cements, others it loosens; in some way the minerals and fossils are altered in material, but not in form; while in others the form is altogether obliterated, but the material remains. Down to the greatest depths it is conveyed, not rapidly, perhaps, but with a certain, inevitable, inexorable fate. Up from these depths it re-ascends, governed by the same fate. While some water sinks an almost equal quantity is evaporated again, and the water from below is constantly sucked up to replace that which is taken from the surface. This great law of nature is as certain and inevitable as the circulation of the blood in a living human being. It represents the life of the world.

And this it is that promotes metamorphism. No sooner has the mud of the sea-bottom become formed than it begins to be covered. When covered it begins to consolidate, and parts with some of its excess of moisture. In this state it may long remain, but ultimately it gets covered up with coat after coat of similar or different material, and, by some of those depressions that constantly affect a large portion of the earth's crust, it sinks down, acquires an equable temperature belonging to its depth. Thus placed it is subjected to the influence of such polar forces as act within the earth's surface.

It is also subject to enormous pressure, greatly increased in the event of an upheaval. During all this time water acts. It helps the half formed mass to become a definite solid; it penetrates every pore, and crystallises the yet shapeless atoms of the ancient mud; it fills up all the crevices; it takes away here and places there; it separates out small portions of foreign bodies, collecting them into one place; it converts the shapeless mass into strata; it forms bands that are among the strata, but independent of them; it even helps the separation of metals, and places them in a certain order in the vacant spaces.—*Metamorphism in the Popular Science Review*.

## 2. ORGANIC POISON IN ROOMS.

Dr. Richardson, an English chemist, says that iodine, placed in a small box, with a perforated lid, destroys organic poison in rooms. During the continuance of an epidemic small-pox in London he saw the method used with benefit.

## 3. BENZINE AS AN INSECTICIDE.

A mixture of ten parts benzine, five parts soap, and eighty-five water, has been very successfully used by Gille to destroy the parasites which infest dogs. It has also been used with good results in veterinary practice, as an application in certain diseases of the skin: and thus diluted, is found to answer better than when pure.

## 4. MAP COLOURS.

*Yellow*.—1. Dissolve gamboge in water. 2. Make a decoction of French berries, strain, and add a little gum arabic.

*Red*. 1. Make a decoction of Brazil dust in vinegar, and add a little gum and alum. 2. Make an infusion of cochineal, and add a little gum.

*Blue*.—A weak mixture of sulphate of indigo and water, to which add a little gum.

*Green*.—1. Dissolve crystals of verdigris in water, and add a little gum. 2. Dissolve sap green in water, and add gum.

## 5. A NEW MATCH.

A lucifer match is now in the market that differs from anything hitherto in existence. Upon the side of each box is a chemically-prepared piece of friction-paper. When struck upon this, the match instantly ignites; when struck upon anything else whatever, it obstinately refuses to flame. You may lay it upon a red-hot stove, and the wood of the match will calcine before the end of it ignites. Friction upon anything else than this prepared pasteboard has no effect upon it. The invention is an English one, and, by special act of Parliament, the use of any other matches than these is not permitted in any public buildings. The discovery is a curious one. There is not a particle of sulphur in the composition of the lucifers in question.

## V. Papers on the Microscope.

## 1. CHARGE ON FORGERY REFUTED BY THE AID OF THE MICROSCOPE.

At the Police Court in London, on Wednesday, Mr. Charles Kent was charged with altering two promissory notes drawn up by Henry Fletcher. It was alleged by the prosecutor that the words "with interest at twenty-five per cent," had been added fraudulently after the notes were signed. The *Protype* tells the remainder of the story:—The county attorney, Mr. Hutchinson, was present at the prosecution, and Mr. Scatcherd for the defence. Two powerful microscopes were introduced into court, by Mr. Saunders, and the writing of each note was critically examined by those present. The examination, by this means, clearly showed, to our mind at least, that the words mentioned must have been written before the signatures were appended. This was easily discovered, even on one of them, with the naked eye alone. The examination by the microscope, however, appeared to set all doubts at rest on that point, by revealing certain strokes of the pen in the top of the signature crossing a portion of the line said to be afterwards appended, and showing plainly enough to the most obtuse that the words in question must have been inserted at the time the notes were drawn up. Here the case rested; the prosecutor, when called, failed to appear; whether frightened by the tell-tale microscope or not, we do not know, he could not be found. The charge was therefore dismissed, every one feeling that, under the circumstances, no other course could be adopted.