

mean kind of building to be especially applicable in, first, hydraulic works, as it offers nowhere a continuous joint to the water; second, in fortifications; third, for railways in substruction and steep coverings, and in the cellar story and even in the next story of large buildings and palaces. In these mortar would be used, not as a means of connecting the stone, but only as pointing to the joints, so that the immediate contact of the stone should not be interrupted. In conclusion, the writer recommends the adoption of this method of building according to determined and clearly defined principles and rules, as altogether practical, wherever the material for polygonal blocks is found—a method which is at least to us a new one, and not simply a more careful execution of the long-used rock walls, or an ornamental imitation of an old style, as in the Wallalla, of which practical method, in short, this Cyclopean wall, near Kiel, is the first example that has been executed in Germany—*The Builder*.

IRON SHIPS.

As a good deal of attention has lately been given to iron ships it may be interesting to shipowners to know that the iron bark "Richard Cobden," now being overhauled in No. 1, Canning Graving Dock, was, on Wednesday last, bored through one of apparently the worst and most corroded plates in her, Mr. F. W. Sim, the managing owner, being anxious to ascertain what the actual diminution in thickness would prove after eight years' service between this and the East. The result was that the plate operated upon turned out to be the same thickness that it was when the ship was launched in July 1844, namely, 1 1/16ths of an inch on the sixth tier from the keel.—The only part of the vessel which, on examination, exhibited any corrosion, and that only slightly, was the bow, where the anchor and chain had chafed the paint or coating with which the vessel is covered as a preservative, and which appears to perform its office actually.—*Liverpool Albion*.

ANCHOVIES AND THEIR ADULTERATIONS.

The *Lancet* gives the result of the investigation of the Analytical Sanitary Commission into the composition of "Anchovies," as vendid in the metropolis. Having analysed 28 samples, the following conclusion has been arrived at:—That seven of the samples consisted entirely of Dutch fish. That two of the samples consisted of a mixture of Dutch fish and anchovies. That the brine in 23 of the samples was charged with either bole Armenian or Venetian red, the quantity varying considerably in amount; but in most cases the brine was saturated with these earthy powders to such an extent that they might be obtained and collected from the bottom of the bottles almost by tea spoonfuls. The commissioners add—"It is not to be inferred that those samples in which no Dutch fish were detected consisted of the true anchovy, since we have ascertained that two other kinds of fish besides the Dutch are commonly imported and sold as 'true anchovies,' and 'real Gorgonzas,'—namely, French and Sicilian fish. A further investigation established the fact, that not one-third of the 28 samples examined consisted of Gorgonzas anchovies.

Natural History.

INFUSORIA.

The influence of a LOW TEMPERATURE on Infusoria has been minutely described by Professor Ehrenberg; he agrees with Professor Spallanzani that cold is generally fatal to the above class of animated beings, especially to the *Rotatoria*. "It is more destructive to the living animals than to the eggs." Water, when recently thawed, is found to be inhabited by a few individuals which have escaped death, and enclose the germs of future generations. They invariably die when incased in ice from one hour and a quarter to two hours; but the moment that congelation of the water takes place, each individual is surrounded by a small cavity, which Professor Ehrenberg sup-

poses to be the result of its proper heat. If the ice is thawed quickly by a strong heat, it proves fatal to every Infusoria it contains, therefore, to obtain them from ice, it must be dissolved by a slow heat. They are found in winter at the lowest tenure of ice covering ponds, &c. Heat will instantaneously kill a fusory animalcules: the eggs as well as the animal's perish. There are, however, several species capable of supporting a temperature from 45 to 70 degrees, (Reaumur) but I have on several occasions found vegetable Infusoria living when the heat was gradually brought up to this degree. Light is favorable to them, but it is not considered necessary to their development; they are found in deep mines, for example, the Schlangenberg, Freiberg, &c. If the light be too strong, it acts quite the reverse. Sometimes they are found in waters towards the north, it is therefore thought a peculiar circumstance might influence them in this situation; heat causes the development of currents of gases which draw with them these minute creatures, and this is the cause of their presence more frequently on the warm side, than on the side towards the light. The difference between day and night is not appreciated by them. "The electric spark acts differently, according to the power and species on which it is tried; generally the animals found in the current are dead, it not by the first spark, at least by the second. The animals found in the galvanic pile, or of a magneto-electrical apparatus, are instantly killed; but to effect this, it is necessary that decomposition of the water takes place, and that the wires be approximated to within from one to three lines of each other. All animals which approach are as it were struck with lightning." ATMOSPHERIC AIR is necessary for the existence of animalcules; the *Rotatoria* cannot exist without it; it is therefore necessary that a small hole be cut in the cork of the bottle in which they are kept. Those, however, of the genus *Chlamidomonas* will live five days under a layer of oil; some will only live beneath the air-pump as long as they can find the smallest particle of air; the larger animalcules soon perish when thus treated. OXYGEN has little effect on Infusoria; but if a small proportion of nitrogen be added to the before-mentioned fluid and transferred to the vessel in which they are kept, they will not survive over twenty days, and by an experiment of the learned Professor Ehrenberg, in which he added a third part, of mixed hydrogen, which has the property of burning with vital air, after this addition they survived only seventeen hours. What is more strange, is that all chemical substances which do not change the composition of the water, will exercise no influence upon these minute creatures

of Creation; not even the strongest or most deadly poisons will destroy their vitality, if they are not more than mechanically mixed with it. The drop of salt water will destroy thousands of fresh water animalcules—the salt water itself containing a large number of them. Strichia destroys them in the same way as a putrid water, by promoting an escape of air. This air is swallowed by them without producing any effect. A water was swallowed by a species called *Planorbis* only, but which did not die until some time after. Calomel, a corrosive sublimate, and camphor did not cause death until some hours after being swallowed. Wine and rum, like sugar destroy nearly all the Infusoria which are found in drinkable water.

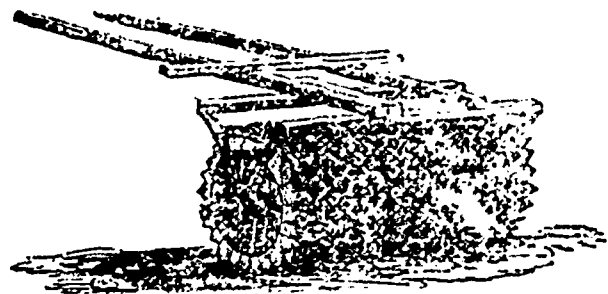
TOXICOLOGY.

It is a fact pretty generally known in this district that the grass which grows in the neighbourhood of Loch Avon proves fatal to the lives of nearly all the horses that partake of it. but it is not so generally known in what the properties of the grass we refer to differ from those of other grasses elsewhere—in other words, what is the cause of its producing death. Were it necessary, many instances could be given to show its poisonous properties. For the present we shall content ourselves by referring to one which can be attested by a very respectable and influential person belonging to the neighbourhood. Some years ago, the gentleman we refer to, being visited by a few acquaintances was anxious to show them the romantic scenery which surrounds Loch Avon. A fine day was selected, horses were provided, at an early hour in the morning. Off the whole of the party set for the desired spot which, in the course of time, they safely reached. Forgetting the singular and dangerous nature of the grass, the horses were allowed to partake freely of it. No bad effects were visible till the party commenced their homeward journey, when two of the horses began to stagger very much and in the course of a very short time, altogether lost the power of their legs. The rest of the horses were similarly effected, but not to the same extent. After some delay, the appearance of the whole of the horses improved very much, and their riders managed to get them some distance towards home. Subsequently however, the two that were worst relapsed into their former state, and in a very short time ceased to exist. The rest, though often near death, after many struggles, were got home, and recovered. So notorious is now this property of the grass that no sportsman will, within a few miles of the place, keep a register.—*Donaghadee Journal*.

Agriculture

CROSSKILL'S PATENT CLOD CRUSHER.

In our last number we gave a brief sketch of the Norwegian Harrow, accompanied by a drawing of the implement, and as allusion was made to Crosskill's Clod Crusher, we subjoin a sketch of that implement.



Although in some manner answering the same end in so far as the pulverization of the surface of the soil is concerned it is evident that in order to open out a hard clay soil the Norwegian Harrow will be of far more importance, although the Clod Crusher is undoubtedly the most effective implement that moderate mechanical skill has contrived in order to furnish the farmer with the means of reducing to a fine condition the driest and most stubborn soils. It is composed of a number of cast-iron rings, two feet six inches in diameter with indented or serrated surface, placed around an axle, and acting independently of each other so as to produce a separate action, and effect a self-cleaning movement. The ordinary width of the roller is six feet and a half, and each of the separate parts has a series of inner teeth at right angles to the axle, pointing directly perpendicular into the clods, and most effectually pulverizing the roughest land into a fine surface mould. This implement has been aptly termed a roller and harrow combined. It has been used with much advantage on young wheat in Spring, when the soil requires consolidation, and is said to prevent the Wire-Worm in many situations. The price of its manufacture varies from £15 to £25.