

76°, depth 73°—during breezy temperature is 72°. A conferva that is indigenous and confined to the lakes has been produced in excessive quantities, so much so as to render the water unwholesome.

It is, I believe, *Nodularia spumigena*, allied to protococcus. Being very light, it floats on the water except during breezes, when it becomes diffused. Thus floating, it is wafted to the lee shores, and forming a thick scum like green oil paint, some two to six inches thick, and as thick and pasty as porridge, it is swallowed by cattle when drinking, especially such as suck their drink at the surface like horses. This acts poisonously, and rapidly causes death; symptoms—stupor and unconsciousness, falling and remaining quiet, as if asleep, unless touched, when convulsions come on, with head and neck drawn back by rigid spasm, which subsides before death. Time—sheep, from one to six or eight hours; horses, eight to twenty-four hours; dogs, four to five hours; pigs, three or four hours.

A *post mortem* was made on a sheep that had thirty ounces of fresh scum administered by the mouth: death was long coming on—about fifteen hours; examination made six hours after. Stomachs: none of the green scum left, all absorbed; dry grass food in stomachs. Abdominal cavity contained two pints of yellow serum; heart flaccid, but not pale; great effusion of serum around it. Lungs, liver, kidneys, and substance of brain healthy and normal, but the dura mater congested. Blood throughout veins and arteries and in both ventricles black and uncoagulable, neither did it become scarlet on exposure to the air. Many sheep that died, on being opened, presented the same appearances, all being without any sign of its presence in the stomachs.

This shows that the plant is rapidly absorbed into the circulation, where it must act as a ferment and cause disorganisation. The cattle will not touch the puddles where the scum has collected and gone putrid. Thus all they take is quite fresh, and the poisoning is not caused by drinking a putrescent fluid full of bacteria as at first supposed. When this scum collects on the banks and is rapidly left dry, it forms crusts of a green colour. This has gone out of the Murray mouth into the ocean and been wafted ashore, forming thick beds of green stuff from a few inches to twelve inches thick. When, however, this scum is left in wet pools and puddles it rapidly decomposes, giving off a most horrid stench like putrid urine, or archil in process of manufacture; but previous to its getting into that state it emits the smell of butyric acid, smelling like very rancid butter.

There exudes from this decomposing matter a blue pigment which has remarkable properties. Sample tube 1 contains the fluid as strained off from the scum and will be found full of bacteria. No. 2 is the same with glycerine, and filtered to separate the bacteria.

This fluid is remarkably red, fluorescent by reflected light, being blue by transmitted light. Spectrum a broad and deep band total at top in the red, but shading off to green, quite cutting off orange and yellow.

Chemical properties:—Heat destroys colour; sulphuric acid no action; nitric acid reddens; hydrochloric acid, the alkalis, and ammonia, destroy colour; chlorine and ozone bleach; light but little action, yet sunlight gradually bleaches; dries to a mass, retaining colour; soluble in water, glycerine, and weak alcohol. I think this is allied to the colouring matter of some lichens, is a product of decomposition, and not pre-existing in fresh plants. Its fluorescent powers are remarkable, and the most powerful I have ever met with.

GEORGE FRANCIS

Adelaide, S. Australia, February 11

#### Transmission of Vocal and other Sounds by Wires

The following are notes of some additional experiments since those recorded in my paper laid before the Physical Society of London, an abstract of which appeared in NATURE of 25th inst.

1. An ordinary iron fence railing was selected containing six lines of wires varying from  $\frac{3}{16}$  to  $\frac{1}{4}$  inch in thickness. These wires were passed through iron supports at every two yards. A disc, mouth and ear-piece, was attached to one of the wires when speaking, singing, whistling, and breathing were transmitted through distances varying from twenty to sixty yards, whilst the sound of a small tuning-fork was heard at 100 yards.

2. In an iron fence, with heavy iron top-rail, half inch square in section, and having iron supports at every yard, it was found

that the above-mentioned sounds could be transmitted through about thirty yards; the tuning-fork sound, however, was heard at sixty-six yards.

In the latter experiment the best results were got with a hollow wooden mouth-piece, pressed against the iron, the ear being connected with the iron by means of a solid body, such as a cork.

3. Some yards of No. 16 copper wire were attached to the ordinary bell-wire connection from one room to another; another portion of the same copper wire was attached to the brass bell crank in another room—a lobby intervening;—speaking, singing, and other sounds were readily transmitted; the tone was low, but clear.

For this experiment the terminal discs were of pasteboard, set in metal rims.

In the experiments with the iron fence, the sounds were free to pass not only up and down the particular wire selected, thus necessarily doubling the range of distance given above, but suffered breaking up at each support, and consequent distribution through the other wires.

Glasgow, April 27

W. J. MILLAR

#### Westinghouse Brake

THE experiment shown by the Westinghouse Brake Company was described by Sir W. Armstrong as long ago as 1843, in a paper "On the Efficacy of Steam as a Means of Producing Electricity and on a Curious Action of a Jet of Steam upon a Ball" (*Phil. Mag.* xxii.). The explanation of the phenomenon as due to the centrifugal force of the diverted jet is given in general terms in Young's "Lectures on Natural Philosophy" (Lecture xxiv. p. 297).

R.

April 28

#### The Oxford Commissioners' Statement

MAY I be permitted to draw attention to the very marked discrepancy between the arrangements proposed by the University of Oxford Commissioners for the Animal and for the Vegetables side of Biology? Assuming, as we fairly may, that by "Physiology" the Commissioners mean Animal Physiology, and supposing—what is by no means improbable—that the future Reader in Invertebrate Anatomy would refuse the Professorship of Zoology; when that office is next vacant, we see that there would be four University Professors (or Readers) of Animal to one of Vegetable Biology; while we may also note that at Christ Church there is a Reader in Anatomy, and that at no College is there any Reader in Botany.

When the efforts, which may fairly be described as violent, to effect the removal of the Botanical Gardens to a peculiarly objectionable site failed, it was hoped that those who, wittingly or unwittingly, endeavoured to paralyse the study of Botany in this place, would have yielded fairly.

The suggestions now made lead us to fear that the Commissioners have been persuaded to do what the University would not do.

At any rate, if the matter is too delicate for the Professor of Botany to deal with, it is to be hoped that other Botanists will make proper representations to the University Commissioners.

April 27

B.

#### Contact Electricity

If a Volta's condenser be formed of an iron and a copper plate having their surfaces of contact well ground together, it is found that, on placing them together and then separating them, the iron acquires a positive charge and the copper a negative. This occurs so long as the atmosphere surrounding the plates is the ordinary one containing watery vapour and other oxygen compounds. But if the atmosphere contain sufficient hydrogen sulphide, the iron will be found negatively and the copper positively electrified. Sir Wm. Thomson has shown that "a metal bar insulated so as to be movable about an axis perpendicular to the plane of a metal ring made up half of copper and half of zinc, the two halves being soldered together, turns from the zinc towards the copper when vitreously electrified, and from the copper towards the zinc when resinously electrified."

Substituting for the zinc half of ring an iron half, the same effect takes place, but in a less degree; but if the ring be