

"BRITISH COLUMBIA

"Drowned by a Devil Fish

"VICTORIA, September 27.—An Indian woman while bathing was pulled beneath the surface of the water by an octopus or devil fish and drowned. The body was discovered the following day in the bottom of the bay in the embrace of the monster. Indians dived down and with their knives severed the tentacles of the octopus and rescued the body. This is the first recorded instance of death from such a cause in this locality, but there have been several narrow escapes."

Exeter College, Oxford

H. N. MOSELEY

The Earthworm in Relation to the Fertility of the Soil

IN NATURE, vol. xvii., p. 18, there is an account under the above heading of M. Hensen's investigations of this subject, to which I wish to add a note. He says the assertion that the earth-worms gnaw roots is not proved by any fact; roots gnawed by worms were never met with by him, and the contents of the intestines of the worms never included fresh pieces of plants. The experience of gardeners that the earth-worm injures pot plants may be based on the uncovering or mechanical tearing of the roots.

I should have thought that the universal experience of gardeners is that earth-worms never eat vegetable matter until it has decayed, and that their instinct leads them to draw the points of leaves as far as they can into their tubes for the purpose of setting up the decaying process, and likewise to sever the roots of pot plants with the same object. I can hardly understand how earth-worms have any mechanical means of severing the roots of plants except by gnawing.

But there is an omission in M. Hensen's account of the fertilisation of the subsoil by earth-worms which surprises me. He mentions but two ways in which this is effected, viz., by the opening of passages for the roots into deeper parts, and by the lining of these passages with humus.

I thought it was a well-known fact that worms, by means of their "casts," effect a complete *renversement* of the soil of meadow land down to a certain depth in the course of a few years. But whether well-known or not I met with a demonstration of this important fact in 1857. When putting down a considerable extent of iron fencing in the alluvial meadows near my house (consequent upon an exchange of land) I had occasion to cut a ditch two or three feet deep, and when the workmen had finished the ditch—a quarter of a mile long in all—I was astonished to see in one portion, of about sixty yards in length, a distinct and very even narrow line of coal-ashes mixed with small coal in the clean cut surface of the fine loam of the ditch face, perfectly parallel with the top sward. It immediately occurred to me that this was the work of the earth-worms, and upon inquiry I found that the farmer, who had occupied this land for many years, remembered having once, and only once, carted out some coal-ashes and spread it at this spot not many years before. I forget the exact number of years, but I believe it was about eighteen. I have a distinct recollection, however, that the depth of the line of coal-ashes below the surface was at least seven inches, and that this seemed to confirm the general belief that the depth to which the earth-worm usually burrows is about that amount. I may add that the colour of the loam above the line of coal-ashes was decidedly darker than of that below.

HENRY COOPER KEY

Stretton Rectory, Hereford, November 2

IN NATURE, vol. xvii., p. 18, some details are given of observations made by M. Hensen on the relation of the earth-worm to the fertility of the ground. He has observed, as everyone must have observed, that the earthworm during night draws into its tube or hole the loose leaves and fibres which may be lying about. But this operation of the earthworm has a significance in relation to the vegetable world of even a profounder kind than that of the fertilisation of the soil. Some months ago, in searching for young ash plants with three cotyledons, I found that in a great many cases the samara or seed of the ash had been drawn into a worm's hole, and had there found moisture and other essential conditions of growth; while the same seeds lying dry upon the surface had not germinated. There can thus be no doubt that many seeds of all kinds are drawn under the surface of the ground, or covered by

the earth thrown up by worms. They are thus preserved from birds and various enemies, and are placed in the proper position for germination. The dead plant is perpetuated from its fallen panicle by the earthworm. An ash tree, or a whole forest of ash trees, may have been planted by earthworms.

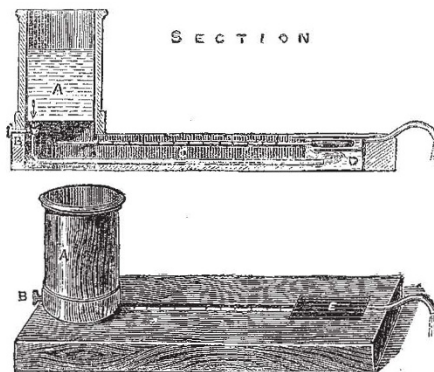
North Kimmundy, November 5 A. STEPHEN WILSON

M. Alluard's Condensing Hygrometer

THE notice of the above instrument in last week's NATURE (p. 14) is an excellent illustration of the necessity for increased communication between the scientific men of all countries. The labour which is at present wasted by repeating what has been done before is enormous, and until international intercommunication is improved it must be so.

I quite agree with you in your appreciation of M. Alluard's hygrometer, but I think it is desirable to state that it is not the first in which "the part on which the deposit of dew is to be observed is a plane well-polished face A, of silver or gilt brass." The annexed engravings represent the form of plane-faced hygrometer invented by Mr. G. Dines, F.M.S., described by him in the *Meteorological Magazine* for October, 1871, and exhibited at the Brighton Meeting of the British Association, 1872.

The action is extremely simple; no ether is required nor any aspirator. Water colder than the dew point is the only requisite—it is poured into the reservoir A, passes through the regulating-tap B into the chamber D; it is, by the black diaphragm, thrown past the bulb of the thermometer C, and then allowed to escape. The cooled plane surface E of silver or black glass, is excessively thin, and the space between it and the thermometer-bulb is wholly occupied by the effluent water, so that the great essential



of all hygrometers, a true indication of the temperature of the cooled surface, seems to be reached. The plate E can be kept within $0^{\circ}2$ or $0^{\circ}3$ for a length of time by adjusting the screw B, and as the condensation usually takes an elliptical form over the thermometer-bulb, and in the middle of E, the advantage of an adjacent bright surface is usually attained. I am, however, not sure that M. Alluard's surrounding plate might not be a convenience, although for the reason above given I have not found it necessary.

G. J. SYMONS

62, Camden Square, N.W., November 2

Optical Spectroscopy of the Red End of the Solar Spectrum

NATURE, dated August 2 (vol. xvi. p. 264), containing Prof. Piazzi Smyth's communication on "Optical Spectroscopy of the Red End of the Solar Spectrum," reached me on the 21st ult., when I had no leisure to avail myself of the outgoing mail and reply immediately to the subject of his last paragraph. Inquiry is there made of "anyone" (besides the Royal Society), in association more or less with my name, whether *more recent particulars* have been published, of the spectrum in question, than "those (*i.e.* my) Indian observations," "printed in the *Philosophical Transactions* so long ago as 1874" (*i.e.* 1875).

2. The Astronomer-Royal for Scotland is presumably in a better position to reply for "any one," than myself, located in latitude N. 30° , longitude E. 78° ; and so far as the inquiry relates to the Royal Society, his penultimate paragraph in itself furnishes the information sought, because the Society's publica-