

disciple of Izaak Walton! There was a goodly eel on the hook, sure enough.

Since then "Winifred" has once again attempted to pull out the line under exactly similar circumstances. Surely this conduct shows powers of observation and of inference of no mean order?

I may add that the collie is now three years old. She saw me fishing many times last summer, and, as I said before, always showed great interest in what was going on. But it was not till six weeks ago that I had any idea how much she was profiting by what she saw.

Perhaps some of your other readers who fish, and are accompanied by intelligent dogs, may have observed similar instances of reasoning power. Seeing to what perfection dogs can be trained to take part in other branches of sport, perhaps it is not very surprising that here and there one should show a little appreciation of the leading points of the "gentle art" of angling.

MORGAN J. ROBERTS

The Hollies, Cwm Newydd, Holywell,
North Wales, August 31

Copper and Cholera

NEED we go to Sweden to test the theory that copper is a preservative against cholera? The year before the 1865 epidemic I travelled by train past Swansea, and my attention was called to the utter want of verdure in the surrounding country, due, I was told, to the copper fumes.

Now, according to the official report, the deaths from cholera in Swansea were 88 in 10,000 in 1866, in Neath 79, in Llanely, 76—all places in the same neighbourhood; thus showing a far greater mortality for the copper-smelting district than any other in England or Wales. The mortality for all England was only 13 in 10,000, and for London 18. The only two places which in any degree approach Swansea are West Ham with 50, and Liverpool with 54; in both of which it is well known cholera was especially severe. The epidemics of 1849 and 1854 present Swansea in a more favourable light.

Perhaps some of your Swansea readers, by giving the number of deaths—if any—among the actual workers in the metal, can help those who, like myself, are inclined to believe in copper as a prophylactic; in what way I scarcely know, unless it be according to the principles of homœopathy, as my experience on three occasions—and a lively time I had of it—lead me to believe that copper added to plums to preserve their colour should be eschewed, at any rate in cholera times.

Dulwich, September 1

B. G. JENKINS

The Meteor of August 19

THE same meteor was undoubtedly seen by Mr. Crispin at Wimbledon, Mr. Pooley at Cheltenham, and myself at Llandudno, and I think I can remove Mr. Crispin's difficulty.

The apparent fall of meteors towards the earth is generally an effect of perspective. An object at a great height moving directly away from the observer appears to move perpendicularly downwards. If moving away obliquely to right or left, it appears to have a more or less horizontal path with a downward inclination.

This meteor was evidently not moving towards the earth, but was one of those that skim the upper atmosphere, white-hot at their surfaces while the resistance is sufficient, and dark again as soon as they pass into a thinner medium. I suppose it to have first become luminous when directly over Essex, not far from Chelmsford, at a height of about seventy miles, passing north-east over the sea, and vanishing near the Texel. Its appearance along such a path would agree very fairly with the three observations, except that, if Mr. Pooley saw it first quite south-east by compass, it must have been luminous for a second or two before Mr. Crispin or myself observed it, and the starting-point would be nearly over London.

I was wrong at first in referring to the Yorkshire coast. The visible path was clearly south of the Humber.

ALBERT J. MOTT

Crickley Hill, Gloucester, September 2

THE ISCHIAN EARTHQUAKE OF JULY 28, 1883

SINCE my last letter to NATURE most of my time has been occupied in visiting different parts of the island, and although there are still a number of objects to be

carefully examined the general features of the catastrophe I hope to have cleared up.

The actual moment of the earthquake is unknown, but seems to have been about 9.25 p.m.; so, supposing the shock registered at Naples and Vesuvius to be identical with that of Casamicciola, had the observation of time at the latter locality been correct, we could calculate the velocity of transmission, but which it is to be feared is impossible.

As mentioned in NATURE, the shock was preceded by general seismic disturbances throughout Southern Europe. In the island itself we have the most contradictory statements as to premonitory signs and symptoms. One gentleman noticed on two occasions previously his watch, which was suspended by a nail to the wall, swing backwards and forwards. The assertion about the water at Gurgitella being much hotter some days before is of little value without proper thermometric observations, since it is known commonly to vary 20° C., and may reach more than 40° from time to time, and I am acquainted with a thermal spring at Bagnoli, near Naples, that varies 23° C., ranging from 13° to 36° C. Perhaps the most remarkable of these kinds of statements was couched in these words:—"The syndic of Serrara Fontana (a town on the south of the island) telegraphed to the Minister of Public Affairs to the effect that in that country a fissure one kilometre long, thirty metres broad, and of unknown depth, from which were issuing dense columns of vapour." On reading this I started immediately for Serrara, and there the syndic placed at my disposal his two informants as guides. After a climb of three hours and a half along the almost impassable sides of Epomeo, we came to its northern slope over Lacco Ameno, with the two landslips I had visited and photographed thirty-six hours after the shock. The fissures were such as take place along the edges of all landslips. No vapour was issuing, and its presence for a short time after the earthquake could be easily explained: the locality is part of the old fumarole area of Monte Cito, where alum was manufactured centuries ago; the rock is much decomposed by the continual escape of acid vapour, and only required the earthquake to shake it down; when the displacement took place a large surface of hot and moist tufa was exposed, and no doubt for some time gave off a quantity of vapour.

It will be seen that not a single point of the size, locality, and characters of the fissure described by the newspaper was correct or free from gross exaggeration. I have visited with care all similar sites of supposed fissures, but after some days of want of shelter, sleep, an abominable starvation diet of bad bread and rotten cheese, combined with continual climbing from daybreak to sunset in an extraordinarily hot Neapolitan summer in the hope of finding some evidence of volcanic action, I did not meet with the slightest success. I was accompanied in these excursions by my friend, Prof. P. Franco of Naples, who shared my disappointment and disgust. Holding as I do the volcanic nature of the earthquake, the appearance of any such phenomena would have been greedily accepted.

If we draw isoseismal lines over the injured districts, we find that they assume the form of elongated ellipsoids whose major axes run nearly east and west.

The fourth isoseismal area, in which houses are only very slightly fissured, not only includes the whole island but must extend into the sea some distance.

One remarkable fact is the manner in which the houses of the marinas have suffered much less than others in their immediate neighbourhood, or even farther away from the seismic vertical. This is no doubt due to their foundation reposing on sea sand, which, from the looseness of its particles and therefore inelastic nature, acted as a mattress and absorbed the earth waves. The same fact is observable in all buildings that have their founda-