

Anchor-Ice

ON looking over some old papers I find a few notes on a rather curious instance of the mode of formation of anchor-ice which was accidentally brought to my notice.

When at Repulse Bay on the Arctic Circle many years ago, I went out one morning in the latter part of September to shoot deer, and on my way forded a stream of no great size, dry shod, having on Eskimo waterproof boots, the water being little more than a foot deep. The parts of this small river which had a slow current were already covered with ice, but not strong enough to bear my weight. For so early a date the day became extremely cold, and on my way home, after an absence of about eight hours, I was surprised to find, when recrossing the stream, that the water came high over my knees, filling my boots.

On examination I discovered that this rise of water was produced by an accumulation of *frozen water* fully eight or nine inches deep, adhering to the stones at the bottom of the rapid, all of which must have been formed, since the morning, at the rate of not less than one inch in the hour. The foot sank readily into this "sluhy" formation, a lump of which rose buoyantly to the surface at each step.

Unfortunately I could not wait to study the process of construction as it was getting "dusk," and my wet clothes—which had to be cut off when I got to my fireless tent—began speedily to freeze.

I have seen "anchor-ice" in rivers many times, and believe that two or three conditions are requisite for its formation, namely:—

1. A rocky or stony bottom.
2. Shallow water as compared with that higher up the stream.
3. A swifter current and rougher water in comparison with a smooth and slower motion immediately above.

All these conditions existed in the present case.

The ford was a rapid, and as I have already mentioned, shallow, whilst immediately above there was a pool of nearly still water, three or four times as deep, which was ice covered to within a few yards of the ford. On the surface of this almost still water, close to the rapid, where it was yet unfrozen, numerous small crystals of ice were forming and floating, indicating that the water was at—perhaps colder than—the freezing point.

When these ice-crystals and surface cold water get into the turmoil of the rapid, they are brought into contact with the rocks and stones at the bottom, which are thus cooled down to the freezing point, and become convenient nuclei for ice-formation.¹

Supposed anchor-ice is often found at the bottoms of shallow lakes and ponds, and also in the quieter pools of rivers; but this, as far as my experience goes, is not true anchor-ice, but is formed in the usual manner, beginning at the surface and increasing in thickness *downwards* until it reaches the bottom, to which it freeze firmly and remains attached during the spring and early part of summer—perhaps longer—with two, three, or more feet depth of water over it, as it slowly thaws.

The manner in which anchor-ice is formed may be well known; if so, the fact that no satisfactory description of the process has come under my notice is the only apology I have to offer for troubling you with this communication.

J. RAE

4, Addison Gardens, Kensington, W., March 25

Diatoms in the London Clay

I REGRET to find that there are some beautifully mounted slides in circulation in London that have been sold, and are labelled as diatoms from the London clay, which are not what they purport to be. To prevent further disappointment to microscopists, will you allow me to say that arrangements have been made for slides of the London clay diatoms to be procurable shortly at any of the usual places? Due notice will be given by advertisement in this paper, when and by whom slides can be supplied to the trade.

W. H. SHRUBSOLE

Sheerness-on-Sea

Carnivorous Wasps

IN NATURE, vol. xxi. p. 417, there is the statement that common wasps are carnivorous. I can prove this fact also by my own experience. I observed, one summer, in a country

¹ The way in which masses of ice, yards in extent, which have been floating on the surface in the smoother and slower current of a river, disappear when they enter a rapid and remain under water for some time, may be noticed in any country where the winters are cold enough, at the breaking up of rivers in the spring.

house, where wasps were shut in a room, that from lack of their usual food, and probably forced by hunger, they caught flies and devoured them. I saw several times wasps with a fly between their mandibles creeping on the window-glass, or eating them. Generally the wings and the head of the flies were mangled. I was one day so happy as to see a wasp catch a fly on the window, and observe how cleanly it picked the wings of the fly in order to hinder its flying away, and after having done so, how the wasp ate the head. I saw also some wasps quite prostrate and dying of hunger at last. I think that this fact could easily be verified by experiments.

LEWIS BOD

Hungary, Stuhlweissenburg, March 20

TWO ENTOMOLOGISTS

THE brief notices that appeared in the *Times* and in our last number of the death of two of the most prominent Continental entomologists, were scarcely sufficient, and we therefore give a slightly more extended account of the lives and labours of both.

Ernest August Helmuth von Kiesenwetter, born in 1820, was a member of the Saxon Privy Council, and was highly esteemed in his native country. Although only sixty years old at the time of his death, his first recorded published paper dates so long back as 1842. He was one of the most accomplished and conscientious German entomologists, and one of the hardest workers—a considerable traveller, so far as entomological journeys in different parts of Europe are concerned, a close observer, and a man above suspicion as to the nature of his work. Though chiefly a coleopterist, he attended more or less to all orders of insects, but limited his studies principally to the European fauna. The greater part of his memoirs appeared in the *Stettiner entomologische Zeitung* and the *Berliner entomologische Zeitschrift*, and the list is very long. But his principal work is undoubtedly concentrated in the part he took in the "Naturgeschichte der Insecten Deutschlands," commenced by Erichson, and completed so far as the greater portion of the Coleoptera are concerned. How far Kiesenwetter's decease may render even this portion incomplete, and prevent the realisation of the original scheme, we know not. It was a grand idea with an unfortunate title. Few works on systematic entomology have rendered so much service to workers occupied on those groups already attended to, and it will remain a monument to the industry of all concerned. Its title has brought upon it the reproach of being a natural history in which there is no natural history, a severe criticism which a little forethought on the part of the originator should have avoided. Kiesenwetter had to assist in carrying out a set programme. He did his part of it well and faithfully, and his other writings prove that the biological side of the question was always prominently before him.

In S. C. Snellen van Vollenhoven Holland has lost its Westwood. He was born in Rotterdam on October 18, 1816, and not even his intimate correspondents here knew of anything likely to cut short the career of so prominent a man. Attached for many years to the Natural History Museum at Leyden as Director, he retired from that position a year or two ago, and so much was he respected that a medal was struck in his honour upon that occasion. Van Vollenhoven was a naturalist in the fullest sense of the term. It has been said of him that his principal work was his "Faune entomologique des Indes orientales," meaning thereby (principally) of the Dutch Indies. This work was sufficient to base a reputation upon, but it was, from a biological point of view, not the most important. He occupied himself especially with the insects of Holland, and it is for the works he produced upon them that his memory will be everlastingly respected by Dutchmen, and by all other entomologists who think there is yet much to be done in working out the fauna of Europe. Indeed we fancy the exotic work was forced upon him by the necessity of his position, rather than done *con amore*.