

after having looked in vain for their hive in its old place. At night I picked the exhausted bees up, and, having restored warmth to them (by leaving them for a time upon my coat-sleeve), I returned them to their companions.

Here was an illustration that the faculty of *memory* was superior to that of *observation*; but that was not all. Nearly every bee which I picked up during the twenty-three days through which this effort of memory lasted was an *old one*; as was easily deduced from observing the worn edges of the wings: showing that, whilst the young insects were quick in receiving new impressions, and in correcting errors, the nervous system of the old bees continued acting in the direction which early habit had affected. So true is it that "One touch of *Nature* makes the whole world kin."

Marlborough House, Torquay

JOHN TOPHAM

#### Pollen-grains in the Air

WILL you allow me to ask Mr. Hubert Airy, in reference to his interesting paper on the "Microscopic Examination of Air," in *NATURE*, vol. ix. p. 439, on what ground he refers the "triangular pollen" captured on his slide to the birch and hazel? Observations of my own have led me to the conclusion that the pollen of plants which depend exclusively on the wind for their fertilisation is perfectly spherical, at all events before the form of the grain is disturbed by the emission of the pollen-tubes, and this indeed one might expect from *à priori* considerations. Among the pollen-grains I have especially observed, are those of *Corylus avellana*, *Betula alba*, and *Populus balsamifera*. I shall be much obliged if any of your readers could refer me to any accurate published description of the form of pollen-grains beyond those contained in Fritzsche's "Beiträge zur Kenntniss des Pollen."

ALFRED W. BENNETT

6, Park Village East, N.W.

#### Lakes with two Outfalls

I AM a little surprised to find, by the recent letters in your paper, that Science makes so wide a mouth over this phenomenon, though its exceptional character, and the general correctness of Colonel Greenwood's theory, must readily be recognised. My surprise is occasioned by the fact that Norway, which is now visited by thousands of educated English tourists every year, can supply, not one, but several, I had almost written many, apparent examples of this double outflow. I have not myself passed the watershed at the Lesjeskaagen Lake, though I was close to it in August last, and would have examined it if I had known its importance; but I know enough of the locality to think that Colonel Greenwood is probably right in his explanation of it. But there is another, which I have passed, and which is situated on perhaps the most frequented route in Norway, viz. that from Lærdalsøren over the Fille Fjeld, to which I hardly think the same explanation would apply. Between Nystuen and Skogstad is a chain of lakes crossing the watershed, the highest of which (not the one marked on the Vei-cart over Norge, I think) sends its waters to the west, past Nystuen to the Sogne Fjord, at Lærdalsøren, and on the east by the Lille Mjösen, and Aadalen to the Tyrifjord, and so past Drammen to the Christiania Fjord. This lake is a small one, and the double outflow is close to the high road. I cannot imagine any commercial object for an artificial cut, and it must be well known to hundreds who annually pass it. The Vei-cart shows several other instances, I know not how authentic, though I have always found it fairly accurate, erring rather by omission than commission. But in lat. 62° N., long. 24° 40' E. or thereabouts, is a very remarkable watershed, having a complication of outfalls; the Bredals-Vand sending one to the N.W. to the Geiranger Fjord, and a second to the Vaage-Vand and Gudbrandsdalen; which is also joined by a draft from a lake to the S.W., which likewise sends a feeder to the Opstryen Vand, and so W.S.W. to the Nord Fjord. This I have not myself seen, but I was at Merok on the Geiranger for some days last August, and was assured by my landlord that the map was correct in this particular. As the Norwegian peasantry are well-educated, intelligent, and truthful, and this route forms their regular short cut to Christiania, I cannot doubt but that it is the fact. However, I have engaged to go over the track this summer with Captain Dahl, the well-known jolly commander of the *Erknö*, and I will take care to ascertain the truth and report the result. If, moreover, there are any geological or geographical points to be attended to, and Colonel Greenwood will kindly furnish me with instructions, I shall be happy to attend to them.

I have a strong recollection of having passed two or three cases of double outfall on a small scale in my wanderings; but

not having been aware of the importance of the point, I did not take notice sufficiently precise to enable me now to put my finger on them with certainty, but my general conviction is strong, that Norway can furnish several, if not many examples, which are the more significant from the fact that it is one of the oldest countries in the world.

Burghley Road

W. B. THELWALL

WILL you permit me to correct a mistake as to a matter of fact in *NATURE*, vol. ix. p. 441. Loch-na-Davie, Arran, has two outlets, as is correctly represented in the Ordnance Map, and also in that in Bryce's "Geology of Arran." In August 1872 I walked up the north stream from Loch Ranza to its outfall from Loch-na-Davie. I think Colonel Greenwood ought at least to have made himself acquainted with the Ordnance Map.

Edinburgh

A. CRAIG CHRISTIE

### THE "CHALLENGER" EXPEDITION \*

#### IV.

#### TRISTAN D'ACUNHA

AMONGST the places in the Atlantic marked out by the Circumnavigation Committee as being of especial interest, the small island of Trinidad is noted with those whose vegetation is absolutely unknown, or all but so. From this fact Trinidad became a point of attraction which Mr. Moseley was most anxious to reach. Owing, however, to unfavourable winds and other causes, as well as to a desire of those in command of the ship to proceed south, the visit to this little island was abandoned, with the hope of calling there on the return voyage. After a narrow escape, also, of missing Tristan d'Acunha, the vessel anchored on the north side of the island, and the morning was spent in searching the low lands under the cliffs, 500 feet being the greatest height that was attained during the stay. On this side the island rises in a range of perpendicular cliffs of black volcanic rock, in appearance somewhat similar in structure to that exposed in section in the Grande Curial in Madeira. At the base of the cliffs here are *débris* slopes, and a narrow strip of low shore land of an irregular rocky and sandy nature. The settlement lies on a stretch of low land, broader and more even, and extends westward. The ascent to the plateau above the cliffs is comparatively easy, owing to the deep gullies by which the cliffs are broken.

Though the extent of the island is small, its actual area being not more than 16 square miles, the botanising was confined to the irregular strip of shore land just alluded to, and to the gully immediately above the settlement. Further exploration would have been made, but a sudden squall coming on, the recall was hoisted from the ship, and the party had to leave the island, after a visit of only six hours. Grasses, sedges, mosses, and ferns grow on the cliffs, and occasional patches of *Phytica arborea* Th., a rhamnaceous tree peculiar to the islands, as well as a species of *Empetrum*; these plants, however, are more prominent towards the summit. At the foot of the water-courses under the cliffs are bright green patches of *Rumex frutescens* Th. Mosses and liverworts cover the lower part of the cliffs, and the latter also abound beneath the grass in some situations to such an extent, indeed, as to cover the earth as with a green sheet. *Spartina arundinacea* Carm., grows in rounded tufts amongst the other herbage, and in the clefts of the rocks was seen in abundance *Asplenium obtusatum* Forst., and *Lomaria alpina* Spreng. It is remarkable that the plants of *Lomaria* when found in stony places, and in a comparatively starved condition, were mostly furnished with fertile fronds, whilst those growing in rich vegetable mould were barren. Amongst flowering plants the most common were *Apium australe* Th., *Pelargonium australe* Jacq., *Sonchus oleraceus* L. our common annual sow-thistle, *Hypochaeris glabra* L. a closely allied plant to the sow-thistle, and also found in many parts of England. A cinchonaceous plant, *Nertera depressa* Banks, was very abundant, and

\* These Notes are founded on letters sent home by Mr. H. N. Moseley. Continued from p. 451.