seen the brushes charged with scent, but he has recorded it in two African and one Oriental species. The behaviour was observed when the butterflies were freely exposed at rest on leaves and in one instance, *Amauris niavius dominicanus*, he was able to approach sufficiently close to smell the scent, which he describes as resembling 'an aromatic snuff'. Furthermore, the subsequent use of the brushes in courtship has only been recorded by a single naturalist, Dr. G. D. H. Carpenter, who observed it in two African species, the males of which performed these epigamic functions on the wing in full sunlight, the expanded brushes being conspicuous even at a little distance. Why have not these observations been made again and again? For the twofold reason that attention has been concentrated elsewhere while this subject has been neglected. Negative evidence, here proved to be valueless, is, I believe, also valueless when it is offered in support of the conclusion that butterflies are not seriously attacked by birds.

EDWARD B. POULTON.

University Museum, Oxford,
Sept. 26.

An Iodine Liberator from Laminariæ.

THE letter of Prof. Thomas Dillon in NATURE of Feb. 2, p. 161, on this subject has suggested to us that the following preliminary report may be of general interest. Our observations being a part of the thesis for the doctorate of Karl Closs, will be published in detail later.

In carrying out experiments on the chemical nature of the iodine-containing compound in *Laminaria digitata*, we observed that iodine was liberated by acidifying the aqueous extract of the *Laminaria*. Sulphuric, hydrochloric, nitric, and acetic acids cause liberation of iodine in the same way. The *p*H of the extract must fall below a certain value before iodine liberation takes place. The *p*H of the fresh extract is about 4. After evaporating to dryness and redissolving, no iodine liberation takes place on acidifying. By adding potash to the extract when evaporating the 'iodine liberator' is preserved. Boiling with base is also without effect. The 'iodine liberator' is therefore not an iodide oxydase, as observed in the cellular liquid of Rhodophyceæ (O. Gertz, *Biochem. Ztschr.*, **169**, 435; 1926). When the iodine which is liberated by acidifying the *Laminaria* extract is extracted with chloroform, another smaller portion of iodine may be liberated by adding potassium nitrite. On the other hand, the acidified extract, after the extraction of liberated iodine and before nitrite is added, liberates iodine from potassium iodide, as also observed by Prof. Dillon.

We evaporated the original extract with potash on a water bath to dryness and extracted ten times with ethyl alcohol. The iodine-containing substance and the 'iodine liberator' are both soluble in alcohol. After adding potash the ethyl alcoholic extract was evaporated to dryness and the residue extracted 10-15 times with amyl alcohol. The iodine-containing substance is dissolved in the amyl alcohol and the 'iodine liberator' is left in the residue. The iodine liberator is not potassium iodate as is suggested by H. D. Kay in NATURE of Mar. 2, p. 317; 1929.

From our experiments we arrive at the following conclusions: The chief part of the iodine in the fresh aqueous extract of *Laminaria digitata* is present in such a form that the iodine is liberated by an 'iodine liberator', which is also present in the extract and only acts in acid solution. We do not agree with Prof. Dillon when he finds in this process an explanation for the concentration of iodine of the sea water by marine algæ, the iodine which can be liberated being present in a much higher concentration in the *Laminaria* extract than in the sea water.

Our experiments on this subject are being continued.

GULBRAND LUNDE.
KARL CLOSS.

Research Laboratory of the Norwegian
Canning Industry,
Stavanger, Sept. 12.

Dew: Does it Rise or Fall?

MESSRS. E. E. FREE and Travis Hoke say dew rises; Sir Herbert Maxwell (NATURE, Sept. 14, p. 412) says it falls; Dr. J. B. Cohen (NATURE, Sept. 28, p. 482) says it does both; may I add that it does neither?

The physics of dew formation is really very simple, although much has been written on the subject and there is still much misapprehension. On a clear night all bodies radiate more heat than they receive by radiation; and so does the air near the ground. There is therefore a general fall of temperature. If the temperature of the air falls below its dew point mist or fog appears. The fall of temperature of the air, however, is frequently not sufficient for the air itself to reach the dew point; but the temperature of grass and other bodies not in good thermal contact with the ground, falling more rapidly than that of the air, goes well below the dew point. Water then condenses out of the surrounding air directly on to the cold body and dew appears on its surface. The dew is nowhere until it appears on the surface; it therefore neither rises nor falls.

Both Sir Herbert Maxwell and Dr. Cohen speak of the water vapour first condensing in the air before appearing as dew. But if the water condenses in the air there is a mist or fog, and water deposited from mist or fog is not real dew. It is true that we have no word to describe the water deposited in this way and we make the word dew serve in this case also; but a physical process is involved different from that of true dew formation. When the temperature of the air is below the freezing point and the products of condensation appear as ice we do use two different words; for hoar frost is true frozen dew, while rime is the deposit from the water which has been first condensed in the air as mist or fog.

The essential of dew formation is that the temperature of solid bodies falls by radiation below the dew point and in consequence water is deposited by direct condensation from the air on to the surface of those bodies. Where the water deposited as dew comes from is an entirely different matter, and has nothing to do with the formation of dew.

G. C. SIMPSON.

Meteorological Office,
London, Sept. 28.

A Chromosome Ring in *Pisum*.

AMONG the descendants of crosses between an individual belonging to a race of *Pisum* cultivated in Tibet and some of our own edible varieties of peas, sterility affecting about 50 per cent of the ovules and pollen grains has been observed by Miss C. Pellew to occur frequently. From other crosses of the same description but with different individuals of the Tibetan variety, the progeny were all fertile. One of the sterile plants (F_2), self-fertilised, gave a family consisting of fertile and 'sterile' plants again showing 50 per cent gametic sterility. The recurrence of gametic sterility pointed to an abnormality in the reduction divisions, and accordingly Miss Pellew