

Remarkable Lightning Flashes.

LAST September you kindly published a photograph of a multiple lightning flash taken with a moving camera. I now enclose a photograph taken at Johannesburg by Mr. G. H. Preston. I think that he must have moved his camera (Frena) unintentionally, being startled at the commencement of a very vivid flash, which seems to have lasted some considerable time, say nearly one second. At any rate there are nine distinct lightning flashes, all of identical shape. The first three, or perhaps a few more, are very strong and close together, and possibly while they were taken the camera may as yet have been



fairly stationary; its axis then moved in spiral curves while the remaining six flashes imprinted themselves.

The photograph is of interest on account of the large number of individual but otherwise identical flashes, and especially because it shows that these individual discharges follow each other at irregular intervals; and I hope that the suggestion which I made last year to study this subject may be carried out.

As on my last year's photograph, there is on this one an additional flash, which appears to be single but is much more branched than the other one.

C. E. STROMEYER.

Lancefield, West Didsbury, August 21.

IN NATURE for September 14 (p. 460), the writer on dark lightning refers to the absence of dark flashes in pictures of artificial discharge. I may perhaps draw the attention of any who are unfamiliar with Lord Armstrong's "Electric Movement in Air and Water" to Plate 34 in that book, in which is shown a very fine example of a dark flash. Lord Armstrong describes how he obtained the discharge on p. 41. Plate 18 is also of interest in this connection.

HENRY STROUD.

The Durham College of Science, Newcastle-upon-Tyne,
September 18.

I DO NOT see on what grounds it is concluded (p. 423) that ribbon lightning has a real existence. The appearance might easily be caused by defective vision. If the fork is not distinctly focussed on the retina, it may appear either broadened or double or multiple, especially if there is any degree of cataract in the eye. The ribbon appearance in the photograph shown in your article is surely to be explained by the camera having been moved downwards and slightly to the right, or else in the opposite direction, and three or more discharges having taken place during the time. The horizon not being sharp is further evidence. One may imagine, however, that an appearance of this kind might also arise from a discharge being repeated through the same air, but the air moving bodily between one discharge and the next: it seems to me it yet remains to be proved whether such a thing ever does occur. One would suppose that if it did, the motion of the air would not be uniform throughout the flash, and therefore the ribbon would be unequal in width in different parts.

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With regard to apparently black lightning, some months ago I saw a black fork having exactly the appearance of an ordinary flash of forked lightning, only dark on the light ground of flash of sheet lightning. I concluded the explanation to be that given by Lord Kelvin, only the curious circumstance was that I did not remember I had previously seen a bright fork of the pattern of the dark one. I have no doubt, however, that there must have been one, and that my being dazzled by it caused me to see it again, dark, as soon as there was a light background to show it.

T. W. BACKHOUSE.

West Hendon House, Sunderland, September 18.

It is surprising that such a brilliant experimentalist as Prof. R. W. Wood does not allude to that peculiar reversal of the photographic image known as the Clayden effect.

I drew particular attention to this explanation of the dark flash in a lecture before the Royal Photographic Society this year, which is fully reported and illustrated in the *Photographic Journal* for March last.

The Clayden effect is easily verified in the following way.

Arrange the sparking terminals of a coil, horizontally, about four inches apart, with a dark background of velvet; focus a camera for the sparks, then darken the room. Place a strip of white card one inch wide near one terminal in the spark gap, uncap the lens, and expose on the card by burning one inch of magnesium wire; then remove the card and pass a spark, now place the same card near the other terminal of the spark gap, and burn another inch of magnesium wire. On developing the plate it will be found that the spark image is reversed over the latter card only.

This shows that the same amount of Iog has a very different effect, whether it is deposited before or after the image. It must sometimes happen that in photographing lightning some sky fog or other fog will be deposited after the image; it therefore seems highly probable that any bright flash could be converted into a dark flash by slightly fogging the plate before development. The Clayden effect also explains why, with a number of flashes on the same plate, some may be dark and some light, and yet dark lightning probably has no real existence.

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F. H. GLEW.

Sedge-Warblers seizing Butterflies.

OBSERVED instances of birds capturing butterflies are so few that I venture to think the following worth putting on record. On the evening of August 12, at about 6.30 p.m., I was walking beside a dyke on Ludham Marsh, Norfolk, when my attention was attracted by the alarm notes of a pair of sedge-warblers in the reeds. I stood still, and soon caught sight of both birds within about six yards of me. Each had a butterfly in its mouth, and with my field-glass I was able to identify the species as a meadow brown (*E. janira*) and a small white (*P. rapae*). From the behaviour of the birds, and my observation of them on subsequent days, I have no doubt that they were feeding their nestlings, though I was unable to find the nest. I may add that at the time most of the butterflies had taken up their quarters for the night on stems of reeds, &c., and that very many of the butterflies which I observed during the daytime on the marshes had very ragged and chipped wings. These injuries may have been caused by wind and contact with twigs, thorns, &c., but they were quite compatible with repeated ineffectual pecks and snips from the beaks of small birds.

OSWALD H. LATTER.

Charterhouse, Godalming, September 17.

Explosion of Aluminium Iodide.

I HAD two samples of aluminium iodide in two hermetically sealed glass tubes sent by a German firm. One of them was passing round the class, and the other was lying on the demonstration table. Suddenly a report was heard, and I found that the tube on the table had exploded, and its contents had been thrown out. Both the tubes were perfectly sound, and therefore there seems to be no reason to suspect that the volatile compound found an explosive mixture with the air. The temperature of the lecture room was at the time nearly 95° F. I communicate this matter to you to find out if others have had similar experience with aluminium iodide.

P. L. NARASU.
Christian College, Madras, July 30.