

Phosphorescence of Photographic Plates.

I HAVE frequently observed the phenomenon described in your correspondent's letter published in NATURE of January 14 on treating plates which had been exposed to the action of Röntgen rays, with a solution of alum.

I first noticed it in June, 1898, and the temperature of the dark room was 23°. The film being "hardened" was that on an "Ilford Special Rapid Plate," which had been subjected to a somewhat protracted development with pyrogallol; on pouring a 7½ per cent. solution of common alum over the plate, the liquid lit up with a pale phosphorescence, not unlike that seen on stick phosphorus on a warm night, which continued for about ten seconds and then faded away.

Plates developed with ferrous oxalate also glow occasionally under similar conditions, and phosphorescence seems to take place only when the film has not been exposed to ordinary light, and when the surrounding air is exceptionally warm.

JAMES F. RONCA.

Clapham, S.W., January 23.

WITH reference to the letter from Mr. T. A. Vaughton in your issue of January 14 regarding the phosphorescence of silver bromide, it is worth noticing that this is not a function of the silver haloid salt.

Whilst working here for Dr. W. J. Russell, F.R.S., I chanced to empty some spent pyro developer and a dilute solution of alum into the sink of the dark room at the same time, when the whole liquid at once glowed with a brilliant phosphorescence.

This takes place whenever a dilute aqueous solution containing pyro, a soluble sulphite, and an excess of alkali is made acid. It occurs even when the amount of pyro is very small, but it is essential that the solution be alkaline. If the pyro be mixed with sodium sulphite alone, although the latter be in sufficient quantity to ensure faint alkalinity, the solution remains colourless and does not phosphoresce; an oxidation of the pyro seems to be necessary.

Either a dilute solution of a mineral acid, of an organic acid, or of an acid salt can be used to acidify the pyro.

This phenomenon is not a new one, but so far as I am aware has never been studied.

O. F. BLOCH.

The Davy Faraday Research Laboratory,
Albemarle Street, W., January 20.

M. Blondlot's η -Ray Experiments.

ABOUT three months ago I independently discovered that a feebly luminous phosphorescent zinc sulphide screen when brought near the body increased in brightness.

I mentioned this fact to Mr. H. A. Taylor, remarking that I believed it to be the effect of an undiscovered ray given off by the flesh; he suggested, however, that heat was the cause of the phenomenon.

Further trials showed this to be the case; by laying the back of the screen against a fluted jar filled with warm water the zinc sulphide would brighten up along the edges of the fluting and clearly indicate the pattern; on removing the screen the light would fade, showing the pattern now as dark lines against a lighter background.

With care screens of sulphide of zinc or of calcium may be made highly sensitive to warmth, and by this means it might be possible to photograph many dark bodies simply by means of the heat rays given off, provided a suitable lens was employed.

S. G. BROWN.

4 Great Winchester Street, London, E.C., January 23.

Curious Shadow Effect.

I SHOULD feel obliged, if not troubling you, if you could tell me where I could obtain information with regard to the following:—

During the Christmas holiday my brother and I were in North Wales, and happened to be on the ridge that lies north of Llyn Llydaw; the sun was about 1h. from time of setting, and was low enough to clear the lower edge of the thin clouds which came from a northerly direction. The hollow (Cwm Glas) to the north of the ridge was, every

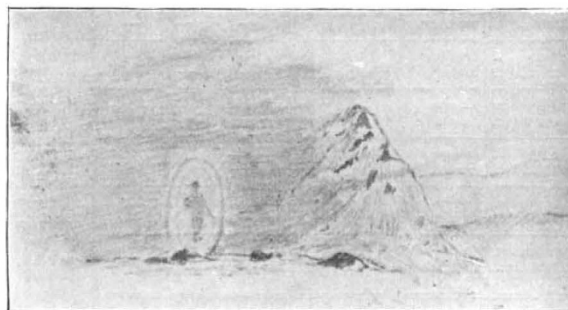
now and then, filled up with thin mist on which our shadows were projected; surrounding the shadow was a faint oval-shaped rainbow, which, as the sunlight strengthened, became brighter, and a second bow outside the one nearest to the figures appeared, though very faintly. Although my companion was within a few feet of me, we each saw our own shadows only. We also saw, when the mist was



further from us, a shadow of the ridge itself with our two figures on it, in this case the figures appearing much smaller than in the other effect, and without any bow.

These phenomena are, I believe, not rare on this ridge, certain conditions, such as a bright low-down sun behind one, and a fairly opaque mist in front, being, of course, necessary.

The point on which I desire information is why the bows



should be of this oval form, and why they should appear at all?

The shadow of one's figure I can more readily understand.

The little pencil sketch enclosed may perhaps explain my description.

H. M. WARNER.

44 Highbury Park, N., January 14.

Destructive Action of Rain upon Animal Life.

THE protracted and heavy rains during periods of the past year must have imposed a severe strain upon the smaller and more fragile forms of animals, such as, for instance, plant lice, mites, many of the smaller species of insects, spiders, &c. Even if adults are able to withstand the destructive effects of torrents of rain, it is difficult to understand how very immature examples, or individuals that have recently undergone ecdysis, can survive. During prolonged and heavy rain over a mixed tract of country the available shelter is relatively very small. Practically the whole surface soil becomes sodden, and, in the open at any rate, almost the whole vegetation is drenched. In some plants, as is well known, the flowers and certain areas of the leaves and other parts afford shelter, but even taking this into account, it would seem that the injury must be very great. In the county of Sussex during ordinary June