induced a reasonable expectation of this direct view, and I feel positive that such a prominence would be readily visible at sunrise, or sunset, with the sun's limb just registering with the horizon.

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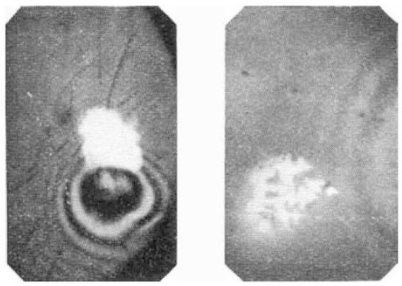
Manchester,
May 16.

White Spot with Newton's Moving Water Rings.

LAYERS of moisture, grease, etc., condensed on solid surfaces play an important part in many phenomena, hence it may be of interest to recall an observation made by Newton, which, so far as I know, is never referred to in modern text-books. Observation XI. in "The Second Book of Opticks," Part I. (1704), is one of Newton's many careful observations of the coloured rings seen between convex and plane surfaces of glass, and is as follows: "When the water was between the Glasses, if I pressed the upper Glass variously at its edges to make the Rings move nimbly from one place to another, a little white Spot would immediately follow the centre of them, which upon creeping in of the ambient water into that place would presently vanish. Its appearance was such as interjacent Air would have caused, and it exhibited the same Colours. But it was not Air, for where any bubbles of Air were in the water they would not vanish. The reflexion must have rather been caused by a subtiler medium, which could recede through the Glasses at the creeping in of the water."

I have taken rough 'snapshots' of this phenomenon, two of which are here reproduced (Fig. 1),



a *b*

FIG. 1.

but owing to photographic exposure difficulty they do not show the brilliant coloured rings which extend across the white spot. Fig. 1*a* shows the formation of the white spot sharply at the edge of the dark centre of Newton's rings, indicating that contact (whatever contact may mean) between the glass surfaces extends over the central black spot. Fig. 1*b* shows the white spot beginning to disappear into the glass or into the water or simply contracting due to increase in pressure. At the rear of the moving Newton's rings pressure will be greatly reduced, so the white spot is probably mainly water vapour at low pressure. That the spot contains gases, however, can be shown by giving the top plate a jerk, when instead of the whole white spot disappearing "at the creeping in of the water," a tiny white bubble of gas may be seen remaining for a long time in the water between the glasses. The white spot can be observed perhaps better because with slower motion, if a viscous liquid such as strong sulphuric acid or vacuum pump oil be used instead of water, or even with a plastic solid like soft soap between the glasses.

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Glasgow, April 27.

An Arctic Peat in Ireland.

IT has often been stated, and is very generally believed, that no deposits analogous to the Arctic peats of Scotland occur in Ireland. The proximity of the two countries is so great, however, that climatic conditions which affected Scotland must have affected at least the northern portions of Ireland in a similar degree, and it is not surprising, therefore, that an Irish Arctic peat, or something approaching one, has at last been discovered. This peat bed in question is situated on the boundary between the counties Dublin and Wicklow, on the eastern slopes of the Dublin mountains. Locally the place is known as Ballybetagh and Mulligan's Bogs, the former lying in Dublin, the latter in Wicklow. Both bogs have long been famous for the vast quantity of remains of the so-called Irish elk, which has been found beneath them.

The site of the bogs is an oval depression about half a mile long (north to south) by a quarter of a mile in width, and was occupied in late glacial and early post-glacial times by a (?) shallow lake, now entirely filled up by deposits of various kinds. The first post-glacial stratum to be laid down in the lake was a fine bluish-grey clay, sometimes containing chips of stone or gravelly layers, derived by subaerial denudation from the moraines surrounding the site. Resting on this clay, and often bedded into it, lie the scattered bones of the great deer; while in turn these are covered by a flaky peat—locally known as "elk deposit"—which, besides numerous seeds, roots, etc., contains many leaves of *Salix herbacea*. At present my claim that this is an Arctic peat rests solely on the evidence afforded by this willow, though I have just heard from Dr. G. Erdtman, of Stockholm, that a hurried and superficial examination of a sample of the peat from Mulligan's Bog has convinced him that it "is sub-Arctic, if not Arctic."

I have to thank Dr. Henry Stokes, of this city, for permission to examine numerous sections at Mulligan's Bog in August 1926, when he was digging for remains of the Irish elk. I have also to thank Miss M. C. Knowles, of the National Herbarium, for confirming my identification of the leaves of *Salix herbacea*. I may add that the leaves from Mulligan's Bog differ greatly from those of the same willow now growing in the Wicklow Mountains at altitudes of from 2000 ft. to 3000 ft., and resemble the leaves of prostrate specimens of the plant in the National Herbarium from Arctic Europe and Labrador. The present lowest limit of *Salix herbacea* in Wicklow is a little more than 2000 feet altitude, thus suggesting a considerable lowering of the snow-line during the period in which the peat was deposited, Mulligan's Bog being only about 750 feet above present sea-level.

There is at present no proof, but I suggest that the Irish elk may have lived during a comparatively mild period, and that the peat containing the leaves of *Salix herbacea* may be contemporaneous with one of the re-advances of the ice—when the Scottish ice sheet was forming its terminal moraines along the north-east coasts of Ireland, on the Isle of Man, Cumberland, and in south-west Scotland. For evidence connected with these moraines see "The Re-advance, marginal kame-moraine of the South of Scotland, and some later stages of retreat," by Dr. J. K. Charlesworth (*Trans. Roy. Soc. Edin.*, 1926), and also A. R. Dwerryhouse in *Quar. Jour. Geol. Soc.*, 79, 352; 1923.

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