It may be remarked that Prof. Buckman mentioned rings on Salisbury Plain more than fifty feet in diameter.

J. RAMSBOTTOM.

British Museum (Natural History),
London, S.W.7, January 7.

On the Structure of the D_3 Line of Helium.

DUE to the position of helium in the periodic table, relative to that of the alkaline earth metals, it has been frequently pointed out that its spectrum should consist of systems of singlets and triplets instead of the observed singlets and doublets. An unsuccessful attempt has been made to resolve the strong component of the doublet into the two expected components with the expected separation of approximately 0·17 Å.U., since the separation of the observed components is 0·34 Å.U. approximately.

A helium discharge tube wrapped in cotton which was kept wet with liquid air was used as a source, and the light was resolved by means of a quartz Lummer Gehrke plate and a small quartz spectrograph. Fortunately, the dimensions of the plate were such that one order fringe of the main component almost coincided with the next order fringe of the observed component. These together produced a single fringe of width about 1/5 the total distance between the fringes. The component looked for under these conditions should occur half-way between fringes.

Careful examination of the fringe system by both of us failed to reveal any trace of the expected component, though it would have been observed had its intensity been equal to or greater than 1/40 that of the main component of this line and its separation from the main component greater than 0·08 Å.U. Thus it appears that the structure of the $(1\pi - m\delta)$ series of helium does not correspond to the equivalent series of the alkaline earth metals, calcium, etc.

W. A. MACNAIR.
W. H. MCCURDY.

Johns Hopkins University,
Baltimore, Md.,
December 20, 1925.

A Possible Origin of Petrol-Fields.

IT has frequently been suggested that natural mineral oils may be the product of decomposed fish. One of the main objections to this explanation has always seemed the difficulty of accounting for the concentration of oil deposits within the comparatively restricted areas in which they actually occur. But if one considers the migration of certain fish, for example the common eel, this objection can, in the main, be overcome.

It has now been definitely established that all the European eels make their way to a certain deep-sea area in mid-Atlantic, where they spawn. The mature eels do not seem to return after spawning, only their offspring appearing in the rivers in due course in vast numbers. If, as is probable, they die after reproduction, there must be enormous deposits under their spawning grounds, which might eventually be in part converted into oil.

The quantities involved in this hypothesis appear to be in no way unreasonable. If one allows a period of say 10^6 years for the formation of the United States oil-fields, which are estimated to have contained two to three thousand million tons of oil, and if one assumes that one eel on an average would provide 100 gm. of oil, then to account for these deposits one would have to postulate an annual migration to the spawning ground of only 2 to 3 million eels. Thus even if the time and the yield have been overestimated by a factor of 10, there would still be a comfortable margin.

A. F. LINDEMANN.

Sidholme, Sidmouth,
January 12.

Measurement of Radiation Intensities by Photographic Methods.

REFERRING to Dr. F. C. Toy's letter, under the above heading, in NATURE of January 16, p. 83, Dr. John S. Anderson and I came to the same conclusion in an investigation published in the *Proc. Roy. Soc. Edin.* fourteen years ago. In the words of this paper, "Only when two beams of light of the same wave-length fall on adjacent parts of the same photographic plate and produce equal blackening in the same time can we say that their intensity is equal." This principle was made the basis of all the work we did at that time on ultra-violet spectrophotometry. But there are some fields, such as astrophysics, where it cannot be applied.

The object of this letter is to direct attention to the simple method we used for cutting down the intensity of the stronger beam. Half the slit of the collimator was illuminated by the light of an iron arc, and in the line between the slit and the arc travelled a ground quartz diffusing screen. The rays from the quartz screen filled the whole object-glass of the collimator. The intensity of illumination of the half slit varied consequently as the intensity of illumination of the ground quartz, and the latter varied inversely as the square of its distance from the arc. I have since used intermittent sectors and "neutral" absorbing screens which Dr. F. C. Toy favours, but am still of the opinion that for reducing the strength of the beam the inverse square law is preferable.

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The Occurrence of Dwi-Manganese in Manganese Salts.

FROM our respective communications (NATURE, vol. 116, p. 782; *Chem. News*, vol. 131, p. 273, etc., 1925) it was apparent that, although working on different lines, we had detected the element of At. No. 75 in manganese salts. A sample brought by one of us to Prague has been examined in the laboratories of the Charles' University. The sample was obtained from a solution of "pure manganese sulphate" by removing as much manganese as possible with hydrogen sulphide. When examined polarographically and also spectroscopically, it showed a similar content of dwi-manganese, namely, one per cent. The chemical properties of this mixture agreed with those previously announced from this University. Since we have reached the same conclusion by independent chemical and electrochemical methods, we consider the association of dwi-manganese with manganese as proved, and thus regard the name dwi-manganese (D) as most appropriate for the element At. No. 75.

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The Institute for Experimental Physics
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The Charles' University, Prague,
January 12.