showed it to me when he was about to throw it in the day-room fire, and I told him not to be such an Ass; as I had been reading about the Palæolithic Period, and saw at once that the bone was a real find.

I told him to show it to Bob Steel, which he did; and for that reason it is in the museum to-day.

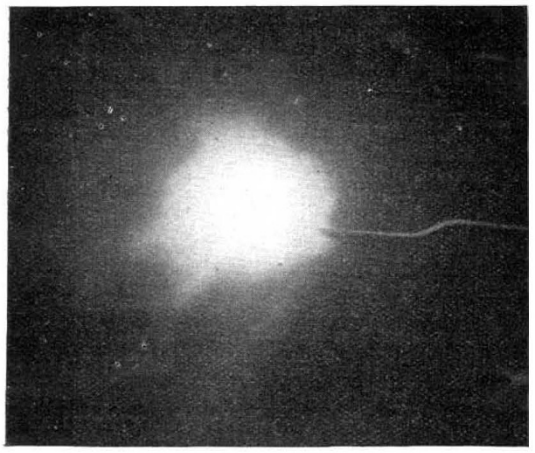
. . . . . .

The idea of the bone not being genuine was a rumour started by that arch-humourist, Mr. X.—Yours sincerely, E. A. ROSS JEFFERSON.

A Single Electrode Arc.

THE accompanying photographs (Fig. 1) represent a somewhat extraordinary manifestation—a single electrode arc. The discharge is produced by the application of alternating voltage of the order of 5 kv. at frequencies higher than about 10,000,000

(a) Copper



(b) Molybdenum

FIG. 1.

cycles to an electrode consisting of a short length of wire. It may occur spontaneously if the wire is sufficiently thin (0·1 millimetre); with a thicker electrode it must be started by touching the end of the wire with a glass rod, which is then withdrawn. The discharge has the appearance of a flame or arc having one or more tongues up to 15 centimetres long and is coloured faintly by the electrode material.

If the arc is drawn from the end of the wire it forms a globule of molten metal from which it burns until the temperature of adjacent portions of the wire and/or the diameter of the globule indicate that it should move elsewhere. This movement has just taken place in the photograph (Fig. 1 (*a*), copper electrode) in which the molten globule can be seen. In general the movement of the flame is controlled by the melting of the wire. Under the conditions of the experiment the arc consumed about half a kilowatt.

Presumably the production of the arc depends on the frequency being so high that ions of one sign are not wholly collected by the electrode during one half cycle, and that de-ionisation is small during the period when the potential is changing sign.

N. RYLAND DAVIS.
C. R. BURCH.

Research Laboratories,
Metropolitan-Vickers Electrical Company, Ltd.,
Trafford Park, Manchester, January 23.

The Herrings of the Eastern Part of the English Channel.

DURING the great East Anglian herring fishery which takes place during October, November, and part of December, almost all of the fish taken are either spawning or are in the condition which just precedes spawning.

It has been shown that the main areas in which eggs are deposited are near Smith's Knoll L.V., near the Gabbard L.V., and also in the neighbourhood of the Sandettie L.V., and, with the exception of the latter place, that the spawning fish are in the minority. This must mean, then, that there is some other area in which spawning takes place.

In 1923 and 1924 an attempt was made to locate these fish after their disappearance from the Southern Bight in December. Herrings were obtained from Brighton in the winter of 1923–4, and from Swanage in 1924–5, but, on examination, it was shown that they were of a very different type from those of the southern North Sea. These fish, according to the maturity observations, belonged to a shoal which spawned in December-January, but the nature of their annual growth as shown by their scales proved without doubt that they were not fish which had migrated from the North Sea.

In the paper recently published by the Ministry of Agriculture and Fisheries, I have pointed out that there are two groups of herrings in the southern North Sea, and these are classified according to their first year's growth as calculated from the first winter ring on their scales. One group was found to be approximately 8 cm. at the end of its first year, and the second 10 cm. This difference is probably due mainly to the difference in the time of year in which they were spawned.

The fish from the English coast of the Channel were found to be approximately 12 cm. at the end of their first year, and, age for age, were larger than those of the North Sea. The fact that these fish were found in two successive years along the southern English coast made it appear at first very doubtful that the remainder of the East Anglian herrings migrated into the Channel to complete the spawning. It was known that there was a fishery along the French coast during December and January, and also that after this period it was possible with suitable gear to obtain larval herrings in the neighbourhood of Cap d'Antifer; so with this information an investigation was carried