

Lastly, we have the Black Earth lands of south Russia, in which we have evidence of a civilisation, the first stage of which is thought by most people to be coeval with those mentioned in Thessaly and the Danube basin. This civilisation is distinguished by a profusion of painted pottery, and evidence that the people who made it were grain growers. According to Prof. Childe, this civilisation was destroyed about 2600 B.C., when some of the people fled to Thessaly, inaugurating there the second Thessalian civilisation. The destroyers seem to have been nomads from the steppes east of the Dnieper; these seem to have invaded the Danube basin, founding there the second Danubian civilisation. Now at Sesklo, a second Thessalian site, and at Lengyel, a second Danubian site, grain has been found; in both cases the sample contains both einkorn and *T. vulgare*. The inference is that both regions grew einkorn during the first phase, and that *T. vulgare* was introduced into both from the

Black Earth lands. Quite recently a paper has been published in Kiev, citing the existence of *T. vulgare* from a site near that city, belonging to this culture, though whether this belongs to the first or second phase is uncertain.

At Anau, a village site in Turkestan, painted pottery has been found, bearing some resemblance to that of the Black Earth lands. In the earliest layer on this site were found potsherds containing impressions of grain; this grain has been identified as *T. vulgare*. From this it is suspected that the art of painting pottery and the cultivation of bread wheats both arose somewhere in Transcaucasia.

From Crete and the Danube basin the practice of agriculture spread, by sea and by land, to all parts of Europe, while from Turkestan it was carried, with painted pottery, certainly to north China and most probably also to north-west India.

Television.

By Prof. E. TAYLOR JONES, University of Glasgow.

ON May 24 and 26 I proceeded, at the invitation of Mr. John L. Baird, to the Central Station Hotel, Glasgow, to witness demonstrations of television between London and this city. I was received by Mr. Baird's colleague, Capt. Hutchinson, who explained that the transmission was to take place over the telephone line, Mr. Baird, in his laboratory in London, being in charge of the transmitting apparatus.

The earlier apparatus devised and used by Mr. Baird has been described by him in the *Journal of Scientific Instruments* for Feb. 1927. A model of the original transmitting apparatus is in the possession of the University of Glasgow, of which Mr. Baird is a former student. The following additional information as to the method has been supplied by him:

"The method used in the London-to-Glasgow demonstration consisted in passing an image of the object being transmitted over a light-sensitive cell in a series of strips. The modulated current from the cell was transmitted over the ordinary trunk telephone line, and at the receiving station in Glasgow was used, after amplification, to control the light of a glow discharge lamp, a modified form of neon tube, giving a light of intense brilliance, being employed. By means of a revolving slotted shutter a point of light from this lamp was caused to travel over the field of vision in exact synchronism with the traversal of the image over the cell at the transmitting station, complete traversal taking place in about one-eighth of a second."

The receiving apparatus was set up in a semi-darkened room, the lamp and shutter being enclosed in a case provided with an aperture. The observer looking into the aperture saw at first a vertical band of light in which the luminosity

appeared to travel rapidly sideways, disappearing at one side and then reappearing at the other. When any object having 'contrast' was placed in the light at the sending end, the band broke up into light and dark portions forming a number of 'images' of the object. The impression of sideways movement of the light was then almost entirely lost, and the whole of the image appeared to be formed simultaneously. The image was perfectly steady in position, was remarkably free from distortion, and showed no sign of the 'streakiness' which was, I believe, in evidence in the earlier experiments.

The size of the image was small, not more than about two inches across when the 'object' was a person's face, and it could be seen by only a few people at a time. The image was sufficiently bright to be seen vividly even when the electric light in the room was switched on, and I understand that there is no difficulty in enlarging the image to full size. I was told also that arrangements will soon be made for transmitting larger 'objects,' and for increasing the number of appearances of the image per second.

The amount of light and shade shown in the image was amply sufficient to secure recognisability of the person being 'televised,' and movements of the face or features were clearly seen. At the second demonstration some of those present had the experience of seeing the image of Mr. Baird transmitted from London while conversing with him (over a separate line) by telephone.

My impression after witnessing these demonstrations is that the chief difficulties connected with television have been overcome by Mr. Baird, and that the improvements still to be effected are mainly matters of detail. We shall doubtless all join in wishing Mr. Baird every success in his future experiments.