Polarisation of Electrons

RUPP, working with Szilard, has reported[1] a peculiar form of asymmetry in the scattering of electrons. He finds that fast electrons when scattered through 90° and then passed through a thin gold foil show asymmetrical diffraction rings. The rings were strongest when the diffraction turned the electrons in the same way as the original scattering and weakest at 180° to this direction. The effect became marked at 150 k.v. and increased with the energy of the rays.

I have repeated these experiments, but have failed to find the effect. Rupp used a thick target for the original scatterer. In the hope of intensifying the effect I used one thin enough to make the scattering predominantly single ; this resulted in a considerable diminution in intensity, and the holes limiting the scattered beam had to be made rather large, so that the rings were rather broad. No appreciable effect could be observed on eight plates taken with three films, which were reversed between each exposure to eliminate asymmetry in the film. The mean voltage determined from the size of the rings was 152 k.v. which was the limit my generator could safely give. Rings up to and including that corresponding to $\sqrt{35}$ and $\sqrt{36}$ could be clearly seen. Photometric as well as visual comparisons were made. As it seemed possible that the effect might have been obscured by the broadness of the rings, I took two plates with a thick target and small holes giving sharp rings, but here also no difference between the two sides could be detected. The voltages were 153 and 154 k.v.

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Dec. 13.

Rupp, *Phys. Z.*, **33**, 158, 937 ; 1932.

Small Sand Craters of Seismic Origin

IN connexion with the earthquake of October 2, which was felt throughout the coastal zone of Ecuador, I was fortunate in being able to photograph several examples of unusual structures which were formed directly after the seismic disturbance. The craters were found in a dry lagoon close to the seashore and were associated with pronounced fissures in the alluvium, these being orientated from north-east to north-west. The fractures occur near a major fault which separates the Eocene and Oligocene formations, and thus it appears that there was movement along this fault at the time of the earthquake.

According to the version of the inhabitants, the cracks in the ground appeared immediately after the first tremor, and at the same time numbers of jets of fresh water, two feet or more in height, were observed issuing out of the fissures. Large quantities of sand were brought up by the water and this material was precipitated in the form of the small craters which are illustrated in Fig. 1. The cones were occasionally fused into groups, whilst in other examples the structures were elongated along the apertures of the respective fissures. The largest craters measured about four feet in diameter and varied from six to twelve inches in height. After a short interval of time, which probably corresponded to the duration of the initial tremors, the activity of the springs ceased, and the water which had temporarily inundated the area disappeared underground through the open fissures.

It is evident from the above, therefore, that the land surface in the vicinity of the faulted zone in the Tertiary rocks subsided at first, and this movement caused the ejection of the fresh water, which resulted in the crater-like structures of loose sand. After the earthquake, however, the surface of the ground was restored to its original level.

Apart from the geological interest which is attached to these recent seismic phenomena, they probably

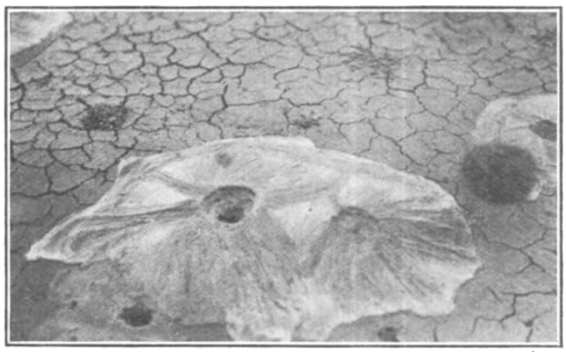

Photo FIG. 1. *G. Sheppard*

help in the elucidation of the cause of certain sandstone dykes which are found in the Tertiary formations of south-western Ecuador. In many shale sections of the coast near Chanduy, high angle joints are seen to be filled with sand, many up to a foot in thickness, and they invariably assume the nature and appearance of typical sandstone dykes.

As there is little possibility of the sand being derived either from the shale or from above, it is conceivable that they may have been injected from below during a seismic disturbance, probably very similar to the recent example which forms the subject of this note.

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The Term Mesolithic'

ARCHÆOLOGISTS, of whom I am one, are really quite remarkable people. It is notorious that the nomenclature of their study is already in a sad condition, yet, recently, they have gone out of their way to make confusion more confounded. It has now become the practice to describe early neolithic flint implements by the term 'mesolithic', a term which means, of course, 'Middle Stone Age'. Some misguided individual, however, evidently possessing, in full measure, the common archæological flair for promoting the use of a misleading terminology, has applied it to relics referable solely to the end of the Stone Age, and to make matters worse, the practice is becoming widespread. I find it necessary to remind myself that I am writing to the editor of a highly reputable scientific journal, and this knowledge, I confess, somewhat cramps my style. I would like to say many other things about the term 'mesolithic'. But if archæologists wish to retain a vestige of a reputation for reason, let them drop this word now, and for evermore.

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