

the angle subtended by the field both for changes in field-diameter and viewing-distance, whereas with the natural pupil this is not so. This would indicate that part of the effect (in particular for those observers showing a large effect) is due to aberrations of the eye lens.

It may be that the effect would disappear if the chromatic aberrations of the eye were corrected, or possibly the explanation may involve the Stiles-Crawford effect.

Our thanks are due to Mr. D. W. O. Heddle for assistance with the observations.

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<sup>1</sup> *Nature*, 160, 23 (1947).

### Mr. E. Westlake and the Geology of the Cantal Region, Central France

INFORMATION is sought as to the whereabouts of a paper on the geology of the Miocene-Pliocene gravels of the Cantal region of central France which was prepared by the late Mr. E. Westlake of Fordingbridge.

Mr. Westlake stayed for six months at Puy Boudieu in 1905, and accumulated many hundreds of the pieces of flaked chert, which in form and type of flaking closely resemble the specimens from the basement beds of the East Anglian Crag sands, and of the stone beds resting on the chalk beneath the Forest Bed and glacial deposits of the north Norfolk coast. The collection was studied at Oxford by the late Prof. W. J. Sollas, who referred to it in the third edition of his "Ancient Hunters". Owing to his death before the publication of a detailed account and analysis of the collection, the specimens were transferred to the Ipswich Museum, where the late Mr. J. Reid Moir undertook to produce a paper on them. This was written before Mr. Moir's death, and it is hoped now to secure its publication. The collection is available for study at the Ipswich Museum.

As many of the specimens bear the late Mr. Westlake's notes as to site and depth at which they were obtained, and it is clear that they were *in situ* finds, it is most important that the record of the observations made on the beds should be recovered. As it is known Mr. Moir had the MS. in his possession prior to his death, and as it cannot now be found among his papers, it is supposed he may have sent it or lent it to someone to read. Anyone who has any knowledge of its whereabouts, or has access to the papers of the late Prof. Sollas, or to any other likely source where it might possibly be, is asked to communicate at once with one of the undersigned.

It is also known that drawings were prepared for the illustration of Mr. Moir's paper, and these are likewise missing. Any information about them would be valued.

G. MAYNARD

Ipswich Corporation Museum.

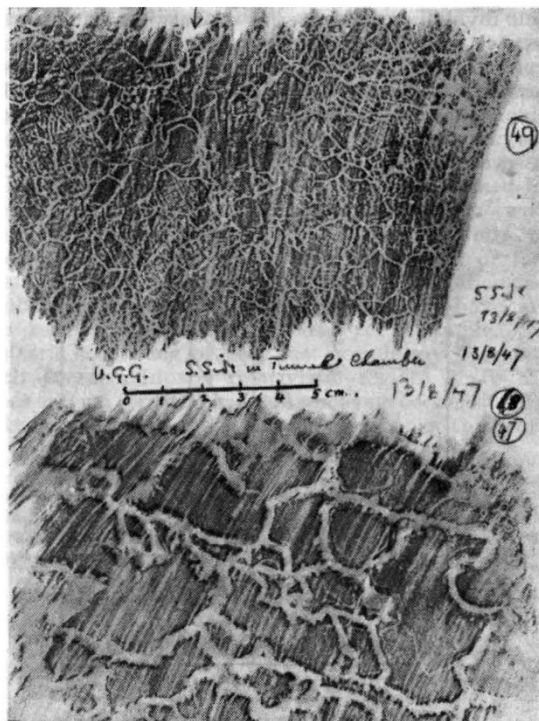
Godshill,  
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AUBREY T. WESTLAKE

### Growth of Glacier Crystals

THE mechanism of the growth of the ice crystal in glaciers is one of the most important of the unsolved problems of glacier physics. Its solution may also prove of value in sciences other than glaciology.

As a preliminary to an investigation into the causes of crystal growth, I spent some months in the Alps last summer making a statistical survey of the crystal sizes at the ends of a number of glaciers. Surprisingly enough, these are the only records which are known to exist. They brought to light several interesting facts, the chief of which are: (a) that the crystals in *flowing* ice are not nearly so large as had often been reported; (b) that under certain conditions they are surprisingly small; and (c) that there seems to be some relationship between crystal size and the inclination of the glacier bed.



RUBBINGS OF CRYSTALS IN THE UPPER GRINDELWALD GLACIER

Obviously these tentative deductions need confirmation in other glaciers, and this note is written in the hope that observations may be started in as many widely separated regions as possible. Investigations adequate for preliminary purposes are very simple. The process of recording ice crystal sizes consists of making rubbings with a pencil on paper. Under favourable conditions a single sample can be recorded in ten minutes, and the process need seldom take more than half an hour.

I should be pleased if exploration parties or private investigators who are willing to co-operate, especially those visiting glaciers other than those of the Swiss Alps, would communicate with me, so that I can provide detailed instructions for making rubbings and for the compilation of the data necessary for the analysis of the results.

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