

meteorite was pounded in a mortar and the magnetic portion was isolated (II, total 2.46 gm.), as was the non-magnetic portion (I, 1.573 gm.). Column IV of the table shows the mean chemical composition of the meteorite as given by the director of the First Astronomical Observatory of Odessa, R. L. Dreizin, who inspected the place of the fall on August 26–31, 1938. I wish to express my gratitude for information provided by him.

The meteorite has small hollows or piezoglypts. It is covered with a dull black crust; inside it is grey. The shepherds had broken off a small piece, which is lost, from one of the angles. Its shape is not orientated.

The direction of flight was approximately from south-west to north-east; the geocentric velocity was evidently very small (absence of light phenomena, loud detonations, crushing and deep piezoglypts). The meteorite obviously fell as one stone. The position of the radiant,  $\alpha = S. 30^\circ W.$ ,  $h = 30^\circ$  for 14<sup>h</sup> 07<sup>m</sup> local time gives the equatorial co-ordinates  $\alpha = 88^\circ$ ,  $\delta = 2^\circ$ , that is,  $23^\circ$  from the sun ( $\alpha = 79^\circ$ ,  $\delta = 23^\circ$ ). The apparent elongation from the apex is  $\epsilon = 99^\circ$ , the true elongation for a parabola is  $\epsilon' = 143^\circ$ , and the unperturbed geocentric velocity  $v_g = 10.8$  ( $v'_g = 15.6$  km./sec.), which accounts for the weakness of the acoustic and optical phenomena.

The "Zhovtnevyj" Meteorite, *khutor Pavlovka, Mariinsky District, Stalino region, Ukraine*. This stone meteorite fell on October 10, 1938, entering to a depth of 70 cm. into the ground. Its weight is 30 kgm. The fall occurred at night. Some days later it was found by a peasant, Maria Boushna. The meteorite was dragged out of the hole it made and broken into many fragments. At the break it is grey, stony, with metallic spangles. The greatest part of the fragments was taken to the Stalin Museum (at Stalino, Ukraine), four pieces were brought to the Academy of Sciences of the U.S.S.R., Moscow, to the Meteorite Commission. On December 16 another large piece was handed over to the Academy.

This meteorite is the fifth to be found in 1938 in the U.S.S.R. The total number of meteorites of the U.S.S.R.<sup>1</sup> is now (Jan. 1, 1939) ninety-five.

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<sup>1</sup> Astapowitsch, I. S., *J. Roy. Ast. Soc. Canada*, 32, No. 7, 195–196, 1938 (A list of the meteorites of the Soviet Union).

### The Helm Wind of Crossfell

OCCURRENCES of 'helm wind' have been tantalizingly few; several have coincided with other engagements, or with serious difficulty in crossing the Pennines. It is established, however, that (a) the characteristic phenomena<sup>1</sup> are liable to occur whenever a well-developed current of air is flowing from a direction between east and north-north-east, that is, within about  $30^\circ$  of a direction at right angles to the trend of the escarpment. With deviations greater than this, considerable modifications are found to occur. (b) The depth of the surface air current up to the summit level of the clouds should be not greater than about 5,500 ft. The observed phenomena then appear to be analogous to those at a submerged weir with faces inclined gently upstream, and more steeply downstream. The 'helm wind' corresponds to the 'rapid' set up in the air-current flowing over the

escarpment; the crest of the downstream 'standing wave' is marked by the 'helm bar'. If the north-easterly current is of greater uninterrupted depth, the 'standing wave' appears to flatten out and the 'bar', with its underlying reverse current at ground-level, is no longer found.

Keen local observers therefore distinguish 'general north-east wind' from 'helm wind', and from the evening 'fell wind', a katabatic flow in quiet weather. As might be expected, the wind at the ground is characteristically very gusty near a point halfway between the 'helm cloud' and the 'bar', sometimes causing structural damage. The desiccating effect in spring near the escarpment may also be serious. With wind of force 6 at Tynemouth, the 'helm wind' may be expected to attain force 9 on open slopes; progress against it is not easy.

It is hoped that a reasonable explanation will soon be given of numerous local sayings and writings based on observation; the continuous record of temperature at 2,735 ft. should also be of interest.

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<sup>1</sup> Meteorological Glossary, p. 101; Marriott, *Quart. J. Roy. Met. Soc.*, 15 (1889).

### Micro Separations by Chromatographic Adsorption on Blotting Paper

THE separation of mixtures on a micro scale by chromatographic adsorption was carried out as long ago as 1910 by Tswett, the discoverer of the process, and by various others since, but the method has not been applied as extensively as its extraordinary power would warrant. The preparation of the adsorbent column and the development of the chromatogram are troublesome and time-consuming operations and the process ordinarily comes under consideration only as a last resort. The purpose of this communication is to describe a simple and rapid method of effecting such separations which avoids entirely the difficulties inherent in the use of Tswett columns, and which, in addition, possess distinct advantages of its own.

The technique consists essentially in the use of ordinary white blotting paper, or a suitable grade of filter paper, as the adsorbent medium. A sheet of the paper is placed between two pieces of plate glass (6 in.  $\times$  6 in. is a convenient size) one of which, the cover plate, has a small hole (3/16 in. or 1/4 in.) at its centre. A solution of the material under investigation is introduced through this hole, either dropwise or by means of a pipette with a capillary tip resting on the paper, and this is followed by the introduction of the developing solvent. Under these conditions, the components of the solution travel outward in concentric zones. The chromatogram is then obtained in a form which is particularly well suited to visual examination if coloured substances are present, or to examination by appropriate chemical or physical methods in the case of colourless substances. In addition, this type of chromatogram possesses the distinctive feature that it may be filed, after drying, for future reference. The paper being readily available, no extensive preliminary preparations are