A continuous monochromatic interference filter.

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Summary. A simple form of adjustable monochromatic interference filter, suitable for both transmitted- and reflected-light microscopy, is described and figured.

A CONTINUOUS band filter (Schläfer, 1956), similar in principle to that described by Dr. Holgate (this vol., p. 512), is in use in the Atomic Energy Division of the Geological Survey of Great Britain both for transmitted- and reflected-light microscopy. The filter is the type Veril B 200 manufactured by Jena^{er} Glaswerk Schott & Gen. and supplied in this country by Bellingham & Stanley Ltd. who have agreed to produce a mount similar to that described in this note.

The mount is shown in fig. 1 (i) and the details of its construction are illustrated in the exploded diagram, fig. 1 (ii). The filter *A* is secured in a brass frame *B*, and can be moved along a brass or bakelite holder *C* by means of two studs sliding in a slot *D*. The light beam is defined by the slit between two adjustable knife edges *E*1, *E*2, with indicators *E*1′ and *E*2′. The wavelength (in mμ) of the centre of the transmitted band is shown by the indicator *p*1 on the non-linear scale *P*1, which was prepared from the calibration curve supplied with the filter. An index *p*2 shows on the scale *P*2 the corresponding distance in millimetres of the centre of the slit from the left-hand edge of the filter, which permits reference to the original calibration. The slit width in millimetres is read on the scale *P*3. In use, the monochromator should be placed as near to the polarizer (for reflected light) or substage mirror (for transmitted light) as possible. Heat-absorbing filters must be used with the light source. For ore-microscopy the most useful slit width has been found to be 4–6 mm. Increasing the slit width to 6 mm increases the half-width of the transmission band only slightly. This is illustrated in table I where T_{max} is the maximum transmission, *HW* the half-value width or width of the curve at which the transmission is $T_{max}/2$, and *TW* the width at which the transmission is

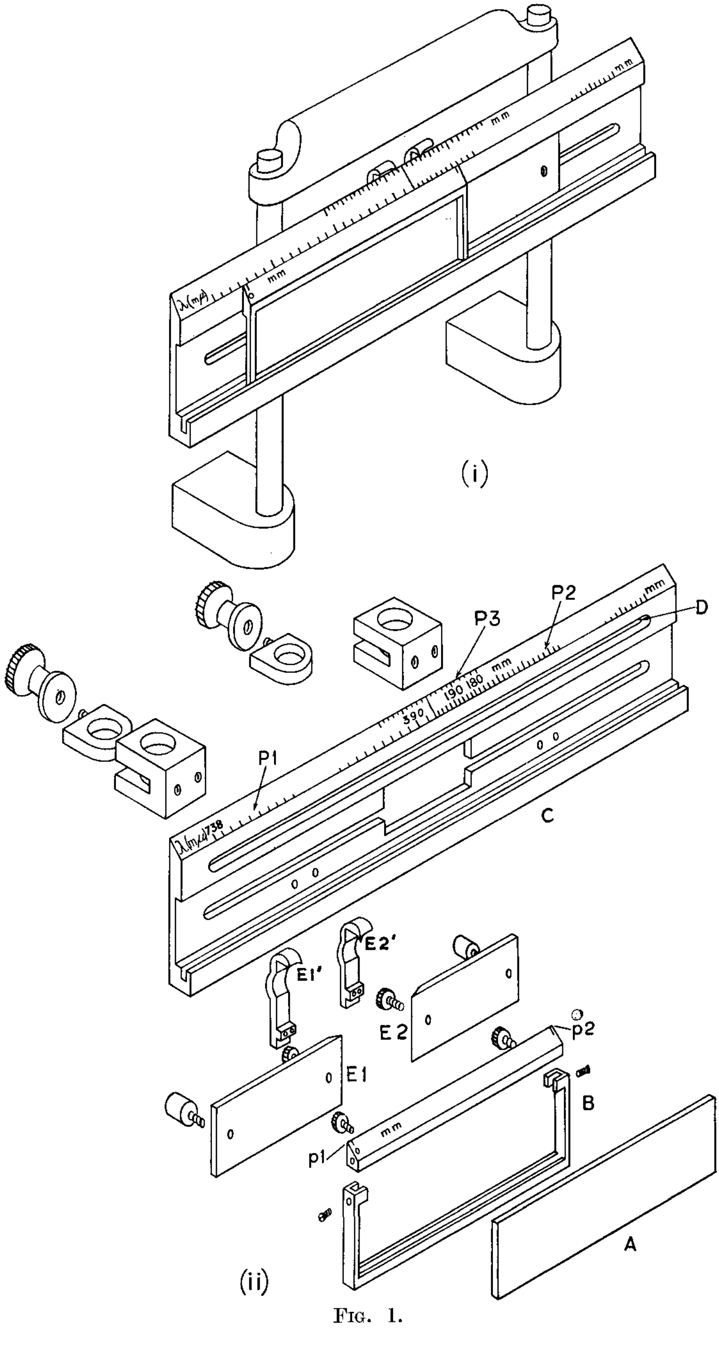
mm
mm
λ(mμ)
mm
(i)
mm
P2
D
P3
mm
190 180
390
P1
λ(mμ) 738
C
E2′
E1′
E2
p2
E1
B
mm
p1
A
(ii)

FIG. 1.

$T_{max}/10$. The data in table I apply approximately throughout the whole wavelength range.

TABLE I.*

Slit width. (*mm*)	$T_{max.}$ (%)	*HW* (mμ)	*TW* (mμ)
0	40	25	45
2	40	25	45·5
4	39·5	25·5	47
6	38·5	26	48·5

* Data supplied by Jenaer Glaswerk Schott & Gen.

The filter holder can be moved vertically on two columns permitting the filter to be fixed at any height from $\frac{3}{4}$ in. to $11\frac{3}{4}$ in. above the bench, so that the filter can be used for reflected- or transmitted-light microscopy. The dual feet of the stand straddle the bench hook connecting an ore-microscope to its light source.

The filter has proved particularly valuable for quantitative ore-microscopy. The high transmission over most of the spectrum permits accurate spectral measurements of reflectivity and rotation properties using normal low-voltage tungsten-filament light sources.

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Reference.

SCHLÄFER (R.), 1956. Colloq. Spectro. Internat. VI, Amsterdam (1956), section VI, p. 361.