

WORKING GROUP ON PHOTOGRAPHIC MATERIALS

Meetings at Prague, 24, 25 and 29 August 1967

CHAIRMAN: R. H. Stoy.

SECRETARY: D. S. Evans.

In opening the proceedings, the Chairman gave a special welcome to Messrs. William C. Miller of the Mount Wilson and Palomar Observatories, Harry Mohr of ORWO and William Swann of Eastman Kodak.

The draft report was adopted and Dr *Evans* gave an account of the information that had been gathered from two questionnaires, the first of which had been sent to all known manufacturers, the second to all observatories. There had been a good response from the manufacturers but only 27 observatories had replied. Although this sample is small, some of the results obtained are interesting. Over a three year period, these 27 observatories ordered 9752 dozen plates of which 7276 were manufactured by Eastman Kodak. Altogether, 35 different sizes were demanded with 'medium' sizes (from 50 × 100 mm to 180 × 127 mm) accounting for 6677 dozen. Such diversity of sizes is obviously uneconomic. The two sizes most used were 160 × 160 mm (1839 dozen) and 3½ × 4½ inches or 83 × 108 mm (1986 dozen). Eighty per cent of the Kodak plates were of eight emulsion types, fifty per cent being of type O. The astronomical profession clearly owes an immense debt to Eastman Kodak Company for its work on the development of new emulsions.

Mr *Miller* said that the limitation in the variety of sizes ordered for the Mount Wilson and Palomar Observatories to 4 × 5, 4 × 10, 5 × 7, 8 × 10, 10 × 10, and 14 × 14 inches, that is to 102 × 127, 102 × 254, 127 × 178, 203 × 254, 254 × 254 and 356 × 356 mm, had effected considerable economy. Even so, only about thirty per cent of the plates ordered finally arrived in the files with useful exposures on them. Salvage of silver from time-expired unused plates produced a significant sum and was of special importance now that the price of silver had risen sharply. Mr *Miller* also described the essentials of plate cutting and stressed the superiority of a diamond cutter which did not produce a ragged edge with incipient cracks in it leading to unwanted fractures when plates were bent. He suggested that an attempt should be made to organise the manufacture of the Mount Wilson and Palomar design of plate cutter, though this would have to be for supply to observatories only. Mr *Miller* recommended cutting at least ½ inch, i.e. 13 mm, from plate edges which were edges during the original coating. This was to avoid the non-uniformity of photometric properties near the edges of an emulsion coating.

Mr *Swann* took up the points that had been raised at the Naples (N.Y.) meeting of July 1966 which had been attended by representatives of the I.A.U. Working Group, of a similar A.A.S. Committee, and of Eastman Kodak. Topics discussed included packaging, labelling, sealing of boxes (not now done in plastic because the heat required fogs the plates), and abrasion of plate edges during delivery. The baking of plates by the manufacturer is not practicable. Baking should be done in dry air with no packaging around so that there is complete freedom for moisture to escape from the emulsion. Packaging plates in plastic boxes or in aluminium foil envelopes would be expensive though this might avoid the fogging by unsaturated hydrocarbons from cardboard box materials that had been reported by Mr *Miller*. There was a demand from the meeting for the labelling on box ends to be in characters large enough to be easily legible in dim light.

Mr *Swann* asked for guidance from astronomers as to the requirements for an F-sensitisation. A faster N-plate with normal response in the green was probably desirable. Kodak had produced film with a 'rail-edge' which kept successive turns apart when the film was rolled. This had been used as a base for almost gelatine-free emulsions for use in space work in the far ultraviolet (<2200 Å).

Mr *Mohr* described the products and policy of ORWO and distributed appropriate literature.

There followed a protracted discussion on the possibility of standardising plate sizes which crystallised in the resolution submitted to the General Assembly recommending the use, as far as is practical, of the following sizes of plates:

160 × 160 180 × 130 90 × 120 240 × 240 mm
3¼ × 4¼ 5 × 7 4 × 10 8 × 10 inches
(83 × 108 127 × 178 102 × 254 203 × 254 mm)

The Working Group on Photographic Materials is to continue its work under the Chairmanship of Dr. Evans but will be regarded as a working group of Commission 9 (Instruments). It will concern itself, *inter alia*, with

- (1) the organisation of the manufacture and distribution of the Mount Wilson and Palomar plate cutter.
- (2) procuring and handling photographic material.
- (3) causes of apparent plate defects.

As before, the results of its investigations will be made available to all manufacturers and other interested parties.