

## REPORT OF THE WORKING GROUP ON PHOTOGRAPHIC MATERIALS

1. The formation of this group dates from a meeting convened during the Hamburg General Assembly, 31 August 1964, by R. H. Stoy, supported by I. S. Bowen and H. Haffner. There was a large and enthusiastic attendance, which passed with acclamation the following resolution: 'In view of the great importance to astronomy of the supply of the most suitable photographic material, this meeting of astronomers from many countries requests the Executive Committee of the International Astronomical Union to set up a working group responsible either to itself or to some nominated Commission to investigate, (a) the present supply of photographic materials and the best methods of procuring and handling them, (b) the potential consumption of specialized photographic material, with a view to interesting the various manufacturers in its production.'

2. By letter of 15 September 1964, the General Secretary conveyed the approval of the Executive Committee of the IAU to the establishment of the Working Group, with the following membership:

President: R. H. Stoy

Secretary: D. S. Evans

Members: Aly, Mme Andriolat, Bertola, Gollnow, Griffin, Haffner, Mendoza, Mikhailov, Savedoff, Sharpless, Harlan J. Smith, Steinlin, Valniček, Velghe, Wempe.

3. The operations of the Working Group so far undertaken, demonstrate the great extent of the problems involved. Some of these are capable of being solved almost immediately by the action of astronomers themselves. Others require consultation with manufacturers. Yet others, which are concerned with problems of currency allocation, the possibility that some materials may be designated as of strategic importance by manufacturing countries, and so forth, may require discussion at governmental level. It is clear that there is a continued necessity for the work of the Group, and that numbers of problems will require a long time for their evaluation even before solutions can be sought. The investigations undertaken so far have been admirably supported by the manufacturers of photographic materials, and by a considerable number of observatories. The number of the latter is, however, not as great as it should be. It must be emphasized that, in order to get meaningful statistics describing the supply position, it is just as important for observatories not now facing difficulties, to report their situation, as it is for those who have problems in need of solution.

We take this opportunity of thanking those manufacturers and observatories who have collaborated in the work of the Group, and urge those who have not yet sent in reports to do so.

The foregoing remarks make it clear that the present report cannot be comprehensive. Its aim is to draw attention to a few of the problems which have revealed themselves, in the hope that these can be tackled first, leaving others for the continuing work of the Group.

4. A circular letter was sent to all manufacturers known to be active in the production of photographic materials suitable for astronomical purposes. A report incorporating their replies was produced in January 1966 and circulated with a questionnaire to a large proportion of the world's observatories. Copies of these documents and of an analysis of the replies may be had on request from the Cape Observatory.

5. The American Astronomical Society has set up a Committee of its own in the same general field. It should be clear that because of the relatively close proximity of the U.S. and Canadian observatories to the Kodak works at Rochester, N.Y., and because of the large numbers of observatories and astronomical departments of universities in these two countries, the problems encountered are somewhat different from those in the world at large. Nevertheless there are

problems, many of which have been discussed at an expert level in the admirable memoranda prepared for private circulation by Mr William C. Miller of Mount Wilson and Palomar Observatories. It is evident that the U.S. and Canada constitute a natural area for the establishment of a system of cooperative ordering and supply, and the practical problem is one in which the IAU Working Group as such can have very little constructive role, except to offer encouragement.

It is understood that a cooperative ordering scheme is being operated in West Germany and one may be begun in Australia.

A Joint Meeting of the AAS and IAU Groups was held in 1966 July 29, together with representatives of Eastman Kodak, Rochester, at the Mees Observatory, Naples, N.Y. Members of the Working Group who attended were Evans, Sharpless, Smith and Savedoff. The discussion ranged over the whole field of supply and storage. Items from the conference summary which are of particular interest are incorporated in the report referred to in paragraph 4. It seems desirable for the Group to organize discussion leading to definite recommendations on particular topics.

The obvious first choices would seem to be:

- (a) Standardization of plate sizes for astronomical purposes.
- (b) Canalization of demand for emulsion varieties to reduce unnecessary diversity.
- (c) Definition of the next tasks to be undertaken by the Group.

#### 6. Publications.

It is understood that Mr William C. Miller may be contemplating the production of a book. At the moment his vast experience and knowledge of photographic emulsions as applied in astronomy is scattered through various published papers and memoranda produced for private circulation. The Working Group considers that a book by Mr Miller would be invaluable, and wishes him success in his labours.

The following is a list of some publications likely to be of interest in the field:

- F. Bertola, Sull'aumento di rapidità delle lastre fotografiche per uso astronomico, *Contr. Oss. astrofis. Univ. Padova Asiago*, No. 154, *Mem. Soc. astr. ital.*, **35**, no. 2, 1964.
- I. S. Bowen and L. T. Clark, Hypersensitisation and Reciprocity Failure of Photographic Plates, *J. opt. Soc. Am.*, **30**, 508, 1940.
- J. D. Fernie, A New Photographic Developer for Astronomical Use, *Publ. astr. Soc. Pacif.*, **74**, 238, 1962.
- J. D. Fernie and Sandra Holm, Studies in Astronomical Photography. I. On the Use of baked IIA-O Spectroscopic Plates, *J. R. astr. Soc. Can.*, **58**, 13, 1964.  
II. On the Use of Diafine Developer, *Ibid.*, **58**, 201, 1964.
- A. A. Hoag, Cooled-Emulsion Experiments, *Publ. astr. Soc. Pacif.*, **73**, 301, 1961.
- William C. Miller, The Application of Pre-Exposure to Astronomical Photography, *Publ. astr. Soc. Pacif.*, **76**, 328, 1964.  
: A Pre-Flasher for Photographic Plates, *Ibid.*, **76**, 433, 1964.  
: Memorandum: The Mount-Wilson Palomar Photographic Plate Speed System.  
: Preliminary Report on the Reduction of Reciprocity Failure in Astronomical Plates by Controlled Baking, Photographic Laboratory, Mount Wilson and Palomar Observatories, 1956: Appendix, 1966.
- N. Richter and W. Hogner, Eine neue Plattensorte für Astroaufnahmen im roten Spektralbereich, *Monatsberichte der Deutschen Akademie der Wissenschaften*, **6**, 809, 1964.
- R. Shaw, The Equivalent Quantum Efficiency of Aerial Films, *J. photogr. Sci.*, **13**, 308, 1965.
- W. F. Swann, Summary of AAS, IAU, Kodak meeting at Naples, N.Y., 1966.
- Report of Meeting on Photographic Plate Testing, Mount Wilson and Palomar Observatories, 1966.
- Kodak Plates and Films for Science and Industry.

R. H. STOY  
*President of the Working Group*