

The Proceedings of Colloquium No. 11 of the  
International Astronomical Union  
at Edinburgh, 12 to 14 August 1970

## AUTOMATION IN OPTICAL ASTROPHYSICS

### Preface

It was a great pleasure for us at the Royal Observatory Edinburgh and in the University of Edinburgh Department of Astronomy when the International Astronomical Union accepted the suggestion that Edinburgh should be the venue of a Colloquium on automation in astronomy.

The introduction of automatic methods into certain fields of astronomy and the development of instrumentation in general has been actively pursued at Edinburgh for a period of ten years. The need for automation made itself felt here originally in the course of two programmes of work: photographic spectrophotometry of early-type stars by the methods of W. M. H. Greaves and E. A. Baker; and photometry of stars in clusters and Milky Way fields using photographic plates obtained with Schmidt Cameras. Both programmes presented, each in its own way, considerable problems of measurement and reduction if full use was to be made of the observational data and if maximum possible precision was to be achieved.

As a result, a group responsible for the design of new instrumentation has been active in the Observatory since 1959, first under the supervision of Dr. (now Professor) P. B. Fellgett, and at present under that of Mr. G. J. Carpenter. Its work has ranged over a wide field, but special attention has been paid to computer control of telescopes and measuring instruments.

The most important piece of automatic equipment at Edinburgh is at present the plate measuring machine "Galaxy" whose design is originally due to Dr. Fellgett. The instrument was completed in 1969 and has to-date run for some five thousand hours measuring more than two and a half million stellar images. "Galaxy" and other Edinburgh instruments were on show during a special visit which participants in the Colloquium paid to the Royal Observatory.

The three-day Colloquium which was attended by representatives of seventeen countries held five scientific sessions, the details of which are recorded in this volume. In a few cases, in the interest of a logical sequence of topics, the Editors have rearranged the order in which the papers were presented. Otherwise the papers and discussions, the latter largely taken from tape records, as given in this volume are a faithful record of the meeting.

Our thanks are due to all those who presented papers and who submitted their manuscripts either at the time of the meeting or soon afterwards to the Editors. This has allowed us to publish these proceedings with the minimum delay, which in a rapidly developing subject such as automation is particularly important. Our thanks are also due to those other participants who took part in discussions and helped to make the Colloquium the success we feel it has been.

I should also like to compliment our Editors, Mr. H. Seddon and Dr. M. J. Smyth, for the efficient manner in which they have produced this volume.

Finally, I should like to record a special word of thanks to Professor J. Rösch, President of I.A.U. Commission 9 on Astronomical Instruments, for the strong support which he has given to the Edinburgh Colloquium.

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