

INTRODUCTION

Two years ago, just before the Prague meeting of the International Astronomical Union, Armin Deutsch made the bold suggestion that the space spectroscopists hold a joint symposium with the ground-based observers. At that time the rocket observations of stellar spectra seemed too meagre to make such a meeting worthwhile, but we proceeded in the hope that there would be significant new results available by 1969.

IAU Commissions 29 and 44, on Stellar Spectra and Observations from Outside the Terrestrial Atmosphere respectively, agreed to sponsor the symposium so that the organization was given to the Joint Working Group of these commissions. Consequently, the Organizing Committee, which met first in Prague, consisted of A. Deutsch, M. W. Feast, L. Houziaux, V. G. Kurt, N. G. Roman, J. Sahade, A. B. Underhill, and R. Wilson, with myself as Chairman. Later COSPAR was invited to join in sponsoring the symposium and T. Chubb was added as their representative.

We were specially pleased when C. de Jager invited us to the Netherlands and offered the services of the Utrecht Observatory for the local organization. He suggested we hold the meeting at the new Lunteren Conference Centre located in a wooded area some 35 km east of Utrecht. The modern facilities of the Centre and the hospitality of its staff contributed much to the enjoyment of our four days there.

The main purpose of the symposium was to bring together the space astronomers working in the far-ultraviolet and ground-based astronomers studying related problems. For too long space astronomers have been set apart by the special techniques necessary to obtain their data with rockets and satellites. As scientists we really ought to centre our attention on the objects we are studying rather than the methods appropriate for a particular wavelength range. In fact as the emphasis in space astronomy turns away from techniques to the celestial objects being analysed, it might be appropriate to disband Commission 44 and let its members join commissions on stellar spectra, the Sun, or the interstellar medium.

In order to keep the symposium a manageable size, the range of topics was rather strictly limited. The Lyman continuum absorption by interstellar hydrogen provides a fundamental short-wavelength cutoff for most stellar spectroscopy so that X-rays were not directly on the programme. The Sun was given only minimal treatment because its ultraviolet spectrum has been discussed at many previous meetings and most of the new results concern resolution of the disk or measurements shortward of 912 Å, both observations very peculiar to the Sun. Discussion of instrumentation also was discouraged except for the very important problem of the absolute calibration of fluxes in both the ultraviolet and visual, so essential to relating the observations to theoretical stellar models. As a preview to the major session on stellar energy distributions it seemed appropriate to include reports on interstellar extinction and

the nature of the grains. The new ultraviolet data on the extinction curve are essential for deducing the true energy distribution of a star as well as providing additional constraints on models of grains. Similarly, following the reports of stellar spectra a discussion of interstellar lines was included, to cover both the Lyman- α line that already is a prominent feature in the moderate-dispersion spectra of O and early B stars and the weaker lines that should normally appear with slightly higher dispersion. Finally, many ultraviolet space observations are influenced by the background emissions from stars and gas in the Galaxy, so that a session was devoted to this topic.

Among the most outstanding reports of the symposium were those by the representatives of the Smithsonian Astrophysical Observatory and the University of Wisconsin on the first results from the Orbiting Astronomical Observatory. Everyone knows the years of effort and many disappointments that preceded these spectacular observations. We are specially grateful to the astronomers of these institutions for taking time from their busy observing runs to prepare the material for presentation at Lunteren. At the same time we were just as excited to learn of the initial results of ultraviolet stellar observations by several other countries, including France, U.S.S.R. and the United Kingdom, which will complement the United States data. A Japanese astronomer already has published rocket stellar observations and we expect three or four more countries to have balloon or rocket results in the near future.

In several ways this conference may be a milestone in ultraviolet space astronomy. Firstly, as just mentioned, many countries are now contributing to the observations. Secondly, there has been a sudden increase in the rate data as obtained. As one reviewer put it, "In the next half hour the papers you hear will increase the available data by a factor of ten!" Finally, the space astronomers now have sufficient reliable ultraviolet measurements that we can talk usefully with the ground-based observers and the theoreticians must take account of both parts of the spectrum in constructing their models.

Several individuals and organizations should be mentioned for their contributions to this symposium. The IAU Executive Committee provided funds to assist several astronomers to attend. The Ministry of Education and Sciences of the Dutch Government and the Leids Kerkhoven-Bosscha Fonds provided further financial assistance for the conference. We are particularly grateful to the many members of the staff of the Utrecht Observatory who, under the direction of H. Lamers and J. B. Vogel, coordinated all the local arrangements so well. Most of all though, it was particularly gratifying to the Organizing Committee that so many astronomers were willing to come from all parts of the world to discuss their common interest in stars and the interstellar medium.

DONALD C. MORTON

*1969 August 13,
Camp I at 5600 meters,
Noshaq Mountain, Afghanistan*