

the proper definition, and then the effective defense, of the autonomy which they require and the academic freedom which must be assured to their staffs. Ashby points out that the university constitutions which have been transplanted by the British into Africa are close copies of British ones. These constitutions work in Britain, and under them academic freedom and university autonomy are assured. This is due principally, however, to a whole set of conventions which are as well entrenched in British practice as they are essential to it. The dilemma is that these conventions have proved difficult to transplant into Africa and that it has therefore been possible for a state, with complete legality, gravely to offend university autonomy and academic freedom. As Ashby points out, in some cases this has happened when a legislature has used its law-making powers to intervene in university affairs and in other cases when the lay members of the university councils, who are normally in a majority, have chosen to use their constitutional position to intrude on matters purely academic.

Ashby recognizes that there is no final protection for a university in any state whose political leaders are determined to intervene. He recommends, however, that the African universities be more concerned about their public relations and seek to convince their societies that autonomy is essential to the effective performance of their responsibilities to the community. Ashby also advocates a formal concordat between university and state, if possible embodied in the constitution of the state itself, in which the autonomy essential to a university would be spelled out and thereby entrenched and protected. Ashby is at his best in this chapter, and his best is very good indeed. What he writes is both extremely important and eminently wise. Possibly, however—and this is an illustration of a more general characteristic of the book—he is a little insensitive to the range of considerations that have motivated some of the political interference. This interference may sometimes be an exercise in megalomania, in patronage, or in political suppression; but it may on other occasions be an expression of a deep concern that the university does not appear to be serving essential national interests. More perhaps could have been said about the universities' duties

in this regard. The African universities are, after all, foreign institutions, in many cases still with a majority of expatriate professors and lecturers. They impart knowledge that often must appear to have little relevance to the African community, and they enjoy a standard of comfort vastly higher than that of the rest of the society. Yet, somehow, if they are to play the full role which it is essential that they play, these universities must be seen to be national institutions and must be an integral part of the national life. In writing of the University of Ghana, Ashby mentions an initial skirmish between Nkrumah and the university over the leave arrangements for academic staff and comments that the university rallied to defend its rights. It is a revealing issue, for the "right" involved

was the right of African academic staff members to enjoy the home (that is, European) leave for the three months each year, with passage paid, which was a feature of the contracts with European expatriate staff. If a university in a very poor country, and in a country moreover that aspires to be socialist, chooses to make such an issue an issue of principle, it must surely bear some of the responsibility for any subsequent break in its relations with the state.

Sir Eric's book will fascinate, provoke, and instruct any who are interested in university education in Africa. It is an important book which should not be ignored.

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## Phenomena in Interplanetary Space

**The Solar Wind.** Proceedings of a conference held in Pasadena, California, in April 1964. ROBERT J. MACKIN, JR., and MARCIA NEUGEBAUER, Eds. Pergamon, New York, 1966. 449 pp., illus. \$17.

Planning for the conference recorded in this volume was inspired by the success of Mariner II in observing the solar wind, the magnetic field, and energetic particle fluxes in interplanetary space during its long voyage to Venus. The first IMP satellite was successfully observing the solar wind before the conference was actually held, and this added considerable excitement to the meeting. The Mariner II and IMP satellites were the first to establish by direct observation far removed from the local effects of Earth the existence and general hydrodynamic nature of the solar wind and magnetic fields. The basic theoretical properties of the wind, fields, and cosmic ray variations had been worked out six years earlier, but were variously disputed until the developing sequence of Explorer X, Mariner II, IMP I observations demonstrated the theory to be correct.

*The Solar Wind*, which contains not only the papers but also the discussion presented at the conference, represents a milestone on the road to understanding the extension of the solar corona and magnetic fields outward through interplanetary space. The preface by Mackin and Neugebauer, on the problems of converting stenotype transcripts

and tape recording into printed papers, is a masterly understatement of the task and can be read profitably if this is understood. The readability of the papers is ample tribute to the perseverance and scientific competence of the editors. Generally speaking they have sidestepped none of the many confusions which must have arisen in translating the chaotic spoken transcript into the lower-entropy state of coherent written English.

The foreword, by Sydney Chapman, consists of a historical review of the many and often quite separate fields of study which have now merged in the general topic of the solar wind and its interaction with the geomagnetic field. Chapman makes no attempt at a critical discussion of present issues but points out the papers in the volume which are relevant to the many separate phenomena—auroras, magnetic storms, cosmic ray variations, energetic solar particle events, solar corpuscular radiation, and so on—that enter into the historical development of the subject.

Altogether the planning that went into arranging papers for the conference and the careful work of the editors have made this book one of the most readable and instructive conference proceedings to be published in the field of space science.

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