which occurs during polar substorms in various wavelength ranges of the electromagnetic spectrum, and with trapped and precipitating charged particles, taking a chapter to describe each different group of experimental observations. In his last chapter he gives an account of several different theories which have been advanced to explain the nature and origin of polar substorms. It is generally accepted that the substorm energy derives from the solar wind, but no theory advanced so far has produced an explanation for the way in which solar wind energy is introduced into the magnetosphere. He concludes by pointing out that the large, and as yet unsolved, problem in this field is to determine the nature and causes of the magnetospheric electric fields responsible for the polar substorms.

PAMELA ROTHWELL

UPPER ATMOSPHERES

Chemistry of the Ionosphere

By A. D. Danilov. Translated from the Russian. (Monographs in Geoscience.) Pp. xv+296. (Plenum: New York and London, 1970.) \$22.50; 210s.

In the past decade the development of space research techniques, coupled with the organization of world-wide cooperative studies in solar-terrestrial physics, have resulted in a vast accumulation of new detailed experimental data on the Earth's upper atmosphere. The interpretation of these data in terms of basic physical and chemical processes is a major task of current interest. This volume, in the words of the author, "is an effort to present an integrated review of information on the most important aspects of the chemistry of the upper atmosphere, covering both laboratory investigations of the pertinent chemical processes and studies for clarifying the role and rate of these processes in the atmosphere". The term "upper atmosphere" is here used to denote the height range 60 to approximately 800 km and throughout the book the emphasis is on the reactions involving charged particles. The principal topics covered include a summary of current data on atmospheric density, temperature, composition, electron and ion concentrations; elementary photochemical processes in the ionosphere; dissociative recombination, ion-molecular processes, the role of negative ions, the dissociation of oxygen and of nitrogen, reactions involving oxygen and nitrogen, reactions involving neutral and ionized hydrogen and helium atoms.

No consideration is given to the airglow, nor to certain other related aspects of the chemistry of the ionosphere such as rocket experiments on the high altitude release of chemical reagents. The justification for such omissions is that in the case of the airglow, the subject is large enough to merit a separate volume and the results of chemical releases are not discussed, because it is not considered that they have as yet added much "of importance for the study of basic problems in ionospheric chemistry".

The original Russian text was prepared in 1965, and it is recognized that in the past few years certain new theoretical and experimental studies have been published which bear on some of the problems discussed in the book. In a brief appendix the author summarizes some of the more important relevant papers published recently, and, in particular, some attention is given to the complex pattern of chemical reactions now emerging from rocket studies of the D-region.

The book is eminently readable and is provided with a very useful selected bibliography covering a total of nearly 600 references. The translation and production are both excellent and the volume will be invaluable for ionospheric workers requiring a concise, authoritative text.

W. J. G. BEYNON

Film Review

KALEIDOSCOPE OF MAN

The Body

Produced by Tony Garnett. Directed by Roy Battersby. (112 min.) At the Classic, Piccadilly, London.

In its way, the film *The Body*, produced by Tony Garnett and directed by Roy Battersby, should be a courageous and major undertaking. In recent years very few producers have been able to make for the commercial cinema feature-length, semi-documentary films which do not use name stars. Unfortunately, compared with our human frames whose working it depicts, *The Body* is slightly less than the sum of its parts, although it does make a compelling, if contentious, 1 hour 40 minutes of cinema.

The film, at least those parts of it dealing with the body corporeal, is loosely based with credit on Mr Anthony Smith's recently published and well received book. However, parts of the film deal with the body politic and are merely tangentially polemic comments devoted to the thesis that we are all brothers under the skin. These parts of the film are loosely based without credit on books by Marcuse, Fanon, Reich, Laing, Marx, Engels and Trotsky. In these sections the film is tediously obvious and unsatisfying.

The hero of the film is indeed the human body in all its workings. Mr Tony Imi's outstanding and magnificent photography illustrates and explores brilliantly and sensuously the nature of our physical world. Under his lens, nipples look like volcanic peaks; the curves of the abdomen take on the appearance of a countryside; the hairs of the hand become like a forest of trees. The body beautiful, the body loving, the body eating, the body excreting, the body moving and the body working. To support all these functions stunning X-ray, endoscopy and schlieren techniques are triumphantly employed.

As such there is no story, only a collection of sequences whose internal order is difficult to divine. These excursions into the corpus mysterium are generated on a wave of neo-paganism, which in turn is carefully nurtured and based in a neo-Eden. Here bodies beautiful, leavened with bodies decrepit, discard clothing in carefully contrived and lengthily considered innocence. The attitudes in this new Eden of these noble (strictly working-class, jam butty) savages can be described as a cross between the Esalen institutes of California and a progressive Workers' Educational Association gymnastics class. Within this studio paradise our lads and lasses indulge in the innocent and not so innocent tactile exploration of each other, leading from sequence to sequence and situation to situation.

Mens sana in corpore sano. Don't you believe it! Every Eden has its serpent! In this case it is the exploitation of our wonderful bodies as wage slaves or the smothering of this magnificent, moving, loving, laughing (not to mention breathing, copulating, energy balancing) human apparatus, in the pollution engendered by our ravishing of our environment.

Thus the opportunity is provided for Miss Vanessa Redgrave and Mr Adrian Mitchell to bare their souls on the soundtrack while others bare their breasts for the picture. They glumly remind us of the doom about to overtake our fragile remains or the dreariness of our production line existence.

Within this framework are some outstanding sequences:

- The clever graphic demonstration of the tons of food eaten by the average Western man in his lifetime, contrasted with the average Indian peasant's consumption.
- A moving and wonderful birth sequence. The midwife, like Juliette's nurse, fussing over mother and baby with a humanity that shares the event with the world, trans-