ing problems of transfer in lines are not even mentioned. This is a noteworthy oversight, in our opinion. Admittedly, as the reviewer himself has been much engaged in applying analytic methods to these problems, his attitude might well be less than objective. A detailed survey of redistribution functions and of the currently available numerical solutions to the equation of transfer in a line without complete frequency redistribution is given in Chapter 13, which closes the second part of the book.

In the third part there are only two chapters (both were missing in the first edition). The first of these, Chapter 14, discusses radiative transfer in moving media. An explanation of V. V. Sobolev's theory is the centerpiece here, although a number of other topics now attracting much attention are also considered (in particular, line formation in turbulent atmospheres). Stellar winds are the subject of the second chapter. After a rather detailed exposition of the customary theories for the solar wind, the author gives an accurate derivation of the equations of radiation hydrodynamics and he takes up stellar winds, explaining that the interaction of gas with the radiation of the star plays a decisive role in sustaining them.

Clearly, then, we are dealing with a fully up-to-date monograph written on a high plane. Devoted to a branch of theoretical astrophysics that has long since become classical, it lucidly demonstrates how radically the subject has been transformed in the past few years.

If the book under review were to be regarded as a monograph, it would unquestionably merit the highest praise. However, Mihalas views his book primarily as a text for a course in stellar atmospheres. In this capacity the book is clearly lacking in breadth. One need only compare it with Unsöld's course or with the volume Stellar Atmospheres edited by J. L. Greenstein (Univ. Chicago Press, 1960; Russian edition, 1963) to see how many topics relating to the study of stellar atmospheres are altogether left out. Even the most diligent student will, after working through Mihalas's book, remain fully in the dark about the chemical composition of stellar atmospheres and the accuracy with which it has been determined, as well as the diverse range of problems which astrophysics today links with differences in the composition of stellar atmospheres. Moreover, he will not even gain an idea of what order of magnitude the density is in the atmospheres of various types of stars. Surprisingly enough, Mihalas, who has developed a network of model stellar atmospheres in wide use by astrophysicists throughout the world, has not thought it necessary to provide his readers with numerical data on how temperature and density are distributed with depth in the atmospheres of various stars.

The list of topics that any textbook on stellar atmospheres is obliged to include but which are absent from the book at hand could easily be extended. Accordingly, Mihalas's Stellar Atmospheres is decidedly no textbook, in our opinion, but only an instructional tool for deeper study of some of the most fundamental and difficult problems though certainly not all the subjects that belong in a stellar atmospheres course. Yet in this narrower sense of an aid to graduate-level education, Mihalas's book has no rival.

We should like to conclude this review by expressing the hope that Mihalas's Stellar Atmospheres will soon be published in Russian.


Translated by R. B. Rodman