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Book Notices

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In this work, the director of the Haute Provence Observatory, himself an important contributor to research in the title subject, has made a fairly thorough and up-to-date (at the time of its appearance) presentation of a large branch of astronomy. He has offered it to a larger readership by outlining in the introduction some of the fundamentally important ideas and data of astrophysics.

The 19 chapters which follow are divided into four major parts, the first three of which treat our own stellar system or Milky Way, and the last of which treats systems external to our galaxy. The treatment maintains an excellent balance between observation and theory, the parts being as follows: 1) emission and absorption of radiation by atoms and molecules in objects like planets and diffuse nebulae and clouds of interstellar gas; 2) the obscuring effect of clouds whose constituents should be regarded as solid particles rather than as gaseous; the probable nature and distribution of these particles or grains; 3) the relations between the interstellar gas and the clouds of grains; the polarization of starlight and the interstellar magnetic field deduced thereby; and the relative amounts of matter existing in stellar and in non-stellar form; and 4) diffuse matter in external galaxies and intergalactic space.

Topics of which this book provides especially complete and useful treatments are: 1) the phenomenon of two-photon emission; 2) the nature and dimensions of scattering particles, particularly the case of metallic vs. dielectric particles or grains, their growth, chemistry, and destruction; 3) interstellar polarization—theory and observation; and 4) density of stellar vs. non-stellar matter in space.

Some shortcomings may, of course, be expected as a result of any translation. The many misspellings of proper names would seem to be easiest to avoid. Inappropriate choice of the English equivalents are misleading or disconcerting in a few places, particularly "principal series" for "main sequence" (p. 34) and "chambers" for "cameras" (p. 97). Other errors, of the order of several dozen, range from the fairly obvious—"convention" for "convective"—to "electric dipole" where "magnetic dipole" was intended. One gets the impression from the statements of page 34 that the concept of stellar populations was applied first to stars in our galaxy when in fact Baade originally defined the populations in terms of the stars observed in the nearest large external galaxy.