tion is made of the fact that his scientific colleagues have been quite unable to repeat his key observations and experimental findings on the key instinctual role of animal aggression and that he himself draws relatively optimistic conclusions in applying his studies to human society.

For the rest, we have only pretentious dogmatizing:

> The war system, for all its subjective repugnance to important sections of "public opinion," has demonstrated its effectiveness since the beginning of recorded history. . . .
>
> . . . *any* condition of genuine total peace, however achieved, would be destabilizing until proved otherwise.
>
> War . . . has uniquely served societies . . . as an indispensable controller of dangerous social dissidence and destructive antisocial tendencies.
>
> It has enabled societies to maintain necessary class distinctions. . . . No modern political ruling group has successfully controlled its constituency after failing to sustain the continuing credibility of an external threat of war.
>
> It is entirely possible that the development of a sophisticated form of slavery may be an absolute prerequisite for social control in a world at peace.

The reader will find the text studded with similar profundities: a sort of hand-me-down Oswald Spengler.

I have read longer and duller books than this, but never, I believe, a worse one.

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Vapors

Theory of Fog Condensation. A. G. AMELIN. Translated from the second Russian edition (Moscow, 1966, B. V. Deryagin, Ed.) by Z. Lerman. Israel Program for Scientific Translations. Jerusalem; Davey, New York, 1967. xii + 236 pp., illus. $14.

This book is not primarily concerned with fogs in the atmosphere. Rather, it treats the general problem of condensation within a gaseous volume. It discusses industrial applications extensively, but mentions meteorological examples only briefly and cursorily.

The author restricts himself to the formation of fogs by condensation. The formation of mists by spraying or other mechanical means is not discussed. However, condensation is such a complicated process that there is no shortage of material to be covered. The deficiency in this book is rather the slighting of some of the topics which could well have been explored in greater depth.

The idea of treating condensation of drops in complete generality and then applying the results to various specific systems which occur in nature and in industry is an excellent one. I know of no other attempt to carry out this procedure. The same principles, both for homogeneous and for heterogeneous nucleation, are invoked by various investigators, be they physical chemists, process engineers, or meteorologists working on problems in cloud physics. In bringing together the theories into a unified presentation this book performs an important service. However, it is only partially successful, because of some lack of rigor and an unevenness in the coverage of the material.

The book begins with a fairly thorough treatment of the theory of homogeneous nucleation. Its treatment of condensation on nuclei is much less complete. It then covers, in varying degrees of depth, the formation of supersaturated vapor and fog by adiabatic expansion, radiative cooling, turbulent mixing, molecular diffusion, thermal conduction, and chemical reactions. In the discussion of these several processes a number of practical problems are discussed, including preparation of metal powders and carbon black and the prevention of fog during condensation in spray towers and bubblers.

The author is obviously less well acquainted with the meteorological aspects of the subject than with the physical chemistry. His treatment of radiative cooling, for instance, is primitive, and his statement that "The radiative cooling of a cloudy atmosphere is lower than that of a clear atmosphere, since clouds reflect radiant energy" is actually wrong. Because water in liquid drops has a much larger overall emissivity than water vapor, radiative cooling of clouds is greater than that of clear air containing the same amount of water substance. Similarly, he attributes the formation of clouds and fog at fronts to mixing of the air masses on the two sides. Actually they are formed for the most part by adiabatic cooling of air being lifted by the convergence of the air masses.

This translation is one of a number, mostly of books originally published in Russian, which the Israel Program for Scientific Translations has made available to English-reading scientists. The program is to be congratulated both on the quality of the translations and on the fact that the prices of the books are much more reasonable than those of most translations. On the other hand one might take the liberty of pointing out that the format leaves something to be desired. For instance, running heads at the top of each page to identify the chapters would be helpful, and the diagrams and symbols in equations frequently could be larger and clearer.

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Earth and Space Sciences

The Encyclopedia of Atmospheric Sciences and Astrogeology. RHODES W. FAIRBRIDGE, Ed. Reinhold, New York, 1967. xvi + 1200 pp., illus. $35. Encyclopedia of Earth Sciences, vol. 2.

This one-volume encyclopedia covers rather well the broad range of topics suggested by the title. Atmospheric Sciences includes both the chemical and the physical phenomena of the atmospheres of the earth and other planets. Astrogeology ranges between geology and astronomy. Thus one finds articles such as Cosmology, Universe, Galaxy, and Cosmic Rays alongside articles such as Climate and Geomorphology, Atmospheric Circulation—Global, Aeronomy, Geomagnetic Disturbances, Van Allen Radiation Belts, and Lunar Geology.

I tried to judge the quality of this encyclopedia by looking up articles on subjects that I felt I knew something about (to see if I agreed with the presentation) and articles on subjects about which I knew little (to see if the articles left me edified). In my opinion the book passed both these tests rather well. For example, the article on aeronomy is exceedingly well done in its accuracy, conciseness, and completeness, and I found the article on hydroclimate both interesting and informative.

Following the book-reviewer's syndrome, I searched for errors and omissions. They seemed remarkably few, and they were not especially significant ones: for example, a log scale on the figure on page 258 reads, from right to left, 10^5, 10^3, 10, 0; Aeronomy is not cross-referenced under Upper Atmosphere; and there is no index heading under Scale Height.

This encyclopedia is a handy refer-