forms the most valuable contribution of her study and embraces both eastern and western examples, she gives the greatest weight to those that are least emotional and most intellectual. The essence of the mystical experience is "direct and unmediated contemplation characterized by a peculiarly intense awareness of a Whole as the Unity of all things".

It is difficult to convey in a review the quality of this book which, by reason of the rich material on which the writer works, calls for comment on almost every page. Probably only those who have themselves experienced the nostalgia for unity will be wholehearted students, but even those who are strangers to this 'intuition' can learn much from it about an important tendency in human thought and emotion through the ages. The Christian theologian will have his reservations and questions, particularly on the place of values in the Unity of the Manifold which, in the author's view, is the ultimate Reality. The distinctions of 'good' and 'evil', we are told, on this, the highest, plane vanish. The lines of Rumi—"The man of God is beyond fidelity and faith, To the man of God right and wrong are alike"—are quoted with approval. Why, one might ask, is the mystic way largely a way of 'purification', if, in the end, the One who is the end of that way is indifferent to all human values? Perhaps we may see here why the Christian Church has been somewhat cautious about mysticism, and if this book has a defect, it is that it is too heavily weighted on the intellectual side. At any rate many, who have loved God and experienced union with Him, have loved Him because they believed Him to be the supreme Good and the enemy of evil. For such persons the beginning of their pilgrimage is to range themselves on His side. They have their right to be heard.

This is a valuable work and a learned one. It deserves to be read and pondered.

W. R. MATTHEWS

DUST, SMOKE AND MIST

Particulate Clouds

Dusts, Smokes and Mists—Their Physics and Physical Chemistry and Industrial and Environmental Aspects. By H. L. Green and W. R. Lane. (Spon's General and Industrial Chemistry Series.) Pp. xix+425+8 plates. (London: E. and F. N. Spon, Ltd., 1957.) 70s. net.

IMPLEMENTATION of the Clean Air Act requires control of the emission of dust and smoke from furnaces. This is partly achieved by the mode of operation of the process and partly by the collection of particulate material from the flue gases. The methods of collection that are available include gravitational settling, inertial separation, scrubbing, electrostatic precipitation, sonic and ultrasonic agglomeration. The variety of these methods illustrates the many mechanisms that operate in a particulate cloud. Physicists and chemists have contributed much to understanding of clouds during the past decade, following on the pioneer work of Gibbs, Patterson, Whytlaw-Gray, Drinker, Hatch and others. Notable contributions have been made by the Chemical Defence Experimental Establishment at Porton Down, and it is not unexpected to find that, in a book from this school, the authors have rightly attempted a unified treatment of the whole subject.

The task was by no means simple for, as the four pages of literature abbreviations show, relevant work has been published in a heterogeneous set of journals. Those venturing into this field of colloid science for the first time might well be glad of the further warning that the quality of the literature is uneven. The selected references given at the end of each chapter are, therefore, particularly valuable.

In the discussion of the physics and physical chemistry of clouds in the eight chapters of Part I, the essential instability of a cloud, owing to the mechanisms whereby the constituent particles can either grow or shrink, is clearly presented. Following chapters on the production of clouds and their physical characteristics, there is an interesting account of their optical properties. The basic electromagnetic theory has long been known, and, now that the necessary computations have been carried out, experimental data can be interpreted adequately. There follows a long account of coagulation, one of the most important properties of a cloud; this chapter is fundamental to a proper understanding. The next two chapters on deposition and filtration and on sampling and estimation give descriptions of the many ingenious devices that have been developed, dependent on such varied mechanisms as impaction on an obstacle in a flowing stream, thermal and electrostatic precipitation. Lastly, there is an up-to-date discussion of diffusion in the atmosphere.

Industrial and environmental aspects are covered in Part II. Following a brief chapter on collection, accounts are given of health hazards, atmospheric pollution, aerosols in Nature and, lastly, some uses of particulate clouds. These titles indicate the range of phenomena in which clouds have importance, and the treatment illustrates the authors' thesis that many different types of cloud have essentially the same properties. Thus, the theory of impaction of particles on obstacles is applied in the icing of aircraft, the filtration of dusts and smokes, the capture of wind-borne pollen, the growth of raindrops and the application of insecticidal aerosols.

These examples serve as an illustration of the value of classical scientific studies at the present time, not only to elucidate natural phenomena but also to improve the operation of industrial equipment. Newer as well as the older technologies have need of the knowledge of clouds gained in the past thirty years. Scientists and technologists will find in this timely book a worthy introduction.

The book is well printed and is substantial enough to warrant its price.

R. L. BROWN

PRODUCTIVITY AND SOCIAL ORGANIZATION

Productivity and Social Organization

The Ahmedabad Experiment—Technical Innovation, Work Organization and Management. By A. K. Rice. Pp. xiii+298. (London: Tavistock Publications, Ltd., 1958.) 35s. net.

IMPROVED technology has greatly contributed to the rising level of industrial productivity. But there is a danger in some situations that technological change may neglect the social and psychological needs of the human operator and so reduce substantially the potential rise in output per man-hour. There are