

United Provinces will scarcely agree that dense sal forests characterize their Siwaliks, and many people will dislike reading about 'agriculturalists', but these are minor matters. Finally, a suggestion, if it has not already been made and acted on. The chapters on individual districts should be separately published, perhaps in rather more 'popular' form, and distributed locally as freely as possible. H. G. CHAMPION.

cartes has no more than half an answer. Aristotle and St. Thomas have no answer, but as they never asked the question we cannot blame them. We can blame their modern disciple, Prof. Maritain, for shirking the question, repeating formulæ (pp. 142-143, 146, 169) which have no value without a proper answer, and then being unpleasant about Descartes. A. D. RITCHIE.

## DESCARTES' PHILOSOPHY

### The Dream of Descartes

Together with some other Essays. By Jacques Maritain. Translated by Mabelle L. Andison. Pp. 220. (New York: Philosophical Library, Inc., 1944.) 3 dollars.

IN the five essays here translated into English (rather queer English in places) Prof. J. Maritain attacks the philosophy of Descartes; in some ways very unfairly. The first essay deals with the ecstatic experience Descartes had as a young man; an experience that is scarcely relevant to his philosophy, however important to him personally. Prof. Maritain, expanding hearsay (the only evidence available) with conjecture, decides that the upshot was, not a mathematical discovery as often supposed, but the notion of a single comprehensive science of complete certainty. In the second essay, in order to show that Descartes believed in such a science, he has to quote scraps from early unpublished work ("Regulæ") and private letters. There is nothing about it in Descartes' mature published work. In any event, the idea was scarcely an innovation calculated to disrupt the unity of Christian thought, as Prof. Maritain suggests, since it is to be found in Plato's "Republic", a book not without influence on Christendom. In the third essay the author objects, very eloquently, to Descartes' *a priori* theory of what theology ought to be, by opposing to it another equally *a priori*; without stopping to consider the only relevant question, what, as a matter of history, theology is.

The last two essays are far more valuable. They contain an acute examination of Descartes' use of the arguments for the existence of God, which is the very centre of his philosophy, and a hostile but not too unfair survey of his influence on subsequent thought. Prof. Maritain rightly stresses the unfortunate effect of Descartes' lapse into the doctrine that ideas are representations or pictures of existents, but speaks as though Descartes invented it; whereas it must have been already current. The Epicureans and even other Greek thinkers held it; it was bound to arise out of medieval nominalism, and it has probably always been the basis of common-sense thinking. Nevertheless, Descartes ought to have known better, and occasionally shows signs that he did. Prof. Maritain allows him no credit for this.

However, what one chiefly misses in his treatment is the realization that the greatness of Descartes lies in the questions he asked, not in his hasty answers; and in one question especially. Granted that what makes a truth true is that the thought in some way corresponds with its object, with fact or reality; Descartes saw that correspondence is itself no criterion of truth, which criterion cannot in the last resort be external. It must be internal and revealed to the individual thinker in the process of thought itself. The question then is: How is it revealed? The question is an awkward one for all who are not prepared to accept the Hegelian solution, and Des-

## PHOTOGRAPHIC TECHNOLOGY

### Photography in Engineering

By C. H. S. Tupholme. Pp. xv+276+188 plates. (London: Faber and Faber, Ltd., and the Hyperion Press, Ltd., 1945.) 42s. net.

IN his latest volume Mr. Tupholme has turned his attention to photography, and has collected and tabulated information from a very wide field in industry. The purpose of such a volume is to indicate to the busy engineer and executive what types of scientific apparatus have been developed for recording by photographic means the very considerable and important information required for industrial and technical processes. On the other hand, scientific workers, who are perforce working in narrow fields, often must have recourse to such a text in order to be prompted to devise their work in such a way that their results can be recorded with the desired degree of accuracy, and so be saved considerable time in devising recording methods of their own. There is no speculation in the present text, the information having been obtained from many sources, particularly British and American. The copying of prints, drawings and documents forms the first chapter, and it is evident that considerable progress has been made. Indeed, the old blue-print of industry has been almost entirely superseded by dyeline and photostatic methods. Of major importance is the very extensive use of photographing the images of drawings on sensitized sheets of metal for subsequent drilling or shaping. In the laboratory there are many uses of photography; the author outlines the regular methods of spectroscopy in rapid analysis, the use of polarized light, reflex photography on sections, and the general method of studying isochromatic lines arising from stresses in celluloid outlines of typical engineering sections.

An interesting application of photography is in the fish-eye camera which photographs an image of the surrounding room so that the area of images is proportional to the relevant illuminations from the objects. The electron microscope and the apparatus for electron diffraction, particularly the Finch designs, are explained in detail. The rapid advance in X-ray and electron diffraction and micro-radiography is demonstrated by the author's collection of more than one hundred distinct industrial applications.

In the field of high-speed photography, special lamps have been devised which give almost unthinkable illuminations for the brief periods required for analysing high-speed phenomena. Among their applications, that of cutting with a tool on a lathe and finding the correct rake angle is described in detail. A novel method of triggering such lamps is to pick up a noise at a suitable distance with a microphone.

In radiography the application of high-voltage tubes has been very extensive during war-time, particularly detecting flaws in castings of all descriptions and in built-up structures, such as thermionic