

I regret that the juncture between the new theory of reaction rates and the 'electronic theory' of Flursheim, Lapworth, Robinson and Ingold still does not seem very close. The future valuation of the new ideas may largely depend on the extent to which they will prove able to explain more of the remarkable rules which the organic chemist has discovered and has not yet related with any degree of precision to the interplay of atomic forces.

In the light of present achievement and in the hope of further advance, we may recall for a moment the general expectations which have been entertained on the subject of theoretical chemistry for the last thirty years or so. It was about 1912 that I first heard it said in jest, that "You need not bother any longer to learn chemistry, because soon it will all be predicted mathematically". I have heard this kind of joke many times since. Meanwhile it seems to become quite clear that chemistry will never become predictable mathematically; and that, in fact, we have rather to make mathematical physics—in a sense—more chemical. We have to discover a set of empirical simplifications—corresponding to the nature of the chemical properties of matter—which will allow us to crystallize the general equations of atomic physics into a form readily applicable to chemical changes. The "Theory of Rate Processes" will long remain a landmark on this line of progress.

M. POLANYI.

## PARACELSUS AS PHYSICIAN

Four Treatises of Theophrastus von Hohenheim called Paracelsus

Translated from the original German, with Introductory Essays, by C. Lilian Temkin, George Rosen, Gregory Zilboorg, Henry E. Sigerist. Edited, with a Preface, by Henry E. Sigerist. (Publications of the Institute of the History of Medicine, the Johns Hopkins University, Second Series: Texts and Documents.) Pp. xiii+256. (Baltimore, Md.: Johns Hopkins Press, 1941.) 3 dollars.

THE most striking figure among the physicians of the sixteenth century, perhaps in the whole of medical history, is Theophrastus von Hohenheim, called Paracelsus (1498–1541)". This is the considered verdict of the best English historian of medicine. Paracelsus died at the age of forty-eight, after a wandering life, part of which was spent in the mining town of Villach, where he not only studied the diseases of miners, but also acquired a knowledge of chemistry. Some three hundred works have been attributed to him, of which one third have been printed and perhaps not more than fifteen are genuine. He borrowed much, without acknowledgment, from Basil Valentine.

A keen student of the natural sciences, but of a wild and violent temper, Paracelsus attacked Galen and the Galenic tradition with unbalanced aggressiveness. In this way he acted as a kind of bomb, demolishing the old structure that it might be rebuilt by William Harvey and his successors. He was, however, too much of a religious mystic, with his four "pillars" of medicine—philosophy, astronomy, alchemy and the virtue of the physician—to become the founder himself of a new order of medicine. He speculated as rashly as did Galen, far more so than the Hippocratics, whose works present a remarkable contrast in their scientific soberness to the fanciful

dogmas of this physician born two thousand years later.

The book under review, the first modern translation into English of any works of Paracelsus, is a labour of love to mark the four-hundredth anniversary of his death. Like all such labours it has been carefully and well done by the four collaborators. From it the reader may gather both the merits and faults of "Lutherus medicorum", as Paracelsus was styled, his interest in drugs, occupational diseases and psychiatry, his self-assurance, conceit and tendency to wild speculation. The fourth treatise of the book is scarcely medical at all, but throws light on the mystic belief in sylphs, nymphs, pygmies and salamanders, the spirits living in the four so-called elements.

Paracelsus was no bigoted adherent of the doctrine *nihil in intellectu nisi prius in sensu*. He was convinced that there is a higher knowledge than that coming through the senses, a knowledge coming direct from God through the agency of the Holy Spirit. A similar belief has been held by many great minds with the religious instinct strongly developed. It inspired the work of Plato and St. Paul, while in a humbler sphere it has guided the lives of millions of simple folk, who have been as sure of its truth as of their own existence.

W. H. S. JONES.

## THE INDIAN FARMER

Sons of the Soil

Studies of the Indian Cultivator. Edited by Dr. W. Burns. Pp. ix+128+44 plates. (Delhi: Manager of Publications, 1941.) 2.6 rupees; 4s.

INDIA and her politicians, not without good reason, I have been much in the news during recent months, but, in the long view, it is her peoples, comprising a vast and varied agricultural population, who will dominate the historic scene. For this reason the attractive and well-illustrated little volume, edited by Dr. Burns, agricultural commissioner with the Government of India, should be carefully read at the present time. The Indian cultivator "is India outside of the towns". His agricultural difficulties are great and of long standing; they are as varied as the territory in which they arise. The object of the sketches in the volume under review is, among other things, to get rid of the idea of the Indian cultivator as a person or type, and to show something of the variety of individuals and classes who cultivate the soil of this immense country.

The several sketches or essays have been written by competent people possessing intimate knowledge of particular regions and their inhabitants, both British and Indian names appearing in the index of contributors. It is a rich and colourful assemblage, in which one notes many points of difference but, fundamentally, with a vein of similarity throughout. From the objectively written articles one forms an impression of an essential plainness of life wherever the cultivator is at work, a similar hard wrestling with the difficulties of soil infertility and the uncertainty of climate; but throughout there is a philosophy and attitude of mind which, financial indebtedness notwithstanding, enable those sons of the soil to live their lives cheerfully and in a spirit not lacking in neighbourly helpfulness.