services, productivity and the like. For this task the Lord President of the Council and his office occupy a key position, as appears from a survey made by a study group of the Royal Institute of Public Administration recently published under the title "The Organization of British Central Government, 1914–1956". The chapter on scientific research in that volume brings home, however, just as emphatically as the valedictory report of the Advisory Council for Scientific and Industrial Research, that the overriding need of the moment is for some authority competent to hold in broad review the nation's effort in these varied but related fields, to assess the significance of the recommendations of the various councils and to keep the distribution of the available resources in balance with the varied needs; it must also be strong enough to present the claims so that they receive full consideration in relation to those of defence, social services and the other sectors of the national life. Much of this could be done by the Advisory Council on Scientific Policy or through the Lord President if the existing powers and responsibilities were discharged in their entirety. On the evidence of the present report from the Department of Scientific and Industrial Research, it can no longer be pretended that the existing arrangement is satisfactory. While the activities of the new Executive Council for Scientific and Industrial Research will be followed with interest and goodwill, it is clear that the Department cannot be expected to make its full contribution to the national welfare and to industrial advance unless this lacuna is made good. There should be, at Cabinet-level, the means for assessing accurately the Department's work in relation to other effort calling for scientific and technical resources, competent to secure a reasonable balance, and strong enough to ensure that the resources made available for such effort are both adequate and undisturbed.

DEVELOPMENT OF INDUSTRIAL CHEMISTRY

A History of Industrial Chemistry

By Dr. F. Sherwood Taylor. Pp. xvi+467+22 plates. (London: William Heinemann, Ltd., 1957.) 30*s*. net.

TO give an outline in moderate compass of the origin and development of industrial chemistry is a formidable task, entailing a balanced survey of a vast and complicated field in which pure chemistry and applied chemistry, both in a state of almost explosive expansion, are inextricably interwoven. Such a task could be undertaken successfully only by a writer of the exceptional calibre of the late Dr. Sherwood Taylor, in whom a scholarly outlook, a facility of expression, and a profound knowledge of the historical, theoretical and industrial aspects of chemistry were so happily blended.

Until the opening of the eighteenth century there was little connexion between chemical theory and the application of chemical knowledge; but from the middle of that century onwards the liaison between these two aspects of chemistry has grown ever closer. That is why the author found himself compelled, as the work progressed, to devote an increasing attention to the history of chemical theory.

The character of a book of this kind is perhaps determined as much by the arrangement of the material as by selection and emphasis. In the present instance, a short introductory survey of chemical industry precedes the two main parts of the book, which are concerned respectively with the prescientific and the scientific chemical industries. The eleven chapters of Part 1 are devoted to a consideration of important materials and processes, including metallurgy, ceramics, glass, combustibles, dyeing, and pharmacy. The thirteen chapters of Part 2 trace the concomitant progress of theoretical and applied chemistry, some of the main heads being scientific chemical industry, 1788–1860, the rise of theoretical organic chemistry, industrial organic chemistry, biochemistry, the discovery of the chemical elements, the road to nuclear power, the arrangement of molecules, electrochemical industries, the conditions of chemical reactions, and industrial gas-reactions.

The book is thus in effect a compact encyclopædia of the subject, written, however, in a lucidly flowing and attractive manner. It will open many new windows to readers having a thorough fundamental knowledge of chemistry; while the specialist may use it as a handy *vade mecum* from which, by virtue of a comprehensive index and a classified list of more than two hundred works of reference, he may gain more detailed information upon any matter of a historical, theoretical, or industrial nature in which he is particularly interested.

A high standard of accuracy is maintained throughout, and the matter is well up to date; but a few of the many points which naturally invite critical comment in a work of this wide scope may be mentioned. Although the author justifiably emphasizes principles rather than men in this treatment, he might well have given some credit to Glauber as an outstanding pioneer of applied chemistry. *Inter alia*, Glauber obtained coal-tar distillates as early as 1648, well in advance of Becher and Searle's "patent for making pitch and tar from coal in furnaces as early as 1681". It is somewhat surprising also to find no mention of John Clayton and his remarkable experiments (of which detailed accounts exist) with coal gas about the year 1687, although it is stated that "several persons seem to have experimented with coal gas during the [seventeenth] century".

Turning to a very different subject, the drawings on p. 222 purporting to be illustrations of crystals were described in my hearing many years ago by an irate stereochemist as "recurrent bow-windowed monstrosities". Moreover, it may be pointed out that "the sodium ammonium salt of racemic acid", which they are described as representing, forms monoclinic crystals quite distinct from the hemihedral rhombic crystals of the enantiomorphous sodium ammonium tartrates.

The profuse illustrations range from beautifully reproduced engravings after Agricola, Ercker, Biringuccio, Braunschweig, and still earlier sources, to the *dernier cri* represented by the frontispiece of the Windscale plutonium-producing factory. The type, paper, and format are excellent, and all concerned are to be congratulated on producing this attractive and valuable volume at so moderate a price.

JOHN READ