of a "minimum deviation tumour". It was hoped that the study of such a tumour in comparison with the corresponding normal tissue would reveal important information concerning the fundamental nature of the cancerous change. In his chapter Morris describes the biological, morphological and biochemical characteristics of this and two other similar tumours, and despite the many 'deviations' from normal now observed concludes that the outlook for the discovery of key changes in neoplastic growth is "truly promising".

Bischoff's chapter on the carcinogenesis of cholesterol leaves little more to be said on the subject unless and until tests for its carcinogenicity other than by subcutaneous injection into small rodents are developed. For in the light of the evidence gained from the use of this technique no one can reasonably doubt that positive results are obtainable when cholesterol is injected in this situation. However, the relevance of tumours obtained in such tests is open to question. Costa's chapter entitled "Cachexia, the Metabolic Component of Neoplastic Diseases" brings together many interesting aspects of tumour–host relations and makes stimulating reading. It is a pity though that he failed even to mention the related and topical problem of the carcinomatous neuropathies and myopathies. In particular the phenomenon, described by Croft[1], of the abnormal sensitivity of some patients with a carcinomatous neuropathy to muscle-relaxant drugs of the type used in anæsthesia deserved mention.

All in all, this is an exceptionally useful and interesting volume and one which many workers in the cancer field will wish to read and have available for reference.

F. J. C. Roe

[1] Croft, P. B., *Brit. Med. J.*, i, 181 (1958).

STEROID DRUGS

Steroid Drugs

By Norman Applezweig. Pp. xv+742. (New York: McGraw-Hill Book Company, Inc.; London: McGraw-Hill Publishing Company, Ltd., 1962.) 194*s*.

PROBABLY no field of investigation concerning natural products has given rise to a more extensive and intensive study than that of the steroids and closely related compounds. Although the correct structure for cholesterol, one of the most readily available steroids, was not defined until 1932, the volume of publications associated with this field has developed so rapidly as to be an almost intolerable burden to the practising chemist, biochemist or pharmacologist interested in the various ramifications of this intriguing subject.

The book *Steroid Drugs* by Norman Applezweig had its origins in a review published in the *Chemical Week* in 1957. The popularity of this review indicated the real demands for an expanded version of it, which has been provided to meet the needs of "business men, pharmaceutical executives, stockbrokers, some chemists, some teachers and perhaps even an occasional biologist and clinician". Approximately one-third of the volume deals with a wide range of aspects of steroid drugs, including their chemistry and industrial developments, their biological and pharmacological activity. Obviously such a wide field can be covered only in a superficial manner, but none the less the author has provided within his terms of reference one of the most useful compilations available between the covers of a single book of the physiological, chemical and medical information concerning this most important group of compounds.

The remaining two-thirds of the volume are perhaps even more valuable in many respects than the first part since they contain a vast source of information, in the form of tables, concerning the structures, biological action, literature references, etc., of an extensive range of biologically active steroids.

The book is written in the author's own highly individual, pungent and somewhat unorthodox style and the result can only be regarded as a popular rather than a truly scientific exposition of the subject. But his long association with this field since its earliest developments has enabled him to furnish much interesting and normally difficultly accessible information concerning, for example, the political and economic background which has dominated the development of the present marketing organization for steroid drugs. While this information cannot be regarded as scientific, none the less it provides an appropriate addendum to the total information which he has endeavoured to supply for the type of audience defined within his terms of reference.

To those generally interested in the field of steroid drugs, it seems safe to say that the major use of this work will be as a reference volume. The book is well produced but unfortunately has a relatively high price, even by present-day standards.

W. B. Whalley

ELECTRON MICROSCOPY FOR METALLURGISTS

Transmission Electron Microscopy of Metals

By Prof. Gareth Thomas. (Wiley Series on the Science and Technology of Materials.) Pp. xiv+299. (New York and London: John Wiley and Sons, Inc., 1962.) 87*s*.

HISTORIANS often find it convenient to divide the history of man into periods according to the materials which he is using during the age considered, such as the 'Stone Age', 'Bronze Age', 'Iron Age'. Modern man requires very sophisticated materials to meet his technological demands; in fact his machines for producing energy and movement are limited in their capacity only in the quality of materials available for their construction, unlike primitive man where motive power was the chief limitation. As a result of this great interest in materials, a large proportion of modern research has been devoted to the investigation and development of new materials, particularly metals.

The investigation of materials was set on a rational basis with the discovery of X-ray diffraction and the consequent development of modern crystallography by Laue, Bragg, Pauling, Hume-Rothery and many other well-known workers. The structure of the common metals and alloys and the rules governing their formation were determined soon after the end of the First World War, but these were not sufficient to explain fully all the properties of the metals. Many of the so-called 'structure sensitive' properties, such as work-hardening, slip, and crystal growth, vary with different metals in a way not easily explicable by the concepts of symmetry, packing and binding forces used for perfect crystals. Hence the investigation of imperfections in the crystals became very important. Imperfections and their properties were postulated by many early workers, such as Taylor[1], but it was not until the advent of high-resolution electron microscopy that direct observation of these imperfections was obtained.

Electron microscopy has been used for high-resolution investigations of biological materials by thin-sectioning using ultra-microtomes since 1942. Metals being far more opaque to electrons have usually been investigated by replication methods, mainly using carbon, but as these only reveal surface detail they are not suitable to observe details of imperfections. The techniques for thinning metals sufficiently to obtain transmission pictures have only been successfully developed in the past four years, and these techniques are usually considered very difficult. It is therefore with pleasure that we must welcome this