

most suitable are given, and even then the details are not sufficient to enable the investigator to carry out a test without reference to the original papers.

A more fundamental criticism may be made. Sufficient distinction does not seem to be made between tests carried out without the use of a standard and those in which such a standard is employed. It might be convenient to confine the term 'bioassays' or 'biological assays' to the latter; 'quantitative pharmacology' would then have the wider significance. Owing to the different responses which different animals of the same species give to the same dose of a drug, it is not always easy to duplicate results at different times or in different laboratories, even when large numbers of animals are employed. The use of a standard of reference enables comparable results to be obtained in different tests, since it prevents unavoidable variations in technique or in animal sensitivity from affecting the final result. For this reason, emphasis might be laid on the greater accuracy of those assays which have been carried out against a standard of reference. However, the book may be thoroughly recommended to all pharmacologists and others interested in the biological examination of drugs, of both vegetable and animal origin.

### Telegraphy and Television

*From Telegraphy to Television: the Story of Electrical Communications.* By Lieut.-Col. Chetwode Crawley. Pp. xii + 212 + 24 plates. (London and New York: Frederick Warne and Co., Ltd., 1931.) 6s. net.

THE author's declared intention of giving "a bird's-eye view of telegraphy and telephony in all their branches, showing their history, development, attainments, and future possibilities", is not quite satisfactorily fulfilled in this volume. Full weight must be given to the difficulties of presenting, in two hundred pages of simple language, a clear story of the spectacular growth of electrical communications. Yet, full weight given, the present result is a little disappointing. The need for simplicity brings with it the danger of superficiality, and the treatment tends to be somewhat patchy, especially in the later chapters.

The hobby-horse is a poor mount on which to lead a pageant of history. There are two interlinked topics running through the volume which the reviewer finds peculiarly irritating. One is the general theme expressed, for example, in this comment on

Hughes's experiments: "Orthodox science had closed the door on the invention of wireless telegraphy as it has so often attempted to do in the case of other important inventions". The other is the presentation of television in a way which fails to give the reader any estimate of the true technical and æsthetic position in television to-day. The author adds to the many disservices which television in Great Britain has already suffered at the hands of its friends by devoting much of the chapter headed "Television" to a series of quotations which will make the reader ask why it should be necessary to reassert with such iteration Mr. Baird's claims to priority. The topics are, as has been said, interlinked, as, for example, by the *obiter dictum*, "Marconi, like Baird to-day, was not in the least perturbed by the opinions of the most eminent physicists or anyone else".

To suggest, as these two quotations do, that there is any valid analogy amongst the three cases of Hughes, Marconi, and Baird, is to embark on a subject which cannot be left as the author has left it. Hughes—to whom the author does less than justice—was certainly the victim of a pontifical conservatism of the most unhappy kind. Marconi—whose special contribution to electrical communications the author states very fairly—received very generous encouragement from many practitioners of "orthodox science". The encouragement was very mildly tempered by a legitimate warning about the difficulties suggested by diffraction theory, a warning which he rightly put to the test of an experiment, the success of which greatly widened the boundaries of orthodox science. Baird—to whom the author does perhaps a little more than justice—has been warned by "eminent physicists" and workers in "orthodox science" (1) that there is more than one way of approach to television and (2) that the laws of physics do not allow him to give an æsthetically satisfactory service in the particular band of medium frequencies allotted to him under the laws of man. This is a very tenuous basis for the "atmosphere of captious criticism" which the author detects around television.

The final chapter of personal reminiscences, from one who has been in exceptionally close contact with the whole life-history of wireless telegraphy, is most interesting and entertaining. The book as a whole is interesting. The remarks already made prove that it may fairly be described as stimulating; the twenty-four plates make a substantial contribution to the picture which the author sets out to draw.