a useful fashion the present status of experimental studies of capillary permeability, fixation at the inflammatory site, metabolic alterations in inflammatory states, leukopenia, leukocytosis, phagocytosis, fever, mechanisms of tissue injury, hypersensitivity, repair and regeneration, or anti-inflammatory agents. Nor does the monograph fulfill the need for a reliable guide in planning further investigations in any of these fields.

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Rockets and Guided Missiles. John Humphries. Macmillan, New York, 1956. 229 pp. Illus. $6.

John Humphries, one of the outstanding rocket experts in Great Britain, has written a book that is certain to attract wide attention. It is accurate, comprehensive, and easily understandable. Mathematics is used very sparingly and is not essential to the understanding of the major portion of the text. The approach is mainly descriptive.

The author takes up the properties of solid propellant rockets and liquid propellant rockets and discusses specific designs; German, English and American rockets are mentioned. Then there follow sections on missiles in which he considers tracking methods, step-rockets, and the applications of missiles. Here a number of specific guided missiles are discussed in detail, for example, the German V-2. Manned rocket planes are also described, both the research planes used in the U.S. and the antipodal bomber proposed in Germany during the war.

The last section of the book is given up to other rocket applications with only a few pages devoted to space flight. However, applications of rockets are mentioned: torpedoes, rocket-propelled sleds, and so forth. There are more than 120 detailed figures in the book, some very excellent photographs, and a very useful bibliography.

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Solid State Physics. Advances in research and applications. Frederick Seitz and David Turnbull. Academic Press, New York, 1955. xii + 469 pp. Illus. $10.

For the reader who wants to learn all about recent experiments on the homogeneous properties of germanium and silicon, here is an article by H. Y. Fan. Those who were still a little puzzled by the Bohm-Pines theory of electron-electron interactions and plasma oscillations are now given another chance in an article by Pines. Wigner and Seitz collaborate again to give us the latest word on cohesive energies of all the metals.

There are three other articles. F. S. Ham gives a labored account of a relatively new method for finding the logarithmic derivative of the radial wave function outside an ion core in terms of the spectra of the free atom. Is it really necessary to prove that a solution of the radial wave equation satisfying one-point boundary conditions is an integral function of E? The theorem is proved by Ince for a regular end point, and Bôcher (1900) has given a far nicer proof with fewer assumptions than Ham for the singular case. On the other hand, an apparently recent theorem on the normalization of a wave function is only quoted as due to Silverman (1952). (The method appears to be due to Rayleigh, see section 164 and section 203 of his *Sound.*)

J. R. Reitz gives an account of all the methods for finding one-electron wave functions in a periodic potential. The first part of the article is devoted to the classical work on the subject that is readily available in the standard books. And where these standard books so frequently fail, namely in the proof of Bloch's theorem, Reitz also has an incomplete proof; he has neglected the boundary conditions. This article gives me the impression of being a cut-down version of a book on the subject, and I would have much preferred to read the book. I wonder, for example, whether the uninitiated will really appreciate Reitz's comments on Kubic harmonics. Surely, after so much space had been devoted to easily available things, more might have been given to Von der Lage and Bethe. T. Muto and Y. Takagi review experiments on the effects of ordering in alloys on the electric, magnetic, and mechanical properties. In addition, and with little connection, they give the usual treatments of the order-disorder transition from Bragg and Williams to Onsager.

The editors comment that there has been an enormous expansion in solid-state physics since 1940 and that as a result ". . . physicists are finding that, in order to make significant contributions, it is necessary to concentrate . . . in narrower fields than formerly." They believe that this new series will provide "a mechanism whereby investigators and students can readily obtain a balanced view of the whole field." I cannot help but believe that the editors are slightly confused on this point. Surely the student's outlook will not be broadened by reading "compact and authoritative reviews" on small aspects of a subject. On the contrary, the way to obtain a balanced view of all the aspects of a subject is to read a book by one author (or a few authors in close collaboration) which presents a balanced view of the subject.

An obvious example is Wilson's book on transport phenomena. It is with horror, then, that I read of the cavalier dismissal of such books by the editors in their introduction: "Although excellent short texts have recently appeared, many scientists have come to recognize the need for an up-to-date treatise on solid state science that reviews comprehensively all of the important facets of the subject." They go on to say that this is to be the purpose of their new series. It is to be hoped that authors, who could bring a wealth of experience to their writing, will not be content in the future merely to contribute an article to *Solid State Physics,* but will still give us the pleasure of seeing a much divided subject as a whole.

No doubt there will be some facets of solid-state physics that are sufficiently isolated and small that we may expect one good article on them, and I am eagerly looking forward to these. For the rest, I believe that the editors, if they are not going to produce just another review series (and a very expensive one at that), will need to put much more effort into their production. Articles should not appear just by the whim of their authors, but interrelated subjects should appear together, and the authors of these contributions should have had the benefits of consultation with their collaborators. Otherwise, I fear that these volumes will be neither a good review series nor a good *Handbuch,* which is not to say that they will not be much sought after.

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Linear Feedback Analysis. J. G. Thomason. McGraw-Hill, New York; Pergamon, London, 1955. x + 355 pp. $8.50.

Feedback has become an indispensable tool in electronics, communication, servomechanisms, and automatic controls, and this book provides a rather full introduction to it. Intended for the science graduate working in one of these fields, it concentrates mostly on theory. However, a number of design problems are worked out in detail—often accompanied by the kind of practical observations one expects from someone who has had to hunt the "bugs" in a circuit after designing and constructing it.

The first three chapters discuss mesh and nodal network equations, introduce the Laplace transform technique for

solving circuit problems, and apply it to simple examples. The next two give an introductory survey of feedback circuits and a short discussion of amplifier stage design. The next three, on stability of feedback systems, gain-phase analysis, and stabilization techniques, develop the general theory in detail; this is applied in the last three chapters to illustrative feedback amplifiers, feedback integrators and differentiators, and stabilized power supplies. These six chapters, about two-thirds of the book, although they are not as comprehensive in the treatment of theory as the book by Bode or some more recent books, do go far enough to permit the student to design his own circuits on the basis of the principles laid down. The applications are sufficiently varied and numerous to develop a feeling for when feedback techniques can be used advantageously. The clarity of the presentation makes me wish that more applications had been discussed.

American readers may occasionally be bothered by the use, without explanation, of British technical jargon not in common use here. One sometimes wonders at the choice of what is assumed as known to the reader and what is developed in detail—for example, complex variable is developed *ab initio* for the discussion of the Nyquist stability criterion after being assumed in the earlier discussion of Laplace transforms, transfer functions, and so forth. A more extensive bibliography, particularly of applications, would enhance the usefulness of this useful book still further. It is attractively printed and illustrated. Only one nontrivial misprint was noted, namely "cosh ωt" where "cos ωt" should be (entry 14, table of Laplace transforms, page 345.

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Principles and Practice of Field Experimentation. Technical communication 18. John Wishart and H. G. Sanders. Commonwealth Bureau of Plant Breeding and Genetics, Cambridge, England, ed. 2, 1955. 133 pp. 21s.

This small and concise clothbound book will continue to be of considerable value to experimenters even as the first edition was. The material in part II is especially interesting and should be reread periodically by all experimenters who conduct field trials. Consulting statisticians will also find part II enlightening and worth-while reading. The authors state in the preface that "Part I has been almost entirely rewritten in order to make the book suitable for an introductory lecture course on the application of statistical methods to field experimentation, and the material has been expanded to include reference to the more elaborate designs suitable for factorial trials and for use with large numbers of varieties. Part II has been revised and added to."

It is true that part I has been rewritten, but it is unfortunate that the authors did not make use of some of the new developments in statistics by J. W. Tukey, D. B. Duncan, and M. Keuls on comparisons among means. Also, the relationship of error rate basis in experiments, type I error, type II error, and sample size are not considered. In order to be up to date, a book on statistics must consider these topics. The least significant difference (lsd) procedure is used throughout the book and the implication is that the error rate per experiment is 5 percent. This is not so; the error rate per comparison is 5 percent when all comparisons between two means are considered. Using an lsd procedure, the experimenter will find that the error rate per experiment may be larger than desired.

It is felt that the authors could have been more precise in their suggestions for using statistical procedures. Statistics as a science is objective, but the application of statistics becomes somewhat subjective; statisticians should strive to make the application of statistics as objective as possible. The book could be improved in this respect.

The following additional references should have been included: Smith, *J. Agri. Sci.* **28**, 1; Yates and Cochran, *J. Agri. Sci.* **28**, 556; Yates and Zacopanay, *J. Agri. Sci.* **25**, 545; Yates and Hale, *J. Roy. Stat. Soc. B*, **6**, 67; Eisenhart, *Biometrics* **3**, 1; Cochran, *Biometrics* **3**, 22; Bartlett, *Biometrics* **3**, 39; Yates, *Imp. Bur. Soil Sci., Tech. Comm.* 35. Also, a number of the comments by Yates and Zacopanay on techniques of sampling and by Yates (*Imp. Bur. Soil Sci. Tech. Comm.* 35) and Snedecor (*Statistical Methods*) on number of significant figures, rounding errors, and so forth, should have been included in the present version of the book. The inclusion of the aforementioned items would have more than compensated for the additional pages required.

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New Books

Resistance Welding. Theory and use. Prepared by Resistance Welding Committee, American Welding Society. Reinhold, New York; Chapman & Hall, London, 1956. 163 pp. $4.50.

A Follow-Up Study of War Neuroses. Norman Q. Brill and Gilbert W. Beebe. Supt. of Documents, GPO, Washington 25, 1956. 393 pp.

Infinite Sequences and Series. Konrad Knopp. Translated by Frederick Bagemihl. Dover, New York, 1956. 186 pp. Paper, $1.75.

Advances in Chemical Engineering. Thomas B. Drew and John W. Hoopes, Jr. Academic Press, New York, 1956. 448 pp. $10.

CIBA Foundation Symposium on Extrasensory Perception. G. E. W. Wolstenholme and Elaine C. P. Millar. Little, Brown, Boston, 1956. 240 pp. $6.

Taboo. Franz Steiner. Philosophical Library, New York, 1956.

Essentials in Problem Solving. Zuce Kogan. Arco, New York, N.Y., 1956. 119 pp. $3.

Earth Satellites as Research Vehicles. Proceedings of the symposium held 18 Apr. 1956 at the Franklin Institute in Philadelphia. Monograph No. 2. Journal of the Franklin Institute, Philadelphia, Pa., 1956. 115 pp. $2.50.

Report of the Special Committee on the Federal Loyalty-Security Program of the Association of the Bar of the City of New York. Dodd, Mead, New York, 1956. 301 pp. $5.

Science and Civilisation in China. vol. 2. *History of Scientific Thought.* Joseph Needham. Wang Ling, research assistant. Cambridge University Press, New York 22, 1956. 696 pp. $14.50.

Geology and Ourselves. F. H. Edmunds. Philosophical Library, New York, 1956. 256 pp. $10.

Chemistry and Uses of Pesticides. E. R. de Ong. Reinhold, New York; Chapman & Hall, London, ed. 2, 1956. 334 pp. $8.75.

Miscellaneous Publications

(Inquiries concerning these publications should be addressed, not to Science, *but to the publisher or agency sponsoring the publication.)*

The Hazards to Man of Nuclear and Allied Radiations. Presented by the Lord President of the Council to Parliament by Command of Her Majesty June 1956. Medical Research Council. Her Majesty's Stationery Office, London, 1956. 128 pp. 5s. 6d.

Psychiatry, the Press and the Public. Problems in communication. American Psychiatric Association, Washington, D.C., 1956. 66 pp.

Manpower and Education. Educational Policies Commission. National Education Association, 1201 16 St., NW, Washington 6, D.C. 128 pp. $1.25.

Current Issues in Higher Education, 1945, Resources for Higher Education. Proceedings of the 11th annual National Conference on Higher Education. Chicago, Ill., 5–7 Mar. 1956. G. Kerry Smith, Ed. Association for Higher Education, 1201 16 St., NW, Washington 6, D.C. 363 pp. $4.

Fédération Internationale des Traducteurs F.I.T, Premier Congrès Mondial de la Traduction. Rome, 29 Feb.–1 Mar. 1956. Associazione Italiana Traduttori, Via Firenze, 15, Rome, 1956. 44 pp.

Carver Foundation, Tuskegee Institute, Alabama, Annual Report 1954–55, Ten Years of Research. Carver Foundation, Tuskegee Institute, Ala., 1956. 18 pp.