does in a very satisfactory manner, the chief features of the most recent developments in electrical engineering.

Chapter I. is devoted to definitions of terms and Chapters XII., XIII. and XIV. are devoted to the more or less theoretical questions of choice of frequency, weights of copper for various systems and calculation of transmission lines. The remaining chapters II. to XI. are devoted to the details of structure and operation of alternating current machinery of the polyphase type; and in an appendix is given the full report of the committee on standardization (of electrical machinery) of the American Institute of Electrical Engineers.

The author gives expression in his preface to a statement which has been current among electrical engineers for some time, namely that the most progressive engineering work of the day is that of switchboard design. The truth of this statement may be realized if we remember that the switchboard in a station includes all the controlling, regulating and safety devices, and that with the coming of our enormously powerful high-voltage generators the switchboard designer faces some of the most perplexing problems that have ever confronted electrical engineers.

W. S. Franklin.

Arithmetic of Electrical Measurements. By W. R. P. Hobbs. Ninth edition, revised by Richard Wormell. London, Thomas Murby. 1902. Crown 8vo. Pp. 112. 50 cents.

This is an excellent collection of simple problems illustrating the principles of current electricity. The problems are arranged in thirteen chapters and at the beginning of each chapter is given a series of explanatory paragraphs. An undue proportion of the problems are devoted to battery calculations such as grow out of series and parallel connections, while many important phases of modern electrical engineering are wholly untouched.

W. S. Franklin.

SCIENTIFIC JOURNALS AND ARTICLES.

The American Naturalist for June contains the first instalment of an article on 'The Colors of Northern Gamopetalous Flowers,' John H. Lowell; this is devoted mainly to a presentation of the character and colors of the flowers of the various orders of the group, though at the close we have a hint that bees have been largely instrumental in bringing about the survival of certain colored flowers. J. H. Powers discusses 'The Causes of Acceleration and Retardation in the Metamorphosis of *Amblystoma tigrinum*,' bringing forward a number of facts to show that the chief factor in change is a reduction in the food supply and not an insufficient supply of water for respiration by gills. Bradley Moore Davis considers at some length 'The Origin of the Sporophyte' and the balance of the number is devoted to notes and reviews.

The Popular Science Monthly for August opens with an article by Sir Oliver Lodge, on 'Modern Views on Matter,' the Romanes Lecture at Oxford; David Starr Jordan considers 'The Training of a Physician' and W. LeConte Stevens 'American Titles and Distinctions,' implying that here they are all too cheap. C. C. Nutting describes, with the aid of illustrations, 'The Bird Rookeries on the Island of Laysan'; Albert Schneider discusses 'Bacteria in Modern Agriculture,' showing what it is hoped to do by the aid of bacteria rather than what has actually been accomplished; and J. E. G. de Montmorency gives the second part of 'The Story of English Education,' bringing the subject down to date. Frederick A. Bushee has an article on 'The Declining Birth Rate and its Cause,' and J. A. Fleming the third instalment of a paper on 'Hertzian Wave Wireless Telegraphy.' There are many matters of interest discussed in 'The Progress of Science.'

The Museums Journal of Great Britain for June brings to a close the second volume of this valuable periodical, which comprises some 375 pages, besides the full index, and supplementary pages devoted to a directory of the Museums of Great Britain. Mr. Hoyle is to be complimented on the regularity with which the *Journal* has appeared and congratulated on the fact that he has made it a financial success.