idea that the amount of heat liberated in a chemical action was a measure of the energy available from this source, but this is only correct at the absolute zero ; at all other temperatures, therefore, endothermic actions can occur, and it is no longer possible to predict from the thermochemical data alone in which direction a chemical action will proceed. On the experimental side also, the science has been limited by a standard of accuracy far lower than can be attained in other physical measurements. This lack of accuracy is the more to be deplored since the heats of formation of organic compounds are based upon the differences between relatively enormous heats of combustion ; and the most interesting data (*e.g.* the heats of formation of isomers) contain even larger percentage errors than the heats of combustion through which they are determined.

It is, however, of interest to know that recent developments, in the original laboratory of Berthelot, have led to a very great improvement in the degree of accuracy of the measurements. These are now being obtained within about 1 part in 1000 by using a completely enclosed apparatus, in which evaporation from the surface of the calorimeter and other disturbing factors are eliminated. It is therefore natural that interest in thermochemistry should once again have been aroused in France, and that the latest text-book on the subject should be of French origin. Prof. Bourion has not himself made any important contributions to thermochemistry, but he is familiar with the work that has been done by other investigators, and his book will obviously be consulted by all those who wish to know the present position of the subject.

La télégraphie sans fil : ses applications en temps de paix et pendant la guerre. Par Julien Verdier. Pp. viii + 412. (Paris : Gauthier-Villars et Cie, 1924.)   35 francs.

To every radio engineer who desires to learn the latest practical advances made in radio communication in France we can recommend this book. The historical introduction is not very good and has perhaps a national bias, while the theoretical chapter is too sketchy to be of use to any one but an expert. But the chapters describing practical applications, radio communication during the War, and the French radio stations, contain much novel matter. France has built the two most powerful stations in the world, Melun and Croix-d'Hins. The radio centre at Sainte-Assise is perhaps the most perfectly organised. Methods of using radio waves for discovering masses of metal near the surface of the earth are described. Many of the important radiograms issued during the War are now published for the first time, and the conversations between the Eiffel Tower and Nauen will be instructive to the future historian. The radiograms issued just before the Armistice are highly dramatic.

The French radio system is divided into three distinct services, (1) the Service of the Interior, (2) the Radio Maritime Service, and (3) the Colonial and International Service. The first, which is used for official, special press, meteorological, etc., messages and for time signals, relieves considerably the ordinary telegraph service. Broadcasting comes under this head. The Radio Maritime Service maintains communication with ships at sea and is regulated by the International Rules adopted at London in 1912. Full lists are given of the Colonial and International stations with which there is regular communication. In the last chapter, both the French and the International Rules for radio work are given in full.

Théorie générale sur les courants alternatifs. Par M. E. Piernet. (École d'électricité et de mécanique industrielles.) Fascicule 1. Pp. x + 100. (Paris : Gauthier-Villars et Cie, 1924.)   12 francs.

THIS book explains clearly the principal theorems of the theory of polyphase currents. The mathematical student who has a knowledge of French will have no difficulty in understanding it. The theorems given form an excellent basis which he can use for extending his knowledge. It will be useful, however, to make a few criticisms. When defining the instantaneous power in a circuit (p. 13) the author talks about the quantity of energy *instantaneously* given to the circuit. He defines also the watt current and the wattless current. The reader gets the impression that the current has more to do with the power than the electromotive force. A formal proof is given of the " equivalent " sine wave, and it is concluded that it can in general be used instead of the actual wave. Many practical engineers do make this assumption, but in some cases it will lead to very erroneous results. The so-called " equivalent " sine wave has a different area from the actual wave. The magnetic flux induced in a transformer, for example, when the two waves are applied at the primary terminals, will be different and so also will be the consequent losses in the core. The experimental method of analysing a wave is described, but we do not think that the analytical method given will be of much use. In the last chapter the theory of rotating magnetic fields is discussed in a way that will appeal strongly to the mathematician. Much of this book might with advantage be included as practical examples to illustrate the theory in a mathematical treatise on the calculus.

A Shorter School Geometry. By H. S. Hall and F. H. Stevens. Part 1. Pp. x + 164 + iv. (London : Macmillan and Co., Ltd., 1924.)   2s. 6d.

THIS volume is much more than a revised edition of the well-known course of " School Geometry " by the same authors : there are differences alike in matter, plan, and presentation so substantial that it may almost be regarded as a new text-book. The authors have followed many of the recommendations put forward in the recent report issued by a Committee appointed by the I.A.A.M. We notice, however, that they have included in the text " proofs " of the fundamental congruence theorems but have excluded " proofs " of the fundamental parallel theorems. This is a curious compromise which it is unlikely will stand the test of time. Both groups of fundamental properties are treated informally in an introduction which runs to 42 pages and also includes some mention of similarity ; the latter, however, might with advantage be discussed in greater detail. There is much to be said for developing informally the general principle of similarity with as much emphasis as is now given to the general principle of congruence. The exercises have been increased in number, particularly those of a numerical character : the clearness of the type and the diagrams deserve a special word of praise.