and complete and is evidently conducted in a modern and fruitful manner.

The third 'question' includes a paper by Dr. Kennelly, describing mechanical applications of electricity, especially as observed in the United States. Messrs. Delmas and Henry discuss the use of the current in hoisting machinery and in the establishments of public works departments. M. Bassères discusses the fourth question and especially the work of the 'Compagnie des Fives-Lillie.' Hydraulic motors, as constructed in Switzerland, the home of that form of prime mover, 1889–1900, are reported upon by M. Prazill. M. Rateau writes of their theory and construction as illustrated by contemporary practice in general.

Dr. W. F. Durand takes up the sixth topic and gives an account, complete and exact, of the water-tube boilers employed in the United States, and M. Brillié also discusses the 'chaudieres a petits éléments,' their classification, efficiency, operation, with characteristic thoroughness. MM. Lefer and Lecornu write of high-speed engines and of regulators, the former including the ancient Greek type, just revived, the steam-turbine. 'Thermic Motors,' apparently only intending to include the gas-engines in the class, are the subject of valuable papers by MM. Diesel, who reports on his own invention and construction; by Mr. Donkin, who discusses those employing the waste gases of the blast furnace; and by M. Witz, the well-known authority on that class of motor, who tells of gas-engines of large power employed in metallurgy. The final discussion in this volume is that of 'automobilisme,' by MM. Rochet, Cuénot and Mesnager.

All the papers here published have special value in their several departments of applied science and some of them are extremely important. The contributors to the volume are usually French writers and practitioners of authority; a few are American, and we recognize the name of but one German in the list. The German government took a leading part in the Exposition and German exhibitors abounded, as did German visitors; but the scientific men of Germany, in this department, at least, seem to have held aloof.

The book is a fine sample of the style and finish of the French official document. In paper, type and finish, and illustration, while not what a French critic would consider illustrative of a high class of bookmaking, it is, for its place and purpose, most excellent. In many cases of condensation and of abstracting, on the part of the editors, as especially in the case of the descriptions of American mechanical laboratories, where the original contained very extensive and very extensively illustrated details, the necessary work of merciless condensation has been, in the main, very well done. The translations from the English into the French are, so far as a first rapid survey would indicate, excellently performed. The collection will have great and permanent value to the engineer and to the professor of engineering, as well as to all having interest in these divisions of applied mechanics.

R. H. Thurston.

The Antarctic Regions. By Dr. Karl Fricker. Translated by A. Sonnenschein. New York, The Macmillan Company. 1900. Pp. xii + 292. With many maps and illustrations. Price, $3.00.

In view of the widely extended interest in the Antarctic region at the present time, it would seem as though it would almost be unnecessary to say that this was a timely production. It is, however, not the only requisite of a book that it is timely. Its substance should be of a high character and its form of statement should be clear. In this particular case, the historical portion of the work is good, but its character is marred by too great condensation. This fact alone would make it a poor book to put in the hands of the general reader, who is looking for pleasure as well as for information. Even if the original work was intended for the scientific man, the translator should have had tact enough to recognize the fact that it was not at all necessary to follow the German construction of the sentences too closely. A good translation should take some account of the spirit of the language into which the work is to be rendered, and not make its perusal a burden by the introduction of too many parenthetical sentences. Of course in such a work as this much new information is not to be expected, and the major portion of

the book is given over to a historical summary of the various voyages to the South Polar region. But that is no reason for closing this section of the book with the following sentence (p. 131):

"This survey indicates what parts of the Antarctic regions have principally been visited, and sums up how much or how little has been achieved by each attempt. It will be the aim of the subsequent pages to gather into a whole the results of all these explorations so far as their fragmentary nature renders such a task possible."

This portion of the book is followed by a description of the 'conformation of the surface and geological structure,' which would be a very acceptable piece of work were it not for the cumbersome English sentences which defy all attempts to parse them.

A splendid opportunity to offer a summary of our knowledge of the climate, the structure of the ice, the fauna and flora is simply annihilated by such sentences as the following (p. 250): 'The non-melting of the snow is of necessity accompanied by a change in its transformation.'

Again, scientific men do not usually speak of a species of animals being 'extirpated,' as they are said to be on pages 270 and 273.

The maps and charts are, however, the redeeming features of the book. They form a very interesting collection of illustrations and are worthy of a better fate than burial in such ponderous and heavy verbiage.

It is also to be regretted that in giving a list of books, articles and maps upon this subject, no attempt was made to make the list as nearly complete as possible. In these days of careful bibliographical work the preparation of such a list would have been a comparatively easy task. Furthermore, a labor of this character would have been very much appreciated by the scientific world, and it is a pity that it was not done.

By what has been said above, it is not intended to produce the impression that the book is without merits. It will be a useful compend for a person who desires to become acquainted with the leading facts in connection with Antarctic investigations, but it will never be a book of popular interest. In the scientific summaries too little has been given to satisfy the scientific man, and it is therefore evident that there is still an opportunity left for a book which will satisfy these conditions.

WILLIAM LIBBEY.

Physiology for the Laboratory. By BERTHA MILLARD BROWN. Boston, Ginn & Co. 1900. Pp. viii + 167.

A Syllabus of Elementary Physiology with References and Laboratory Exercises. By ULYSSES O. COX. Mankato, Minn., Free Press Printing Co. Pp. viii + 167.

If one were to judge by the number of books on 'Practical Physiology' that appear yearly, it would seem that the long-hoped-for day had come in which Physiology had become a laboratory study in all academic grades from the grammar school to the university. Even if it fulfills the ideal of its author only, each book in this field, if well done, is to be welcomed, for it means at least an attempt in the right direction.

Of the two books now before us Miss Brown's is the more modest. In less than 150 pages there are given the essential experiments in a course in Vertebrate Physiology, presumably for the high school or normal school. A chapter on the cell and one on the bacteria are added. The matter is in large part purely physiological, but the dissection of the various organs is included. Vivisection is excluded except the slight amount that is involved in a study of reflex action in the brainless frog. The directions simply point the way, and the chosen ground is well covered. A few corrections should be made: The chromosomes are said to 'be scattered through the protoplasm'; epidermis is 'the outer, dead skin'; the expanded portion of the external ear is misnamed the 'concha,' while the reflex character of the knee-jerk is settled by requiring the student to trace the course of the nerve impulse.

The book by Mr. Cox consists of a syllabus with references to reading, and a series of laboratory exercises. The syllabus is a detailed but crudely expressed classification of the conventional subject-matter of Physiology, of which students could make little use. The references are chiefly to well-known American and English