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NEW BOOKS.

Traité Pratique d'Electricité Industrielle, by E. Cadiat et N. Dubost. (Paris: Baudry & Cie.)

This admirable work is designed for the use of electrical engineers and other practical men. During the past few years our knowledge of electricity and its applications has wonderfully increased, and the literature relating to it has grown in proportion. The authors of the work before us have endeavoured to condense "this literature" into a convenient and useful form, and their endeavours have been largely successful. The work is divided into six parts. The first part is devoted to a consideration of definitions, fundamental laws, and of that most important and most complex branch, electrical units and measures. The second part treats of apparatus for the production of electricity, arranged under the heads of batteries, machines, and accumulators. The theory and description of the various machines are plainly set forth and illustrated by numerical examples, which add greatly to the value of the work. In the remaining four parts, the authors deal with the questions of electric lighting, the electrical transmission of energy, electro-chemistry, and the telephones.

Electric lighting is discussed at length, the various arc and incandescent systems being carefully described. The authors here point out that in comparing gas with electric lighting, the first cost in the latter is the most important item, the cost of working being comparatively small. With gas, on the other hand, the cost of working is the main consideration.

The electrical transmission of energy is next minutely and clearly described. After a statement of general principles and preliminary experiments, the merits of the different motors are compared. Various applications are then taken up, including the Siemens' tramway, the Portrush railway, traction by accumulators, telpherage, use in the working of mines, electric boats, and in aerial navigation. This part concludes with a chapter on the distribution of electricity.

In the fifth part, the first chapter deals with electro-plating, the composition of the baths, and general principles as to the production and distribution of electricity, influence of conductors, &c., and the second chapter with electro-metallurgy.

The sixth and last part of the work is devoted to the telephone and microphone. Their theory is explained, and a description is given of the principal kinds, together with the mode of application to practical purposes, including the arrangement for a central exchange in cities.

CANADIAN PACIFIC RAILWAY.

BY VERNON SMITH, C.E.

(Continued from page 342.)

By a telegram received within the last few hours, the heavy work expected in crossing some places in the mountains which lies between the two crossings of the Columbia have been found to be not nearly so formidable as at first anticipated and a large saving both in time and money can be effected in the construction of this section. The completion of the Government section from the Pacific to Kamloops Lake enables the work upon the third and last range of mountains, the Gold Range, to be attacked from both sides and no doubt now remains that next season will see this great work completed from ocean to ocean, a great national highway across Canada; the shortest, best and most economically worked communication between the Atlantic and Pacific, the northwest passage from Europe to the Orient which has been the aspiration of so many centuries, and hitherto the grave of so many hopes.

The construction of a railway through a new, unorganized, almost unexplored, district without settlement or fixed population, especially when time is an important element in the question is an entirely different problem from constructing that same road a few years later when population has come into the country, the cultivation of the soil has commenced, roads have been constructed, and the necessaries of life have been introduced. All the requirements for the second operation are equally requisite for the original line, but very much of the difficulty of obtaining them has been removed and what is often most embarrassing and