

appended facsimile of the page of Carnot's note-book in which his prescience of the mechanical theory and equivalent of heat is recorded, and also by the letter of his brother Senator Carnot to the Academy. These are taken from the French edition of 1878. When following once more, in their original dress, the thoughts of the great pioneer, the reader cannot but wonder concerning the marvels which he might have wrought if his life had ended less prematurely.

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INDIA RUBBER AND GUTTA PERCHA, translated from the French of SEALIGMANN, LAMY TORRILHON, AND FALCONNET BY JOHN GEDDES MCINTOSH. London : Scott, Greenwood, and Co. 1903. New York : D. Van Nostrand and Co. Price, \$7.50 net.

After an interval of some years in which no comprehensive work on this subject has appeared, two quite elaborate works have appeared almost simultaneously; the one of which the title is given above, and the work of Dr. Carl Otto Weber on "The Chemistry of India Rubber," published this year by Chas Griffin & Co., London, and J. B. Lippincott Co., Philadelphia. The book before us is the more comprehensive in its scope, covering both the subjects India rubber and gutta percha and, as the subtitle states, in their historical, botanical, arboricultural, mechanical, chemical and electrical aspects. As the translator states in his preface, it has been produced by the collaboration of a well-known technical chemist, an equally well-known India rubber manufacturer, and an expert mechanical engineer with special experience of India rubber and gutta percha plant and machinery. Because of this comprehensive plan, the book is a valuable one for those desiring information on the general subject and its different bearings.

The chemistry of the book is not, however, a connected whole written from the standpoint of our present knowledge of the subject, but is in part quite old and somewhat disconnected. As an example we may note the account of dambonite and dambose, the sugar-like body obtained from galoon rubber by Girard. The authors and the translator have preserved the old notation $C_6H_8O_6$ for the sugar and C_2H_3I for methyl iodide, and the only intimation the reader has that these formulas are not to be taken as written is a brief foot-note of the translator to the effect that "all the formulas and equations given by Girard are evidently old notation." We do not think that there is any excuse for

presenting the matter in this shape by a translator who wishes to make the book as thoroughly available as possible. Again, the word hydrocarbide used all through for the English word hydrocarbon is objectionable and is evidently too close a translation of the French "hydrocarbuse." Similar inelegant translation is seen in the use of the word "expiry" instead of "expiration" on p. 97.

Much of the chemical discussion is a reproduction of the views of the original writer given in the first person singular and then with a word of comment, sometimes expressing doubt or dissent, as in the reference of Fawsitt's experiments on vulcanization on p. 137.

The section on the analysis of rubber and rubber substitutes is fairly complete, but is largely given as a quotation from other sources as in the statement of Henrique's contribution.

Taken altogether, the chemical part of the section on India rubber is not as satisfactory in its treatment as that found in Weber's work. The illustrations of this section are also distinctly inferior and many of them so blurred as to make details undistinguishable.

The section on gutta percha is quite complete in the descriptive and botanical parts, but the chemistry of the subject is not as well presented as we find in Obach's fine monograph, which appeared a few years ago in German.

The book conveys a great deal of information but, as shown above, does not seem to present the chemistry of this most interesting subject as well as it might have been done.

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