

Another interesting statement is the following, from Lockwood's diary, as to the relative merits of Kane and Hayes: "Have been reading Kane and his travels. He is my *beau ideal* of an arctic traveller. . . . Hayes does not compare with him. Though beautifully written, there is an air of exaggeration about Hayes's book which destroys its interest. Dr. Pavy, who has hitherto been the advocate of Hayes, since his return from Carl Ritter Bay, seems to have changed his mind about him, and now agrees with Greely and me that Hayes never reached Cape Lieber. To have done so, he must have performed in part of his journey ninety-six miles in fourteen hours, — an impossibility." This, be it understood, is from Lockwood's diary as given by Lanman. The volume further contains a good portrait of the explorer, a poor map of his explorations, and no index.

THURSTON'S MATERIALS OF CONSTRUCTION.

THIS work, the author states in his preface, is an abridgment of the larger work by the same author, entitled 'Materials of engineering.'

It contains in a compact form for ready reference a large amount of valuable information concerning the properties of materials used in engineering constructions, and is undoubtedly one of the most complete works of the kind yet published in this country.

Students and practical engineers can hardly find any compilation better suited to supplement their theoretical text-books on the mechanics of engineering constructions than this. The work is not free, however, from some of the imperfections and faults which have characterized nearly all books of this kind, heretofore produced, by English and American authors. The title which is given to a text-book is perhaps of little consequence in itself; but under the titles 'Theory of strains,' 'Strength of materials,' 'Mechanics of materials,' etc., we have a variety of works, some of which are devoted to the exposition and demonstration of the theorems of applied mechanics relating to the action of external forces upon the parts of structures, and the resistances which oppose such forces, with a minimum amount of space devoted to the properties of the materials used; and in others the properties of materials, more or less fully treated, with a minimum amount of demonstration of mechanics so applied, but with working formulas, either introduced without demonstration or from experiments, — empirical formulas, — largely interspersed. This min-

Text-book of the materials of construction. By R. H. THURSTON. New York, Wiley, 1885. 8°.

gling of engineering constants and descriptions of the properties of materials with both demonstrated and empirical formulas, is perhaps necessary in such a work as that of Professor Thurston; but it requires great discrimination and art to accomplish this satisfactorily. The handbooks of Trautwine and Haswell are exceedingly useful works of this character. Professor Thurston aims to go a step farther in his formulas and explanations; but the mixing-up of theoretical demonstrations and formulas without demonstration is a fault in a text-book for students.

Some subjects are treated at great length, while others receive less notice; as, for example, those connected with metallurgy on the one hand, and the non-metallic materials on the other.

The introduction of pictures of a few of our most common trees, etc., in illustrations of timber, are out of place, and affect the character and dignity of the work, as such imperfect illustrations of familiar objects, seen almost daily and hourly in nature, are apt to prejudice the reader against the author.

Notwithstanding these defects, however, the work is a very valuable contribution to engineering as a book of reference for nearly all important questions connected with the properties of materials.

EXPLORATIONS IN ALASKA BY THE BROTHERS KRAUSE.

AMONG explorations in Alaska of late years, not purely for geographical purposes, the journey of the brothers Krause, under the auspices of the Bremen geographical society, holds a prominent and worthy place. Its progress was noted and its results chronicled from time to time in our pages. Numerous papers by the travellers themselves have appeared in European journals, the last being an account of the brachiopods and lamellibranchiate mollusks collected in Bering Sea and Strait, by Dr. Arthur Krause. Kurtz, Peters, von Martens, Reinhard, Hartlaub, Müller, Meyer, Richters, Arzruni, Poppe, and Kirchenpauer have reported from time to time on the natural history, mineralogy, and ethnology of the expedition. The volume under review is a consensus of all available information, both historical and recent, relating to the very interesting group of aborigines which occupy the greater part of the Alexander archipelago, with outlying villages as far north-west as the Copper River. It does not pretend to monographic com-

Die Tlinkit-Indianer. Ergebnisse einer reise nach der nordwestküste von Amerika und der Berings-strasse, ausgeführt im auftrage der Bremer geographischen gesellschaft in den jahren 1880-81, durch die Doctoren Arthur und Aurel Krause, geschildert von Dr. AUREL KRAUSE. Jena, Costenoble, 1885. 16+420 p., illustr. 8°.