

suitable for carrying on the work later described in the book. Chapters three and four are devoted to fuels and their analyses. Under this head storage and spontaneous combustion of coal are considered. Methods of sampling and analysis are given. Various forms of calorimeters are described and methods of working them. A comparison is given of the two types of retort coke ovens, the Otto-Hoffman and Semet-Solvay Co. The economical consumption of coal under boilers is very carefully considered so that one in charge of a boiler plant can easily determine what percentage of the fuel put upon his grate is being transferred to the water in his boiler and how much passes up the stack. Chapter five is devoted to purification of water for boilers and the effect produced by impure waters. Various methods of removing the scale-forming substances are very fully given. What I have failed to notice in other books, there are some experiments illustrative of the corrosion and pitting of iron from the use of waters containing various impurities. Chapters six and seven are devoted to a consideration of lubricating oils, mineral, vegetable and animal oils. A brief description is also given of the method of producing mineral oils from crude petroleum. Saybolt's viscosimeter, which originated with a chemist of the Standard Oil Co., is fully described. This book should find a place on the shelves of all technical laboratories and the engineer will be able to get from it a very good understanding and appreciation of the elements he has to deal with in the boiler house and engine room.

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Decoration of Metal, Wood, Glass, etc. BY H. C. STANDAGE, Consulting Chemist, New York. John Wiley & Sons, 1908. 228 pp. Price, \$2.00

This little volume is of the type of "receipt books" and as such it deals with a great variety of compiled matter, the value of which it is difficult to estimate. For a work of this kind it is uncommonly clear in its directions. In some of the subjects the compiler is evidently on unfamiliar ground, as, for instance, in giving for an enamel for copper cooking vessels, p. 68, a fused mixture of 12 oz. fluorspar, 12 oz. of unburnt gypsum and 1 oz. of borax. Such a composition would be poorly suited for the purpose, to say the least. On p. 64 red sulphate of iron is given as a constituent of a metal enamel. The use of this compound as well as of the iron filings suggested on the same page would lead to unfortunate experiments. In many of the enamels glass is quoted as a component. Owing to the varying composition of the different kinds of glass it is never used in practice. Objections might be raised also to some of the compositions advised for the decoration of china. The book as a whole appears to be a suggestive guide for the many manipulations with which the chemist has to deal in the laboratory and factory.

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