

marine engines with link motion and reversing gear, and also of a screw-cutting lathe of English pattern.

These drawings are excellent in subject, arrangement and execution and are very well adapted for purposes of instruction. The text accompanying them is sufficient to give a clear understanding of the machines and their operation and of much of the theories underlying their design and the calculations for determining their proportions. The instruction in drawing, however, is deficient and very much of it is absolutely bad. In many respects it is contrary to the best examples among the plates to which it refers. For instance, it teaches the old system of projections, using the third angle, and of shade lines arranged to represent actual shadows that would be cast by the thing itself in nature, and strictly adheres to these principles in the first three plates, which are evidently drawn to suit the theories, while in all of the rest of the plates (which constitute the value of the book), the shade lines are distributed in the method which good draughtsmen employ, and in many of them the views are arranged in the common-sense manner, that is, of using the third angle and not the first. It is strange that most of the very individuals, whose function it is to mould the early impressions of engineer students, will persist in adhering to theories and methods which the most efficient experts have discarded, and will continue to teach a system and violate it in their illustrations, the latter inconsistency being probably due to the fact that their best illustrations are prepared by other parties who know better how to make a useful and clear drawing.

This book would be very strong if Sections 1, 2 and 3 of Chapter I, and Section 9 of Chapter IV were re-written on the same level as that of the plates.

W. H. T.

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A TECHNICAL DICTIONARY OF FIRE INSURANCE.—Being a practical commentary, combined with a glossary of terms used in the principal manufacturing industries. By William A. Harris, of the Phoenix Fire Office, Liverpool; Published by the author. Thick 8 vo, Muslin.

An excellent work, in an almost unworked field of literature. The main insurance risks, mechanical, chemical, manufacturing, etc., are briefly given in alphabetical relation, and their most important jeopardies properly elucidated. For example: In blanket manufacturing it is shown that the sulphuring is a dangerous process added to the regular woollen-factory risk; blasting powders, after brief description of manufacture, are mentioned as more dangerous from the reckless handling usually given to them by miners. Charcoal grinding is of more jeopardy, from the fine, explosive dust; chemical works are difficult to enter, and about their processes the owners are always very reticent—inspectors should read up in chemistry somewhat before visiting these places; and so on for many pages. Such subjects as damaged cotton, danger from drying-rooms, saw-mills, sawdust, varnish, wool-washing, drying and carding machines, processes of cotton, woollen, linen, etc., factories, besides a multitude of others, like petroleum and its lamps, night work, personal hazard, etc., are all ably treated from the insurance standpoint, and in very condensed style.

The volume, therefore, will prove useful to insurance agents, solicitors, inspectors and surveyors; and not only to them, but also to many others. The mechanic, chemist and manufacturer are by it taught the insurance jeopardy of their work or processes; what risks to avoid, and also how to improve their establishments, so as to be more acceptable to underwriters, and become insured at premiums considerably less than establishments carelessly conducted. The world-wide reputation of Mr. Harris as an insurance expert, and his fire experience through many years connection with the Phoenix Fire Office—one of the best English fire insurance companies—is a good recommendation to his work, which will be properly appreciated the more it is examined.

N.

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A CHART RELATIVE TO THE COMPOSITION, DIGESTIBILITY AND NUTRITIVE VALUE OF FOOD. Prepared by Prof. Henry A. Mott, Ph.D., LL.D., etc., etc.

This is a very compendious table, which would be more convenient for reference by the majority of those who use it were it not printed as a chart; though this method of presenting the facts has advantages for the organic chemist who is frequently engaged in the analysis of food stuffs, inasmuch as it enables him to suspend it on the wall of his laboratory. The first table exhibits Scammel's relative value of foods; the second, Lewes and Gilbert's composition of a hen's egg; the third, Fresenius' average composition of fruits; the fourth, Payen's composition of various kinds of cheese (and following it some analyses by Hornig and Voelcker of the same substance), warmth and strength derived from various articles of food and drink, percentage of nutrition in various articles of food, composition of various meats, composition of fish and shell-fish, composition of vegetables, composition of farinaceous foods, analysis of milk, ditto of products of the dairy, ditto of condensed milk, of American wines, composition of coffee, cocoa, and tea, standards for daily dietaries and for ordinary men doing moderate muscular work, etc., etc. It is a very convenient little chart for reference as well as a help to the scientific chemist.

F.

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INVOLUNTARY IDLENESS. An exposition of the discrepancy existing between the supply of and the demand for labor and its products. By Hugo Bilgram. J. B. Lippincott Company. 1889.

In this neatly-printed little book Mr. Bilgram seeks to show that the element which destroys the equal balance that should subsist between demand and supply is to be sought in the conditions which regulate the distribution of wealth. He dismisses the consideration of rent (one of the three divisions of wealth), on the ground that it is not able to throw light on the apparent surfeit of all kinds of raw materials. He points out the ambiguous use of the term "capital" and discusses the causes for paying interest.

His conclusion is that the expansion of the volume of money by extending the issue of credit money will prevent business stagnation and involuntary idleness.