

as well as the method of constructing stereoscopic diagrams to be used with it. To those anxious to lighten, so far as possible, the labour of the student, while increasing the efficiency of the teacher's efforts, Prof. Manchot's little book should afford suggestive reading.

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PREVENTION OF ACCIDENTS IN FACTORIES.

Infortuni sul lavoro. Mezzi Tecnici per Prevenirli.
By Ing. E. Magrini. Pp. xxxi+251. (Milano: Ulrico Hoepli, 1903.) Price L.3.

THE introduction opens with this apt quotation, "Le fabricant doit autre chose à ses ouvriers que le salaire." And the book purposes to teach the manufacturer how to pay the debt by providing all the protection possible against dangers attending the use of machinery.

The prevention of accidents is a subject to which much attention has been given in Italy, first by the "Associazione per prevenire gli infortuni sul lavoro," and finally by the Government, which completed its legislation in 1899 by the issue of a set of precautionary rules incumbent on all users of machinery. These rules form the framework of the book, each chapter having, as text, an extract from them, and describing in detail the appliances needed to give effect to the regulation in the various classes of machinery.

The first two chapters deal with prime movers, the means of fencing them and of stopping them, not merely by cutting off the motive power, but by applying brakes to the moving parts. Transmissions—shafts, belts, gears, &c.—form the subject of chapter iii., and share with circular saws (chapter v.) the distinction of causing more accidents than any other class of apparatus. A comparison of these two chapters is instructive. Of all protective devices, those for circular saws have called for most ingenuity and met with least success. The numerous coverings described are costly and complicated without being really effective, and they are devices which a workman would discard whenever possible. On the other hand the protections described in chapter iii. are simple, effective, and devoid of any hindrance in working, and call for more attention than they usually receive. Carding and spinning machines, emery wheels, ladders and protective clothing, spectacles, &c., are dealt with briefly, while elevators of all kinds and their safety appliances are discussed fully. In chapter vii. forty pages are devoted to the dangers of manœuvring with belts in motion. Much in this is of great value, many of the devices being as simple as they are effective.

Electrical machines, fires and boilers receive very inadequate treatment in the remaining twenty-five pages. The chapter on electrical machinery does not approach the standard of the rest of the book; it is far from complete, even on more important points, and contains many statements and recommendations that would find but little acceptance from engineers.

Speaking of the book as a whole, it tends rather towards a catalogue; more critical descriptions of the different devices would have been welcome, and this more especially in regard to two important points,

which are almost entirely overlooked. These are, firstly, that a device which does not afford complete protection often increases the danger; it lulls to a sense of false security. Secondly, that a protection which can be discarded by the workman is of far less value than one which he is forced to adopt. Most safety devices are of some hindrance in working, and experience shows that workmen take no interest in efforts made for their protection; they are merely annoyed at the inconvenience in their work.

These few criticisms are easily outweighed by the praise which the book well deserves. Nearly all the devices are illustrated as well as described, and in matters of detail the book gives numberless useful hints, and what may be termed dodges rather than appliances; a master, by following these, could avoid many dangers at little cost and trouble.

G. H. BAILLIE.

A NEW SWISS HANDBOOK.

Guide to Switzerland. Pp. cvi + 235; with 31 maps and 6 plans. (London: Macmillan and Co., Ltd., 1903.) Price 5s. net.

MODERN tourists, and in particular those who wander in companies, are prone to haunt certain familiar centres, Lucerne, Grindelwald, Zermatt, Chamonix, Pontresina, and to confine their excursions within narrow bounds. Messrs. Macmillan have designed a handbook to meet the needs of this class. In many respects the conception of the volume is good, but the execution is faulty and unequal. To deal first with its merits. The eulogy of the political institutions of the Swiss Republic, and the notes on the nature of glaciers, introduced among the preliminary chapters, ought to interest and inform the better class of sight-seers, while practical suggestions on health and outfit are useful to all. The separate hotel list will be found convenient for reference; houses frequented by our countrymen are distinguished by larger type, and prices are in many cases quoted. As a whole, the list seems to be compiled with care, but there are singular omissions; amongst them we have noted Binn, St. Beatenberg, Montana, Piora, Promontogno, Lanzo d'Intelvi, all well-known stopping places. At Binn, the text tells us, "refreshments can be procured, and if necessary beds obtained at the Curé's." The village has for years had a large hotel with an English chaplain attached. The inns on the tour of Mont Blanc, at Contamines, Nant Borrant, Chapieux, are mentioned in the route, but not in the list.

When we come to study in detail the guide-book proper, we find that the routes have been conveniently arranged round the centres to which they naturally attach themselves. The editors recommend their text as "concise and accurate." As to accuracy, we cannot endorse their estimate of their work. The section relating to Davos is well done, but that devoted to the Upper Engadine is meagre and untrustworthy. The new railway connecting Thusis and St. Moritz by the Schyn and Albula, opened to Celerina this year, ought to have been described. Promontogno, with its good hotel, the natural halting-place for travellers