

recognized technical journals, have gradually become, through a process of evolution, beginning with a general rehash of the author's preface, an unprejudiced and straightforward summary of the scope and fundamental features which a book may possess. Journals that devote space to them are cultivating the practice of careful criticism. The result is noticed in the discrimination on the part of the publisher in the matter of sending books to these journals for review. The publisher who desires to increase the sale of an unlikely book would rather have it left unreviewed than severely criticized; hence, the reader may safely increase his dependence upon the books which are reviewed in such journals, provided the review discloses an indication of the sort of information he is after.

The value of keeping up-to-date in technical reading cannot readily be overestimated. This is so widely recognized that little reference need be made to it here. There are books on roadwork that are out of date in many of their statements before they have been in print for five years, or even less. The growth of road literature as a result of new types and new methods is a fair example of the varying tendencies of general practice. In order to keep pace, therefore, with the new developments in the field of road-building it is necessary to be in touch with the best technical literature of the day on the subject.

Reverting to technical periodicals on roads a century ago, they were practically non-existent. Since then the inception of numerous local and national organizations, with their proceedings devoted to papers and discussions presented in their meetings, and the birth of scores or more of technical journals, also of thousands of trade publications issued by manufacturers, have more or less adequately responded to the need for the broadcasting of information.

Evidently there is the necessity for careful selection on the part of those having to do with this movement and its literature. No man can read by any means all of the information which is presented. Yet the old saying that "experience is the best teacher" was never truer in any line of industry, it being universally accepted, of course, that no man can ever expect to achieve success if he depends solely on his own experience for enlightenment. It is upon the experiences of others, as already stated, that he very largely depends, and in the record of such experiences lies the reason for the existence of the technical press. The technical journal benefits its readers by conveying to them first-hand the sort of information that is not yet to be found in the pages of treatises on the subject. It outlines methods of doing work that are newer and better than others. It describes the maiden efforts of machinery, tools, and processes recently devised. It thoroughly investigates the achievements of progress, and endeavors to present them in the most acceptable way for the general good of mankind. It is, therefore, an indomitable factor in the equipment of the man associated with the good roads movement.

The problem of culling from the growing mass of road literature that which he needs most is an important one for the road engineer. To illustrate its extent we may refer to the recently issued Good Roads Year Book for 1914 of the American Highways Association. It is found to contain a section devoted entirely to a summary of articles published in 1913 in the various journals devoted to the movement. It lists over 650 articles published in that year alone, besides innumerable bulletins, circulars, pamphlets and documents. Evidently there is plenty of material with which a man may equip himself, but a wise selection is a difficult matter.

Of course, the roadman is not alone on the problem. The publishers of this information are fully aware of it, recognize its importance, and are endeavoring to present the desired information in such a way that he can readily make practical use of it. The rest devolves upon himself, and in this age of specialization the problem is not without serious difficulties. The roadman is unwise if he limits the scope of his reading to that which satisfies his immediate needs, and them alone. A man interested therein is also interested in methods of surveying, drainage, construction of dams and bridges, mechanical operation of machinery, transportation of materials, use of cement and concrete, geology of rocks and clays, and the road laws of the country. Manifestly, there is no defining line between his work and that of men in numerous other phases of development. Therefore, if a road engineer is judicious and discreet he will read that literature which pertains to his own special work—and much more.

Finally, there is the important question of the preservation and filing of technical literature. This applies chiefly to periodicals. Once in a while the road man may be unable to peruse his journals as he would like owing to press of duties. He may glance over an article that promises to be of value to him, but is obliged to lay it aside for further consideration, and it may be misplaced or forgotten. The obvious solution lies in the method adopted by almost every up-to-date engineer in other lines of work—that of carefully examining the journal when it is received, and having all articles that have a bearing upon his work listed in a card index system. In a few years every phase of work with which he has to do will be well represented. If he has been wise he will have had his periodicals bound. He is then equipped with a library of information that is of the greatest value to him. He may, for instance, meet a problem which requires additional knowledge of sub-drainage. His card index immediately brings before him a summary of all the information on the subject that has been published by his journals since he began the system, and reference to the articles indicated places him in possession of the required data. They are not the opinions of one man, but of many. Moreover, they are not from an early edition of a volume that has since been succeeded by others which may not be in his possession. He has all the information of intervening years before him. His is not necessarily a voluminous and costly library, but one that is ready to serve him well in more ways than one. Besides acquainting him, on the publication of each issue, of the new methods and new machinery just sprung into use, and of road activities in other countries and in other sections of his own, his periodicals if used in a scientific manner, soon create a reference library for him of excellent quality that can be added to at small cost as years go on, the whole system thereby becoming more valuable.

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A principle which is applied by furnace foremen for judging the grade of matte and sometimes also in judging the furnace, is by the fracture of the small sample usually taken at the time of tapping. At the Old Dominion smelting works at Globe, Ariz., the components of the furnace charge are exceedingly variable and often result in abrupt changes in the running of the blast furnaces. Slag samples are taken by a small shallow ladle and are approximately the size and shape of the usual matte sample at most smelting works. The slag "buttons" from each furnace are arranged by the sampler in regular order in a small tray and the foreman judges by the microscopic characteristics of the fracture whether a furnace demands attention. It has been found that the old employees become excellent judges of the fractured slag sample and the system is a great convenience on the night shift.