matter on subject which has already, to him at least, been well digested. Let us see if we can outline how each of these classes can get more profit out of the matter contained in the engineering journals than do the careless or the indifferent, who, after their journal is once looked over, let it go to waste or idleness.

The young engineer and the college graduate need, most of all, practical experience. It is safe to say that engineering literature will never have any proper perspective for him until he has been connected in some capacity with engineering work himself, be it in ever so modest a capacity. With the actual doing of engineering work, however, should come contemporaneously the reading of technical journals, particularly along the lines in which he is working. Nothing can be more instructive, broadening, and enlightening to a man doing a particular kind of work than reading about similar work at the same time. It follows, therefore, that the young engineer should as early as possible, take at least one first-class engineering journal and own it himself; bind it if he can afford to, but lay it away in an orderly manner, in any event. If he can afford two journals so much the better, especially if they are selected so as to widen his outlook.

It is to be doubted if laborious reading of all kinds of engineering articles all the time is advisable for anyone. Mere quantity of reading is mentally detrimental. If one might advise, it would be to suggest enforced systematic reading of all articles particularly bearing on the line of work the reader is immediately engaged upon, and the optional reading only of such other articles as interest him. This ought not to be much of a task. In course of time as his experience broadens, engineering reading will become less burdensome and more interesting because its relation to practical matters will be more and more appreciated, and the discriminating use of engineering literature better understood. Of course, all this applies to engineering societies as well; but that is another story.

It is probably not wise for the young engineer to indulge extensively in card indexes, filing systems, and the like, for topically arranging his available engineering journal articles. Few men know very early in life where fate and interest will land their future attention, and filing systems and special indexes are expensive and time consuming, and when indulged in without definite aim nearly always quickly become too voluminous and thereby useless. If any suggestions are made along this line, it would be to start a loose leaf, letter-size (8½ x 11-in. page) notebook and note in it (separate pages for separate subjects) only what appears to be extremely useful, either in exceedingly brief abstracts from engineering articles, or diagrams, costs, etc.

The young engineer is tempted to read much about large enterprises—the Panama Canal, big bridges, astonishing tunnels, great dams. This does no harm, and probably holds his interest for the time being. Gradually he learns that, for him at least, the chief value of the technical journal does not lie in its dramatic side, necessary as that may be for our general information, interest and pleasure, but its chief value lies in a fund of small things, which make up routine work of the ordinary every-day job. These are to be watched for, and noted, as practically useful to the average man.

We next come to the man in early middle life, actively engaged in his profession, and note at once that his problem with the technical journal is the absence of "time." Absorbed in a multitude of responsibilities, harassed with unexpected difficulties, worn out at night with the long day of strain, how shall he derive any useful good from the multitude of journals which his more ample income can readily afford, but which pile high on his table after every brief absence from the office? Whether or not such an engineer shall make any effort to systematically assimilate, file, and study current technical journals depends in part upon the nature of his routine. If he is largely engaged in administrative work, or is a salaried officer in a large enterprise with a comparatively limited range of problem or a limited call for miscellaneous data, he may generally be content with a cursory examination of the engineering journal such as will keep him qualified on his undertaking, and the preservation of such journals in bound form, with the standard published indexes. If, however, he is entering upon novel work, or work presenting a great variety of problems, overlapping into a great variety of fields, ambition will compel him to do more than this, and some form of special indexing will appeal to him more or less strongly as he feels the need more often for research in up-to-date material.

The average editor can judge of a technical article with only a brief inspection—a sentence here and there, a headline, and a moment's reading of the summary and conclusion. Long familiarity with matter of a similar character gives him the assurance that he can detect in this rapid review anything novel, new, or original, and can fairly pass judgment upon it in a general way. The working engineer who has had some experience with technical literature can form the same habit, and save much time. It is really wonderful how much repetition there is in engineering writing and in the production of engineering papers. It thus happens that we are under the necessity of seeing much the same facts and principles repeatedly published in varying form, for some one is always attracted to really read them, with consequent benefit to himself, under the belief that they are new and novel.

The mature engineer notes that a large amount of engineering literature is of the purely descriptive order, merely giving outline of work that has been accomplished, without going into reasons or principles. All this kind of writing is valuable and useful, and has its proper place, but all of this class of literature has its limitations. One of the most severe of its limitations is that it rarely describes mistakes, errors of judgment, or failures, and in these lie the most valuable lessons to the seeker after truth. One is obliged to read between the lines or read with reservation, much as one does in reading accounts of battles in the daily press. It is always wise to look back and note the origin of the despatches in such cases.

A tremendous lot of engineering literature is written which is of little permanent value. Often it represents the writer's struggles to understand a subject. Often it is compiled largely from a desire for publicity. Fortunately the editors of the technical papers can limit this kind of reading by care in selection.

But amid all these drawbacks a discriminating mind will always find a great deal of wheat amid the chaff, and the wheat that will be gleaned will be of differing kind and amount, depending upon the type of mind of the reader, his present problem, and his desire to systematize his information. What, therefore, shall he do with his special selection when once he thinks he has separated it from the flood of raw material?

Several courses are open to him:

First, he may rely on his memory and the published index to his bound volumes. It is safe to say, however, that few engineers really make much practical use of this method. The intervening index and the bother of a search prove to be discouraging to that degree that a proposed reference search is abandoned in about one-half the sug-