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JAMES J. SALMOND
President and General Manager

ALBERT E. JENNINGS
Assistant General Manager

HEAD OFFICE: 62 CHURCH STREET, TORONTO, ONT.
Telephone, Main 7404. Cable Address, "Engineer, Toronto."

Western Canada Office: 1206 McArthur Bldg., Winnipeg. G. W. GOODALL, Mgr.

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"BULKING" EFFECT OF SAND

IT is an encouraging fact that the importance of the selection of materials and the improvement of the field conditions attending the proportioning, mixing, placing, seasoning, etc., of concrete are receiving greater attention than formerly. Broadly speaking, it may truly be said that the progress made within the past few years is mainly due to the untiring efforts of comparatively few investigators. Nevertheless, a knowledge of the physical properties of the materials entering into concrete mixtures is of vital importance to all engineers and superintendents who have to do with the construction and the maintenance of structures composed entirely, or in part, of concrete, since the economy, efficiency and permanence of these structures depend to a marked degree upon a practical application of this knowledge.

Attention is called to an article in this issue in which the "bulking" effect of the moisture in sand is discussed and its relation to the quantities of sand aggregate entering into concrete mixtures is pointed out. In view of the dearth of information in engineering literature relating to this physical effect of the moisture contained in sands and the fact that this source of irregularity in the strength and other physical properties of concrete has not been recognized in engineering specifications, it seems reasonable to assume that Capt. Edwards' investigations are more complete than any hitherto made.

The photomicrographs reproduced in this article show the remarkable change effected in the physical structure of the cement matrix by the inclusion of excessive quantities of water in the concrete mixture. Doubtless this change of structure is the primary cause contributing to low strength, friability, shortness and other undesirable properties in concrete to which failures are due.

PRESERVING TECHNICAL PUBLICATIONS

MOST engineers have been at sometime or other impressed with the advisability of having technical information on hand and ready for any emergency. Accurate information is as essential to the success of the engineer as a compass to the navigator. The value to an engineer of a library of technical information will be apparent to all, and there is much to be said in favor of the establishing of such a library by the individual or the organization of which he forms a part.

Through the medium of printer's ink, one is put in possession of knowledge of what others are doing and how. No one knows it all. Engineers, like men engaged in other professions, must depend to some extent upon the knowledge which can be brought to them through the medium of the printed word.

With the close of the half year or the year, as the case may be, technical publications complete their volumes and it is a wise practice for engineers to bind them for preservation and facility of reference when occasion requires. This practice of preserving copies for the purpose of having them bound at the end of the half year or year, as the case may be, is one which should be encouraged and its importance emphasized.

This office very frequently receives requests for back copies to complete volumes and it is a matter of great regret that occasionally these requests cannot be complied with owing to the particular issue desired being out of print. The result is that the volume is either left unbound or bound in an incomplete state. The wisdom of having a place for each copy of the paper and of keeping it in its place is therefore evident.

A word as to the practice of clipping articles from journals for purposes of filing. While this plan may save space on the book shelf and articles on like subjects may be kept in a single file, it often means waste of time besides destroying the value of the copy itself. One cannot foretell what articles are thereby destroyed as a result of this mutilation or whether they will be of equal or greater value at some time than those that have been actually preserved. One's range of interest is apt to expand or change very materially as time goes on.

Taking it for granted, however, that engineering journals are not to be read like a newspaper and then carelessly thrown aside, there are several points to be kept in mind:—When each copy arrives, look it over carefully; examine the index page; then place the copy with the previous issues, returning it whenever taken from its place. When July first or January first comes round call in the bookbinder.

GOVERNMENT FINANCING OF INDUSTRY

THE British Columbia government, in addition to establishing a provincial department of industry, plans also to furnish funds through that department. The "department of Industries Act," recently drawn up, provides that the minister may, upon the recommendation of an advisory council, give financial assistance to any person, partnership, association or company, by way of loan, guarantee, or guarantee of securities, for the purpose of aiding and developing industries and manufactures, or to establish, maintain and operate such industries. Before granting any loan or guarantee, however, the minister of industries and the advisory council have to be satisfied as to the following points:—

- 1 The value of the security offered, estimated on the basis of productiveness.
- 2 The desirability of the proposed loan or guarantee for any of the purposes of the act.
- 3 The ability of the applicant to make a fair profit from his enterprise.
- 4 The solvency and the capacity and moral hazard of the applicant, and his earning powers.
- 5 That the granting of the proposed loan will be of economic benefit to the province.