Editorial comment

WE MAKE NO APOLOGIES for springing on our readers without notice a major change in the appearance of the *Magazine of Concrete Research*. The multiplicity of sizes of books and periodicals is a perpetual source of concern to librarians (at the user's end) and to paper manufacturers and printers (at the producer's end), although many readers may be surprised to learn that on the Continent standard paper sizes have been in use for about thirty years. The British Standards Institution has been actively supporting an International Standards Organization Committee concerned with this problem, and a series of sizes has been agreed internationally. This agreement is not backed by any compulsory measures, but it is hoped that those concerned with publishing will gradually change over to the recommended sizes. The British Standards Institution has already adopted the sizes for its own publications, and several other leading organizations have announced their intention of doing so.

The end of the tenth volume of the *Magazine of Concrete Research* was felt to be an appropriate stage at which to reconsider the whole appearance of the *Magazine*, and the most serious criticism which had been made seemed to be the small size of the type used; apparently some readers had difficulty in reading the *Magazine* in the train. Accordingly the decision was taken to increase the page size to the A4 size (210×297 mm or 8·3×11·7 in.) and to increase the size of the type used for the text matter from 8 to 10 point (Times New Roman). At the same time, we appear in a new cover.

Investigations on the shear strength of reinforced concrete beams have been largely confined to studies of rectangular sections, but results of these have been applied to the design of other sections, including T beams. Tests in the Department of Civil and Municipal Engineering, at University College, London, have shown, however, that the mode of shear failure of T beams is somewhat different. An analysis is at present being made of the results of these tests to assess the effect of this upon the design of T beams.

The Code of Practice uses a method of calculating the shear strength of beams which is based on a tensile stress derived from the cube crushing strength of the concrete. It is considered that the modulus of rupture or the tensile strength would form a more satisfactory basis for estimating shear strength.

Lightweight concrete has the advantage that it can be made sufficiently strong for structural purposes with only three-quarters of the density of ordinary concrete. Another current piece of research at University College is an investigation of other properties of light-weight concrete. It has been found to have lower values of Young's modulus and higher values of Poisson's ratio than ordinary concrete. These might be important considerations where high flexibility is concerned, as in road slabs.

The workability of ordinary concrete can be improved by entraining air. It is suggested that there is even greater advantage in doing this to lightweight concrete because, particularly with the leaner mixes, the particle shape of some of the aggregates tends to produce a harsh mix.

A long-term investigation on the problem of load distribution in bridges has been in progress for some years at the Cement and Concrete Association's Research Station. Two papers[1,2] on the theoretical treatment and experimental work on load distribution in slab bridges have already appeared.

Subsequent work on this subject has led to a simplified design procedure which can be used for slab bridges, provided that some standardization of their widths can be accepted. A booklet[3] on this simplified procedure is now available. In it, the two critical moments, the longitudinal and transverse moments, caused by the Ministry of Transport abnormal loading are expressed as a percentage of the Ministry of Transport standard loading and plotted as a function of the span for three specific widths corresponding to a two-, three- or four-lane bridge.

Tests have also been carried out on two box-section bridges, and they have shown that this form of construction is well suited to provide the optimum distribution characteristics in a bridge for a minimum amount of material. A Research Report[4] on these tests has been prepared which gives a comprehensive review of the results of the behaviour of the bridges both in the elastic and in the ultimate load ranges. This type of bridge is ideally suited to precasting, and two methods were employed in the two bridges tested to investigate construction techniques and the efficiency of jointing units. Both methods used were found to be satisfactory and details are given of recommendations derived from the tests which should be applicable to bridges of the same type. The method of analysis is given in detail with particular reference to the determination of the fundamental parameters which govern the distribution properties.

REFERENCES

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