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Editorial comment

THE PROBLEM of defining structural safety has been receiving very considerable attention, particularly since 1960, and the work of such bodies as the CEB, CIB, FIP, ASCE and CIRIA has reached an advanced stage. Following the publication of the CEB's recommendations in 1963, the safety commission of that body has been refining its treatment of structural safety with particular reference to its treatment in codes of practice for reinforced concrete and now, jointly with most of the bodies mentioned above, has put forward a unified treatment to the International Standards Organisation with a view to its being adopted internationally.

The draft Unified Code for the Use of Structural Concrete (which, as mentioned in *Magazine* No. 65, is shortly to be issued by the BSI for comment) has incorporated the essential concept of limit state design, which enables structural safety to be treated in a rational manner. Later this year, in September, the IABSE is holding a symposium in London with the title "On concepts of safety of structures and methods of design". This symposium is to cover the probabilistic concepts of safety, the variability of materials and loads, and methods of structural analysis and design which take account, in various ways, of the probability assessment of structural behaviour.

Further, it is relevant to report that the committee of CIRIA under the chairmanship of Professor Sir Alfred Pugsley is due to complete its report by this autumn. Thus it may be seen that there are considerable developments taking place which must, of necessity, impinge upon both the type and the nature of research on concrete.

It seems appropriate also to refer to two other happenings which, perhaps unfortunately, have not been looked at against the background of the above work; these are, of course, "Ronan Point" (and all that that now implies) and the issue for comment of the draft clauses on wind loading of CP3, Chapter V. The former became—and for that matter still is—a very emotional subject, and this has clouded the thinking on it and perhaps tended to protract rather than to shorten the reassessment of the structural safety requirements for large-panel structures. However, the action now being taken by the Institution of Structural Engineers, the Codes of Practice Committees and others, is helping to restore rationality and reason-

ableness to the situation. Perhaps as an aside, it is worth recording that Professor Pugsley, one of the leading authorities on structural safety, has written in his book on the subject "A profession that never has accidents is unlikely to be serving its country efficiently" !

The wind loading clauses have also stimulated much critical comment, largely owing to the fact that, although the wind loading has been rationalized on the basis of statistical data, the over-all problem of the necessary and adequate safety of the structure designed for the loading has not been dealt with, because this lies under the aegis of other codes of practice. Again it is essential that the whole design process must be re-defined to ensure that only if there is appropriate evidence of unreasonable risks do the structures designed for the newly defined loads have greater margins of safety than those designed for the loads previously defined. This sort of assessment can only be made in terms of acceptable probabilities against the attainment of certain limit states.

When the subject of structural safety and its treatment are more widely known, perhaps we may hope for more research directed towards giving the practical designer the necessary data about variability of materials within structures and their significance for structural behaviour, which will make possible a rational assessment of structural safety. Is it too much to hope that we may also have from Governmental authorities a clear and unequivocal statement of the socially acceptable risks for various types of structure, having regard to the needs of the nation, the resources of the construction industry and the fact that, even with infinite cost, a risk is still present?

Key to abbreviations

ASCE	American Society of Civil Engineers
BSI	British Standards Institution
CEB	Comité Européen du Béton
CIB	Conseil International du Bâtiment pour la Recherche, l'Etude et la Documentation
CIRIA	Construction Industry Research and Information Association
FIP	Fédération Internationale de la Précontrainte
IABSE	International Association for Bridge and Structural Engineering