

Book review

Concrete and soil-cement roads

by W. P. Andrews

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In the first sentence of his Introduction Colonel Andrews states that the many new developments in the art and science of road making have suggested the need for this book. Later he points out that so rapid have been some of the developments that methods and results of two years ago are already out of date and, in fact, the first draft of the book contained material which was almost obsolete before the final edition was made less than a year later. This very rapid rate of development during the last five years may well account for the fact that authoritative textbooks on road design and construction published in this country are very few. A contributory reason may be that the design and construction of roads is in the hands of a select band—local authority engineers, consulting engineers, and specialist contractors. The average civil and structural engineer is not often called upon to undertake road work so when he is it is understandable if he is at a loss over even the most elementary matters. Colonel Andrews's book will do much to assist both the expert and the uninitiated. It deals with concrete and cement-stabilized roads, the latter including soil-cement and lean concrete.

Colonel Andrews has considerable qualifications for his task because he was for many years in charge of the road activities of the Cement and Concrete Association and his experience of research and practice is unique.

The emphasis in the book under review is on concrete roads where the concrete itself forms the running surface. The sections on concrete, road design, reinforcement, and joints are all well worth reading, but the experienced engineer will probably be drawn to the chapters on mechanized construction and on

prestressed concrete roads. The author indicates that even with our limited experience of prestressed concrete roads, the costs are comparable with those of more conventional construction and the advantages, such as the possibility of constructing long lengths without joints, are considerable, particularly on subgrades which it is impossible to stabilize.

In the mechanized construction of concrete roads the most spectacular improvements have been in the riding quality of the running surface. The book deals with the methods which have been developed and points out that by using these techniques, which include articulated finishing machines and sawing, it is possible to obtain concrete roads whose qualities surpass anything obtained with any other type of construction.

Of particular assistance to the practising engineer will be the chapters on maintenance and repairs and on failures. The subject of air entrainment is dealt with, but perhaps rather sketchily, and the author, if he were writing today, would undoubtedly wish to expand this section in the light of what has been learnt from the recent very rapid increase in the use of neat salt for removing snow and ice from road surfaces. The chapter on manual construction is valuable because it covers a branch of the subject which has never been adequately dealt with before in a publication of this type. If its recommendations are fully implemented, complaints of poor quality concrete roads on, for example, housing estates will soon be a thing of the past.

The technique of soil-cement construction and the newer lean concrete is dealt with in some detail, although only one chapter has been devoted to the latter. This is because the process is essentially a simple one (which no doubt accounts for the present popularity of lean concrete).

Colonel Andrews writes in a characteristically interesting style which is easy to read and understand. The illustrations are clear and descriptive and form a collection which cannot be seen elsewhere without delving into large numbers of technical papers.