

pulverized-fuel ash, condensed silica fume and blast-furnace-slag cements which, together, warrant a 45-page chapter in the new edition. Similar comments can be made on the space given to admixtures, sulphate attack and hot weather concreting. Bearing in mind the similarity in length of the two texts it is apparent that Neville's coverage of certain topics must be greater than that of 'Fulton', e.g. hydration of Portland cement, frost attack. The number of appendices has been increased, though some readers may be disconcerted by the omission of the test to detect urine in concrete! (*Vide Concrete* 1986 review.) The style may suit the practitioner more than the theoretician, though he/she will find much of interest. Some par-

ameters used may initially be disconcerting e.g. cement/water ratio, cement 'sacks'.

In conclusion, this new edition is comprehensive, up-to-date (with the notable exception of recent British Standards) and is easily read. It is a most useful work of reference, in which task its subject index and contents lists are of exceptional assistance. It does have the disadvantage, as far as the UK market is concerned, that it is mainly concerned with South African conditions, but, notwithstanding this, it can be readily recommended for UK consumption.

B. MAYFIELD

Concrete technology

A. M. Neville and J. J. Brooks

Harlow, Longman Scientific and Technical and New York, John Wiley & Sons, Inc., 1987. 234 × 154 mm. pp. xiii, 438. Paperback. ISBN 0 582 98859 4, 0 470 20716 7 (USA only). Price £14.95.

New readers will imagine from the publication date that this is a new text in the materials field. Older heads, however, on opening the pages will find that, in reality, it may be aptly described as a "Phoenix rising from the ashes". Not that Neville's (and Pitman's) *Properties of Concrete* has lived for the fabled five hundred years, but it would appear that changes in publishing house affiliations may have resulted in its funeral pyre. It is understood, though, that the possibility of a fourth edition of *Properties* has not been dismissed and that the third edition will continue to be available. In any event *Concrete Technology* is primarily aimed at "British and American university, college and polytechnic (first and second year) students who wish to understand concrete for the purpose of using it in professional practice", as opposed to the wider ranging audience of its forbear.

The stated aim, probably together with the introduction of the second author, has resulted in certain changes in presentation and style. Most noticeably, there has been a reduction in the number of pages from 779 (*Properties*) to 438 (*Technology*). Some of the causes for this are self-evident:

The drastic diminution in the number of references per chapter. E.g. in the 'Testing' chapters, there are 130 in *Properties* and only 5 in *Technology*.

The number of figures has also been reduced; in the same two chapters, from 46 to 12. It is unfortunate that although some figures have been updated, many older examples have been retained. E.g. Fig. 6.16, which has an anomalous progression of aggregate/cement ratio values, was published in

1958 whereas the similar Fig. 5.19 in *Properties* was published in 1979.

Two chapters (117 pages) were previously devoted to cement, which now occupies one chapter (32 pages). Other topics have been similarly condensed.

The major innovation is the incorporation of Problems at the end of each chapter, except the first. These total some 540 and will no doubt be most welcome, not only to students but also to those much maligned souls who have to set the examination papers!

A very useful revision is the updating of the list of relevant American and British standards. Both lists are divided into four groups—cement, aggregates, admixtures and concrete—with revisions up to 1985 being included. The apparently never-ending, and expensive, saga of BS1881 is included up to Part 122: 1983.

There are twenty-one chapters, the first being a brief, seven-page look at the whole subject with each of the succeeding chapters 'footnoted' therein as each new topic is mentioned. This should be useful to the new reader. The final chapter, entitled 'An overview', is just that, and, at last, omits the somewhat contentious note with which *Properties* concludes.

That the authors have undertaken a considerable re-ordering and introduction of new material will be evident from the fact that *Properties* only contains ten chapters. The other nineteen in *Technology* are cement; normal aggregate; quality of water; fresh concrete; strength of concrete; mixing, handling, placing and compacting concrete; admixtures; temperature

problems in concreting; development of strength; other strength properties; elasticity and creep; deformation and cracking independent of load; permeability and durability; resistance to freezing and thawing; testing; compliance with specifications; lightweight concrete; mix design; special concretes. This greater sub-division makes for easier searching, which is also helped by the list of contents including sub-headings as a single line entry with their own page numbers. There are, in addition, eight pages of Index.

Considering the market at which it is aimed, the minimal mentions of pulverized-fuel ash, ground granulated blastfurnace slag, alkali-aggregate reaction and silica fume are understandable. There is also limited coverage of the Concrete Society Technical Reports on core testing (No. 11, 1976), non-structural cracks (No. 22, 1982) and the CIRIA report on early

age thermal problems (No. 91, 1981). Only the 'bones' remain of elasticity, shrinkage and creep.

The newly organized chapters on such topics as strength, site practice, admixtures, temperature problems, freezing and thawing, specification compliance and special concretes will be welcomed and easily assimilated by new devotees. The inclusion of the 1987 version of the HMSO *Design of normal concrete mixes* is a "feather in their cap".

As is to be expected from these authors, the whole is readable and informative at the level at which it is aimed. Older readers will find the reduced coverage, compared with *Properties*, somewhat galling and will hope for a fourth edition of that classic text. New students, however, will be unaware of the change and will probably be more happy with *Technology* than they have been with *Properties*.

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Cement-treated pavements

Materials, design and construction

R. I. T. Williams

London and New York, Elsevier Applied Science Publishers, 1986. 219 × 140 mm. Hardback. pp. xix, 746. ISBN 1 85166 018 6. Price £75.00.

This book contains 27 chapters, 746 pages and has over 550 references. It represents a major contribution on the subject of cement-treated pavements.

I found that the book made absorbing reading. Its value is enhanced by its clear type and presentation, together with the author's 'easy-to-read style'. I also liked the way in which most chapters give a balanced assessment of the available information on the particular subject, finishing with a conclusion in which the author gives concisely his own views. It has a most detailed index, running to 28 pages.

As the author states in the preface, this book was published prior to the publication of the sixth edition of the UK Department of Transport specification for road and bridge works. In some ways this is a pity; however, the author has managed successfully to refer where appropriate to the changes likely to be introduced.

The book's first chapter deals with 'the formative years', and traces the history of treating soils with cement in the UK and elsewhere. A minor criticism of this chapter might be that it does not sufficiently emphasize the role that geographical location has to play when cement treatment of materials is considered. For example there is little doubt that the ready availability of granular materials in some areas of the UK has economically ruled out the use of

cement-treated materials in sub-base and lower layers of construction up to the present time.

Three of the early chapters are devoted to background information on concrete roads, non-bound granular materials and bituminous materials. The comprehensive information in these chapters makes interesting reading. However, the record should be set straight on some points on concrete roads:

The change to reinforced construction of concrete roads (p. 69) was a result of changes in pavement design introduced in 1969 and was not due to the "ready availability of slipform pavers". These changes permitted the use of unreinforced construction for the first time in the UK as one of the alternative forms of construction for motorways and trunk roads. The number of joints and their spacing plays no part in a contractor's choice of paving plant (p. 70). Slipform pavers are very suited for the construction of reinforced as well as unreinforced pavements. Almost all concrete pavements in the UK are laid during the Summer period so the most common dowelled contraction joint does not have a bottom crack inducer as is shown in Fig. 3.7 viii.

Chapter 6 on the nature of cement-treated materials covers the approach in the new Department of Transport specification with the minor exception that no mention is made of CBM4. This is possibly the