

Introduction

Since the earth's crust contains a virtually inexhaustible supply of materials for making concrete, it may seem surprising that a group of eminent authorities were asked to produce a symposium and a volume on the use of marginal aggregates.

There are two principal considerations which make this volume pertinent. First, materials of desired quality for a given application may not exist where they are needed. In substantial regions, available materials have chemical or physical characteristics which make them unsuitable for many types of concrete exposures. Either a way must be found to use available materials or suitable aggregates must be hauled from distant sources. Second, the availability of aggregates in urban areas is in a serious state of decline. While cities are the principal generators of construction, the very act of construction has prevented the extension of aggregate sources by surrounding the traditional sources with urban development. Furthermore, in many areas restrictive zoning or environmental regulations have made it legally as well as practically impossible to extend aggregate deposits.

Closely related to the latter problem is the fact that cities, in addition to being the generators of construction, are also the chief generators of solid waste. It makes little sense to haul solid waste out of town while hauling aggregates into town if there is a possibility of processing some of the waste into usable aggregates. The papers in this volume, which originally were presented in a symposium session in Montreal, 13 June 1975, bring together the latest information on utilization of waste materials as well as new ways to deal with such traditional problems as alkali-aggregate reactions and D-cracking. Methods are discussed for overcoming the problems of chert, rocks with shale laminations, aggregates whose volume is moisture-sensitive, and poorly graded and shaped beach sand and reef shells. Finally, techniques for beneficiating borderline aggregates are discussed.

The volume should prove valuable to all those who find it necessary to build with less-than-ideal aggregates. The number of such people increases every year.

R. E. Philleo

Chief, Concrete Branch, Engineering Division, Directorate of Civil Works, Office, Chief of Engineers, Washington, D. C. 20314; Chairman, Committee C-9 on Concrete and Concrete Aggregates.