

# Introduction

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Three decades ago, petrography was almost an unknown word, except to geologists and a few others. The few others included some engineers and concrete technologists, generally working for several large governmental agencies, and research and development organizations involved with portland cement, concrete, aggregates, and admixtures for concrete. At that time, there was only a handful of petrographers, mostly working for the groups described above. Only one or two petrographers worked independently on a full-time basis.

The ASTM Descriptive Nomenclature for Constituents of Mineral Aggregates (C 294) and ASTM Practice for Petrographic Examination of Aggregates (C 295) were in their infancy. The ASTM Practice for Petrographic Examination of Hardened Concrete (C 856) was conceived years later. Petrographic methods and techniques came to be used more and more, and were found to be invaluable in servicing the concrete industry. Probably, the document that most helped develop the popularity of petrography was ASTM Standard Practice C 856. This document provides a basis for conducting a petrographic examination of concrete and allied materials.

The few petrographers already in the field worked hard and diligently and helped create the need for petrographic work by demonstrating its value. Petrography, in the concrete industry, had become a success largely due to their efforts. That success has created a large demand for petrographic work. Today, numerous petrographers are working in the concrete industry, but their experience varies greatly. All could use the helpful information in this Special Technical Publication in their work.

So, it was appropriate that the Symposium on Petrography Applied to Concrete and Concrete Aggregates, upon which this publication is based, was held during the annual 1989 meeting of ASTM Committee C-9 on Concrete and Concrete Aggregates, in St. Louis, MO. Also, it was an appropriate time for petrographers to relate proudly what they can accomplish and how they do it.

The symposium was well attended and well received; its contents are published in this volume, along with two additional papers. All the papers were carefully reviewed. The papers fall into the three broad categories into which the symposium sessions were divided:

(a) *Approaches, examinations, and specimen preparation of concrete and aggregates for petrographic studies*, chaired by David Stark, Construction Technologies Laboratories, Skokie, IL.

(b) *Petrographic examination of aggregate problems*, chaired by Dr. R. C. Mielenz, consultant, Gates Mills, OH.

(c) *Petrography applied to solving varieties of concrete problems*, chaired by Bernard Erlin, The Erlin Company, Latrobe, PA.

## 2 PETROGRAPHY APPLIED TO CONCRETE

This Special Technical Publication provides updated information for those interested in what has been done and can be done, so they may become better at the petrographic services they provide.

The ASTM sponsoring committee, Committee C-9 on Concrete and Concrete Aggregates, and its subcommittee C09.02.06 on Petrography of Concrete and Concrete Aggregates hope that this publication will be helpful both to those who conduct petrographic investigations and to those who use petrographic information to fulfill their analytical needs.

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