

The Engineering Geologist



**THE
GEOLOGICAL SOCIETY
OF AMERICA**

3300 Penrose Place • Boulder, Colorado 80301

THE QUARTERLY NEWSLETTER OF THE ENGINEERING GEOLOGY DIVISION OF THE GEOLOGICAL SOCIETY OF AMERICA

Volume 9 Number 3

October 1974

Engineering and environmental sessions at national meeting

Tuesday, November 19: Engineering Geology Division Symposium: Preservation of Stone

Musketeer Room, Deauville Hotel, 0815 hours

Erhard M. Winkler and Gerald A. Sleater, Presiding

The Basis for Stone Preservation: A Geologist's View

The Physical Chemistry of Stone Preservation

A Laboratory Evaluation of "Stone Preservatives"

Certain Epoxies, Silicones, and Vinyls as Stone
Preservatives

Properties of Laser-Cleaned Carrara Marble Surfaces

Restoration and Preservation of the Casa Grande

Recent Advances of Stone Conservation In Germany

Restoration of Borobudur Temple, Indonesia: Preservation

Measures for the Stone Work in a Tropical Humid
Climate

From the Chairman . . .

We are instructed by some that "environmental geology" and "engineering geology" are synonymous. Others assure us that environmental geology is engineering geology with conscience and foresight. The *AGI Glossary* focuses its definition of environmental geology on problems created by and for man, including engineering geology as one of several constituents. There are also those who acknowledge some difference between environmental and engineering geology, but advocate use of the former as the preferred synonym in order to be more stylish and improve grantsmanship.

Geology is what geologists do. What is important is the quality of the activity, not the name we use to pigeonhole it. Legal or professional considerations might properly favor one term in a particular situation, but otherwise the terminology per se is not really important. "Urban geology" is also better thought of as the activities of competent geologists in a particular context than as a specialized body of knowledge dispensed by a chosen few.

I am not deprecating the value of detailed experience in problem-solving or of special competencies, nor am I railing against the use of definitions. I *am* critical of what has seemed to be a growing preoccupation with labels when we should be occupying ourselves fully with good work.

'Nuff said!

Tuesday, November 19: Engineering Geology: Faults and Landslides

Musketeer Room, Deauville Hotel, 1330 hours

Robert E. Boyer and Howard J. Pincus, Presiding

The Direct Use of Pedogenic Soils to Date Fault
Movement

Dating of Fault Movements—The Approach at North
Anna

The Rusk, Texas, "Earthquake" of January 8, 1891

Active Faults in Managua, Nicaragua

Open Fissures Associated with Subsidence and Active
Faulting in the Houston Area, Texas

Historic Surface Deformation near Oildale, California

Tectonic Evolution of the Gulf Coast: Relation to Nuclear
Power Plant Site Selection and Design Criteria

Dwelling Setbacks from Faults: The Sierra Madre-Cuca-
monga and San Jacinto Faults in Southern California

Seismic Safety Element Geologic Studies, City of Los
Angeles as a Model

Geologic and Man-Generated Factors of Urban Landslides,
Pittsburgh Region, Pennsylvania

Multiple Landsliding—Interstate 45 at Centerville, Texas

Regional Evaluation of Landslide Hazard—A Semi-Quantitative Method

ERTS Imagery Analysis—An Aid for Predicting Land-
slide-Prone Areas for Highway Construction

Wednesday, November 20: Environmental Geology: Spoils and Geochemistry

Silver Chimes East Room, Carillon Hotel, 1330 hours

A. G. Everett and Ernst Bolter, Presiding

The Unnatural Shoreline of San Francisco Bay

Dredge Spoil Evaluation Studies in Corpus Christi Bay,
Texas

Wind Wave Alteration of Spoil Islands - Laguna Madre,
Texas

Possible Beneficial Effect of Dredge Spoil Disposal in Lake
Superior

Engineering Stability in the Future Spoil and Waste Piles
of the Western United States

Quantification of Land Disturbance from Oil Shale
Development and Resulting Impacts on the Upper Colo-
rado River Basin

Mercury in the Dayton, Ohio, Area

Geochemical Patterns, Front Range Urban Corridor, Colo-
rado, and Possible Technological Influences

(continued on page 2)

Preliminary fault and geologic map of California

A map of California showing the active faults in the state has been released by the California Division of Mines and Geology. "The map contains the most up-to-date information available on fault-associated ground breakage," said James E. Slosson, State Geologist.

Compilation of the map, under the direction of Charles W. Jennings, has taken several years. Publication of this preliminary map was expedited, according to Slosson, so that local governments in California could use the map in preparing the Seismic Safety Element of their General Plans. State law requires that the Seismic Safety Element have been completed by September 1974.

Faults shown on the map are classified according to knowledge of the recency of movement along the faults. "Land use planners, engineers, developers, real estate brokers, and others can use such information in assessing the possibility of future fault activity and ground rupture in various parts of the state," said Slosson.

Slosson stated that geologic units are also shown, but "they may be difficult to read on this preliminary uncolored map." The Division plans to print a final fault map in 1975, and the geologic map in 1976.

Preliminary Report 13, Preliminary fault and geologic map of California, is printed on two sheets at a scale of 1:750,000. It is available for \$5 plus tax over-the-counter at CDMG district offices in Los Angeles, Sacramento, and San Francisco, or by mail from California Division of Mines and Geology, P.O. Box 2980, Sacramento, California 95812.

Cities and Geology

[This book review, "Cities and Geology," by Richard E. Gray, is reprinted from *Civil Engineering*, October 1973, pages 106 and 108.]

Dr. Robert F. Legget has combined an interest in the history of geotechnology, an extensive knowledge of geology and engineering, and a concern for the future into an excellent book showing the significance of geology in city planning. The author of *Geology and Engineering*, in his latest work, applies experience from a distinguished career in the heavy construction industry, as an educator and as Director of Building Research of the National Research Council of Canada for 22 years, to develop an interesting and informative book. *Cities and Geology* contains numerous examples, from throughout the world, which emphasize the effects of geology on urban growth and its significance in solving the difficulties generated by the rapid expansion of our urban centers. Considering the tremendous growth of cities in the last few decades, the book is timely in emphasizing the need for geotechnical data in urban planning.

Chapter 1 summarizes the phenomenal growth of cities. It has been said that one million acres are being paved yearly in the United States. Dr. Legget shows that this is an understatement and indicates that by the year 2000, the amount of new land in the United States that will be used for the growth of cities will equal the total area of England, Wales, Scotland, and Czechoslovakia combined.

(continued on page 3)

Work standards proposed

James R. Dunn recently proposed that a set of work standards for the field of engineering geology be formulated. He suggests that this could be done as a cooperative effort through AIPG, AEG, THE Joint Committee of ASCE, and the Engineering Geology Division of GSA. A comprehensive list of subjects, with the best authors and reviewers, is being considered. The following tentative list is proposed:

- * Use of engineering geology in power plant siting
- * Use of geology in open space planning
- * Logging of rock cores for engineering purposes
- * Slope stability and slope analysis
- * Siting of sanitary land fills
- * Evaluation of spray sewage disposal sites
- * Directory of commercial laboratories
- * Geologic input to mined-land reclamation projects
- * Engineering geology in land-use planning
- * The use of geophysics in testing dam sites
- * Mapping standards for engineering geology

If you have comments or suggestions, please send them to James R. Dunn, Dunn Geoscience Corporation, Box 158, Averill Park, New York 12018.

National meeting sessions (continued)

Establishing Environmental Baselines—Trace-Element Variation in Sagebrush and the Associated Soil and Parent Material, Powder River Basin, Montana - Wyoming
Addition of Heavy Metals to the Soils of the "New Lead Belt" of Southeast Missouri
Trace Metal Accumulation in Recent Sediments off Southern California
Trace Metal Mode of Occurrence in Stream Sediments
Formation of Organic Floccules in the Satilla Estuary
Mineralogy Geochemistry and Fate of Cumingtonite in Lake Superior

THE ENGINEERING GEOLOGIST

Editor — Mary E. Horne
134 Crescent Avenue, Buffalo, New York 14214

DIVISION OFFICERS — 1974

Chairman Howard J. Pincus
University of Wisconsin, Milwaukee, Wisconsin 53201
Chairman-Elect Paul L. Hilpman
State Geological Survey, Lawrence, Kansas 66044
Management Board Representative David J. Varnes
USGS, Denver Federal Center, Denver, Colorado 80225
Secretary Richard W. Galster
18233—13, N.W., Seattle, Washington 98177
Past-Chairman Gordon W. Prescott
507 Heritage Lane, N.W., Vienna, Virginia 22180

THE ENGINEERING GEOLOGIST is issued by The Geological Society of America, Engineering Geology Division, 3300 Penrose Place, Boulder, Colorado 80301.

PLEASE NOTE . . .

. . . change of editor's mailing address to 134 Crescent Avenue, Buffalo, New York 14214. Mary left GAI in June to begin independent consulting, primarily in Pennsylvania and New York.

EGRL revision

The Engineering Geology Reference List (1955) needs updating.

The reference list committee of the Engineering Geology Division recommends that an addendum be made to this GSA publication rather than its complete revision. We want to include those references from around 1965 to the present, but will not exclude those deemed significant prior to that. The committee can't do a good job without the help of division members. Therefore, we request that every member submit two or more *outstanding* references that he or she feels represent a breakthrough in techniques or interpretation, a solid review of engineering geology practice, or a case history that emphasizes a new approach to a problem. This may be either a comprehensive bibliography, a new book, special reports by state or federal agencies, journal articles, or special publications. Include with the references an address where they can be obtained. The references also should be accessible to our members. We would also like your ideas for new categories not listed in the original reference list. Please take a few minutes to fill out the form at the bottom of the page and mail it to me:

Lynn A. Brown
Woodward-Thorfinnson Associates
2909 West 7th Avenue
Denver, Colorado 80204

Cities and Geology (continued)

Chapter 2 presents a historical review of the manner in which geological features have influenced the development of cities. Some mistakes of the past in siting of cities are also noted with the hope that these same mistakes will not be repeated in the future. Chapter 3 discusses urban planning and indicates how planning for the development of new communities must take into account the dynamic nature of the earth's surface so that the works of man may fit as harmoniously as possible into the environment. Examples of geological planning maps from around the world are included.

Chapters 4 through 7 deal with hydrogeology, foundations, excavations and tunnels, and construction materials for cities. In each of these chapters, examples are given of the influence of geology upon the specific aspect of urban development being considered. Chapter 7 also includes a discussion of waste disposal. Several examples of utilizing excavated materials, which are normally treated as waste, for construction of other projects are presented. With the current attention to the recycling of materials, it is interesting to note that the Romans often used crushed tile and stone from their demolition projects as aggregate. Chapter 8 considers the geological hazards that can be avoided if subsurface conditions are properly examined and considered at the planning stage. The concluding chapter suggests what cities can do to ensure that information on geological conditions is collected and utilized.

Cities and Geology is printed in easily read type with many good photographs and illustrations. The book is suitable for courses in urban or environmental geology, environmental studies, and city planning. This book is not written for geotechnical engineers, but for *all* engineers, architects, city planners, and public officials who are interested in developing a better urban environment.

By Robert F. Legget, McGraw-Hill Book Co. Inc., 1221 Ave. of the Americas, New York, N. Y. 1973.

Reviewed by Richard E. Gray, General Analytics, Inc., Pittsburgh, Monroeville, Pa.

Reference and category _____

New category _____

Reference and category _____

New category _____

Comments _____

Reference and category _____

Reference and category _____

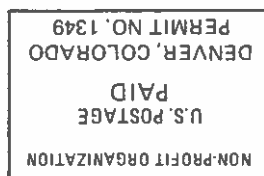
World Open University

World Open University, a nonprofit, nonresident graduate school, has recently opened its Geotechnical Engineering program, both for continuing education and for advanced degrees. Graduate course offerings include (1) soil engineering, (2) advanced soil mechanics, (3) geomechanics, (4) foundations, (5) stability of soil and rock slopes, (6) design and installation of prestressed concrete piling, (7) drilled pier foundations, (8) embankment dams, (9) design and construction of open caisson foundations,

(10) tunneling and underground construction, (11) geological engineering, (12) quantitative regional ground water hydrology, (13) analysis and application of aquifer performance tests, and (14) exploration geophysics.

These courses are given by S. T. Li, J. E. Russell, J. V. Hamel, Z. Spiegel, L. Creveling, and others. More information may be requested from the executive offices of World Open University, Rose Building, Suite 107, 607 Mt. Rushmore Road, Rapid City, South Dakota 57701.

THIRD CLASS



3300 Penrose Place • Boulder, Colorado 80301

THE
GEOLOGICAL SOCIETY
OF AMERICA

