The Engineering Geologist

THE GEOLOGICAL SOCIETY OF AMERICA

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

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NIAGARA FALLS DISCUSSED AT NORTH-EASTERN SECTION MEETING

At the Northeastern Section Meeting, engineering geology was limited to two papers in the symposium, "Niagara Falls: Past, Present and Future". Thomas A. Wilkinson discussed the history of rock falls at the American Falls and the engineering geology and rock mechanics studies recently conducted to evaluate conditions and design corrective measures. Shailer S. Philbrick, in a paper entitled "What Future for the Falls", indicated that Lyell in 1841 had predicted that it would take approximately 30,000 years for the Falls to retreat sufficiently to drain Lake Erie. The present shape of the Horseshoe Falls is relatively stable compared to past notched type configurations. Rock bursts associated with the notched configuration of the Falls may have occurred in the past. Dr. Philbrick used the history, stress concentrations, lithology, structure, and hydraulics of the Niagara River to predict the future shape and locations of the Falls. He concluded that, in the short term, recession will not be permitted because of the need for water power and tourism and, in the long term, another period of glaciation may occur prior to erosion of the Falls back to Lake Erie.

SYMPOSIUM HELD AT IDAHO

The Tenth Annual Symposium on Engineering Geology and Soils Engineering was held at the University of Idaho, April 5–7, 1972. Twenty-six papers were presented at ten technical sessions, sponsored by the Idaho Department of Highways, the University of Idaho, and Idaho State University. This series of symposia has brought together federal, state, university, industrial, and consultant people from all over the country.

This year's symposium included papers on geological hazards, land use, geophysical exploration, sanitary landfills, hydraulic fills and compaction, highway planning, mine-tailings ponds, rock mechanics, earthquakes and seismic risk, slope and embarkment failure earthquakes and seismic risk, slope and embankment failure, drilling and sampling techniques, and ground water as a nonrenewable resource. Some 120 people enjoyed the banquet speech of Andy Spieker of the USGS, who described the USGS-HUD environmental project of the San Francisco Bay region with all of its problems and opportunities.

Copies of the Proceedings can be obtained, in a price range of $5 to $10, from Professor George A. Williams, Chairman of the Department of Geology, University of Idaho, Moscow, Idaho 83843.

Message From The Chairman

It is a privilege to serve you as Chairman of the Engineering Geology Division for 1972. In order to accomplish the tasks which must be done, I was fortunate to have worked with the three most recent Chairmen, W. Harold Stuart, H. Garland Hershey, and Howard A. Coombs. I have learned much from them and want to thank them for their help. We have a very able group of men on the Management Board. They are: Chairman-elect Gordon W. Prescott, Secretary Emergy T. Cleaves, Management Board Representative Howard J. Pincus, and Past-Chairman Howard A. Coombs.

This year is the 25th Anniversary of the Engineering Geology Division. The population of the United States is now projected to reach about three hundred million by the end of the century, and in that time there will be more structures built than have been constructed in all of our past. Also, as most of the better sites have been utilized, problems in foundation engineering, slope stability, and related areas will be greatly increased. In addition, many engineering geologists are now and will in the future be involved in land use and resource planning. Thus the future of our profession appears secure and interesting.

The membership of the Engineering Geology Division is approximately 1,000. About 50 members are active at a given time; representatives, on publications, planning programs, etc. The Management Board would like any interested member of the Division who wants to become more active in Division affairs to write the Secretary, Emery Cleaves.

For example, you may wish to furnish short news articles for inclusion in *The Engineering Geologist*, attend our annual meeting, present papers, participate in section meetings, and contribute to the GSA Bulletin. In another portion of this newsletter you will find a list of officers, committee members, and committee and liaison representatives. If any of you have ideas that may be helpful to any of these individuals, I urge you to present your suggestions to them.

In addition, Lynn Brown, who is Chairman of the committee updating the Engineering Geology Reference List, needs help and I'm sure would appreciate hearing from you. With the availability of space in the Bulletin for technical notes and discussions with a minimum of review and editing, and the use of *The Engineering Geologist* for newsletter type articles, we should materially improve our communication of engineering geology information.

Your participation in Division activities will profit all of us and each member will derive satisfaction in proportion to his involvement. I welcome any suggestions that you think will improve and benefit our Division.

RICHARD E. GRAY
Chairman

COMMITTEE APPOINTED TO STIMULATE TUNNELING TECHNOLOGY DEVELOPMENT

Twenty-four U.S. scientists and engineers recognized for their knowledge of tunneling engineering and relevant sciences have been appointed to a new committee to serve as a focal point for underground construction technology development.

The committee, under the auspices of the National Academy of Sciences and National Academy of Engineering, will operate within the National Research Council's Divisions of Engineering and of Earth Sciences. The NRC serves as the operating agency for both the NAS and NAE. The committee was established at the request of Edward E. David, Jr., the President's Science Advisor, on the recommendation of the Federal Interagency Committee on Excavation Technology.

The 24 voting members include 18 individual memberships–six each from government, industry, and academic or research organizations–and one member from each of six societies or agencies. These are: Inter-Agency Committee on Excavation Technology, ASCE, AIME, GSA, AEG, and AGC. The Executive Committee will consist of the six society representatives and the three officers. This will give GSA a direct voice in guiding the committee. Howard J. Pincus, the GSA representative on the Executive Committee, is the Chairman-Elect nominee of the Engineering Geology Division for 1973. Don U. Deere, Chairman of the Committee, is also a member of the Engineering Geology Division. Other members of the Engineering Geology Division on the Committee are: John W. Handin, Richard J. Proctor, Lloyd B. Underwood, and Richard E. Gray.

Today's tunneling technology is still in its infancy, although the art of tunneling has been practiced since the Stone Age, often with ingenious methods for softening rock, such as firesetting. Successful tunnel boring machines have operated only since 1953. Recent research suggests, however, that integrated mechanized systems for excavating, lining, and handling materials in a continuous tunnel operation are both feasible and practical. In addition, novel rock breaking with such tools as water cannons, laser cutters, plasma jets, and controlled explosive shields–or combinations of some of these techniques with mechanical cutters–are likely to revolutionize underground excavation systems. These improvements in tunneling technology are particularly important in recovering earth resources and in helping to develop populated areas in a more rational and economical manner through the use of underground structures and facilities for such things as transportation, waste collection, and water and power distribution.

Four years ago, a National Academy of Sciences–National Academy of Engineering committee recommended that a group be formed to encourage and assist industry to use research results in tunneling technology. Then in 1970 the Organization for Economic Cooperation and Development (OECD) recommended at the conclusion of an International Advisory Conference on Tunneling that member countries designate an organization within each country to serve as a focal point for coordinating the assessment of tunneling activity and stimulating improvements. Twelve OECD countries have responded to this recommendation and have formed "focal point" organizations such as this new U.S. National Committee. Several other countries are expected to take similar action.

DIVISION BYLAWS BEING REVISED

The Bylaws of the Engineering Geology Division were last amended in 1964. For the past few years, the Division's Long Range Planning Committee and particularly its Past Chairman, W. Harold Stuart, have been updating the Bylaws to better reflect current practice in the Division and GSA. Revisions to the Bylaws require: (1) approval of the Division's Management Board, (2) approval of the GSA Council, and (3) approval of the Division affiliates by ballot.

Significant changes involve recognition of student associates (of which there are over 600 in GSA), and deleting the limitation of committee chairmanship to Fellows, since a change in GSA rules giving Members all the rights and privileges that were formerly restricted to Fellows is an anticipated action of the GSA Council this November. The proposed changes are now under examination by the Division's Management Board and will be submitted to the GSA Council for approval in November. It is anticipated that the revised Bylaws will be submitted to the Division membership for balloting early in 1973.

ENGINEERING GEOLOGY CASE HISTORY #9

Geological Factors in Rapid Excavation, edited by Howard J. Pincus, is in production at GSA and should be available by the end of the year. The papers in this publication were presented at the GSA Symposium on Rapid Excavation held at the 1971 Annual Meeting.

1973 NOMINATIONS

The following slate of officers for 1973, presented by the Nominating Committee and approved by the Engineering Geology Division's Management Board, has been submitted to GSA Headquarters:

Chairman-Elect	–	Howard Pincus
Management Board Representative	–	Paul Hilpman
Secretary	–	Emery Cleaves

ECKEL RECEIVES BURWELL AWARD

Edwin B. Eckel of Denver, Colorado, was the recipient of the E. B. Burwell, Jr., Memorial Award for 1971 for his paper, "The Alaska Earthquake, March 27, 1964, Lessons and Conclusions", published as U.S. Geological Survey Professional Paper 546, 1970.

JOINT COMMITTEE ON ENGINEERING GEOLOGY

Harry F. Ferguson has been reappointed by the GSA Council to a three-year term until June 30, 1975, as one of two Engineering Geology Division representatives on the GSA–ASCE Joint Committee on Engineering Geology. Harry is District Geologist and Acting Chief of the Foundations and Materials Branch of the Pittsburgh District Corps of Engineers.

Paul L. Hilpman, Chief of the Environmental Geology Section of the Kansas Geological Survey, is the Division's other representative on the committee. His term runs until June 30, 1973.

HIGHWAY GEOLOGY SYMPOSIUM IN 1973

A "Highway Geology Symposium" has been scheduled for May 24–25, 1973, in Sheridan, Wyoming. For information, contact W. F. Sherman, Chief Engineering Geologist, Wyoming Highway Department, P. O. Box 1708, Cheyenne, Wyoming 82001

ENGINEERING GEOLOGY DIVISION VETERANS

Robert F. Legget would like to know how many of the original members of the Division are still active. If you were at the inaugural meeting held at the Chateau Laurier in Ottawa, you might like to drop Dr. Legget a card at 531 Echo Drive, Ottawa, Canada.

ORGANIZATION OF THE ENGINEERING GEOLOGY DIVISION 1972

Management Board

Chairman:	Richard E. Gray
Chairman-Elect:	Gordon W. Prescott
Management Board Representative:	Howard J. Pincus
Secretary:	Emery T. Cleaves
Past Chairman:	Howard A. Coombs

NEWSLETTER EDITOR
Richard H. Howe

PROGRAM REPRESENTATIVE
Donald H. Yardley

Committees

E. B. BURWELL, JR., MEMORIAL AWARD:

	TERM
Arthur B. Cleaves, *Chairman*	1972–74
Alice S. Allen	1972–73
Emery T. Cleaves	1972–73
William V. Conn	1972
Paul L. Hilpman	1972
David J. Varnes	1972–74

LONG RANGE PLANNING:
Howard A. Coombs, *Chairman*
Richard E. Gray
H. Garland Hershey
Robert F. Legget
W. Harold Stuart

NOMINATING:
Howard A. Coombs, *Chairman*
H. Garland Hershey
Vernon E. Scheid

PUBLICATIONS:
George A. Kiersch, *Chairman*
Reference List: Lynn A. Brown

Committee Representatives

Joint Committee on Engineering Geology (GSA-ASCE):	H. F. Ferguson Paul L. Hilpman
Intersociety Committee for Standardization of Particle Size Ranges:	Alan V. Jopling
American Society of Photogrammetry — Div. of Photo Interpretation:	Charles F. Withington

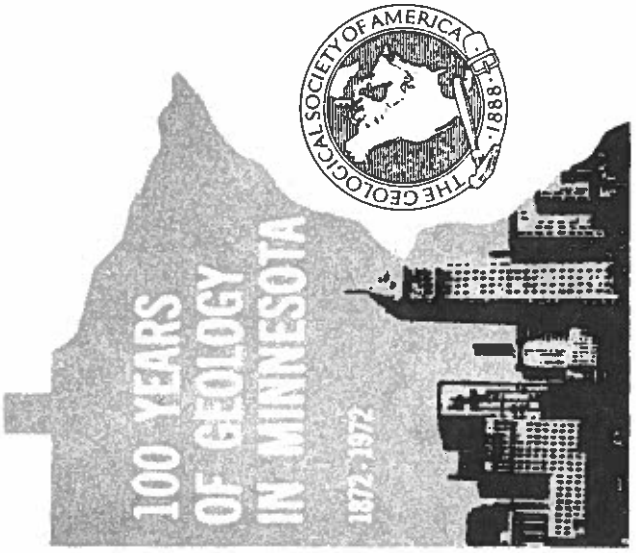
Liaison Representatives

Cordilleran Section, GSA:	Allen F. Agnew
Northeast Section, GSA:	Emery T. Cleaves
Southeast Section, GSA:	Stephen G. Conrad
North-Central Section, GSA:	George E. Heim
Rocky Mountain Section, GSA:	John B. Ivey
South-Central Section, GSA:	Richard H. Loepp

Technical Committee Reporters

Construction Materials:	Erhard M. Winkler
Dams and Reservoirs:	Dennis I. Rubin
Engineering Seismology:	David E. Willis
River Engineering:	Charles R. Kolb
Underground Excavation:	James C. Gamble

ANNUAL MEETING **1972**



NOVEMBER 13-15, 1972
MINNEAPOLIS, MINNESOTA

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