The Engineering Geologist

THE GEOLOGICAL SOCIETY OF AMERICA

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

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THE OUTGOING CHAIRMAN'S REPORT

By rights, this is Bob Schuster's space as 1984-85 Chairman, but I've asked to use it to brag about what the Division accomplished last year. Not what I did, although being chairman isn't easy, I'll have you know. Not hard work, you understand, just being able to persuade, trick or threaten a lot of otherwise hard-nosed and hard-working people into doing the things that make the Division run smoothly and successfully. They earned and deserve the credit. I'd like to be able to list and thank each of you individually on behalf of the membership but there isn't enough space so I'll spotlight some of the major accomplishments and put stars in the crowns of the over-achievers who helped make them happen.

The Annual Meeting, which is the focus of so much effort and puts the cap on the year, was a huge success both literally and figuratively. The overall attendance and number of submitted abstracts broke previous records. Our part in it was similarly successful because of the efforts of a number of people.

Robert Schuster, as Chairman-elect, was the Division's representative on the Joint Technical Program Committee. He also coordinated the administrative planning of the very successful joint symposium with the Quaternary Geology and Geomorphology Division on Debris Flows and Avalanches which was organized and chaired by Gerald Wieczorek and John Costa. The all-day, 21-paper session was attended by a maximum of more than 500 persons during most of the presentations. Publication of a Review Volume based on the papers is planned for the future. Bob also chose the panel to review abstracts of papers and poster presentations in the Division's general Technical Program on Engineering and Environmental Geology. Although the combined half-day session was attended by more than the 250-capacity of the room at times and the quality of the presentation remains uniformly high, Bob points out elsewhere that the quantity of submitted abstracts has dwindled in recent years. Previously, we have had sufficient papers to hold all-day or at least half-day separate sessions on the two subjects. If you have a paper tucked away in your head or pocket, the Orlando meeting next year would be an excellent place to submit it.

Jeff Keaton, Board Member-at-large, helped coordinate the Division's participation on field trips.

As reported more fully elsewhere, Roy E. Hunt was presented the 1984 E.B. Burwell, Jr. Award for his book, Geotechnical Engineering Technical Manual. Ellis Krinitzsky chaired the review committee. Neil B. Steuer and Edwin B. Eckel, the 1982 and 1984 recipients of the Division's Distinguished Practice Award were unable to be at the meeting where their citations and acceptances were read. Personal presentations were made to each later, as is also reported elsewhere. Richard Gray chaired the awards nominating committee.

Publication, the second- or, perhaps the most-important activity of the Division, was highlighted by the release at the meeting of the sixth volume in the Reviews in Engineering Geology Series, Man Induced Land Subsidence, edited by Thomas Holzer. The book has an eye-catching dust cover, a dramatic color-photo of a burning coal mine taken by Rich Dunrud. The manuscript had a record turn-around time, seven months to the day from when it arrived on the desk of Allen Hatheway, the Chairman of our Publications Committee. Allen took the job for one year at my request because of his previous interest and activity in publications. Terry West is the new Chairman.

Robert Fickies, who has done an excellent job as Division Newsletter Editor for four years despite the crimp put on his efforts by our recent descent into the financial doldrums, has asked to be replaced. I persuaded him to stay on for this issue and he graciously agreed. The membership owes much to him and the New York State Geological Survey for their support. Ted Smith has agreed to understudy Bob on this issue and will be the new Editor. The recent increase in dues has returned the Division to solvency and the Board has approved four issues of the Newsletter during 1984-85. That can't be done, however, unless Ted has the news to letter with and that is the responsibility of all members. Short notes on things of general interest to the profession are needed. No commercial messages please, keep it generic.

Progress on the Division's volume for the Decade of North American Geology (DNAG) was temporarily set back because of the untimely death early last year of co-Editor Richard Jahns. George Kiersch agreed to step into that wide breach and with the other co-Editor, Chris Mathewson, submitted an outline to the DNAG Committee. Chris and George are now contacting proposed authors.

After serving two three-year terms as one

of the two representatives of the Society to the Joint ASCE, AEG, GSA Committee on Engineering Geology, John Ivey asked to be replaced. Lokesh Chaturvedi has agreed to accept that position and will serve with Cole McClure, Jr., as co-representatives of the Division.

Other appointments or re-appointments will be announced by Chairman Schuster in a later report.

At any given time, about a dozen standing or special committees are in operation within the Division. Most have several members including the chairperson. According to the By-laws, most terms expire at the end of the official year, during the Annual Business meeting. It is then the responsibility of the new Division chairman to reappoint or appoint new chairpeople who, in turn, may reappoint or appoint new members. This is done in consultation with the Management Board, by letter or by telephone. As a practical matter, however, most chairpersons and members are reappointed unless they desire to step down or unless the particular function of a committee has been accomplished.

There are usually some vacancies to be filled and if you, as a member, or someone you know, are willing to be active in the affairs of the Division, let me know. The prime requisite is the willingness to work hard and carry through. My main duty next year will be as Chairman of the Nominating Committee which could act also in an ad hoc fashion to identify a pool of likely workers for the future. I especially think it is time for more women to become active in the Division.

To all of you who have served so ably and well during my tenure, thank you for your hard work, the Division couldn't exist without you. I am sure this is echoed by the other members of the Board and the membership at large. To the latter, best wishes and thanks for your support.

Frank Wilson
1983-84 Chairman

PRESENTATION OF THE 1984 BURWELL AWARD BY FRANK W. WILSON TO ROY E. HUNT

The E.B. Burwell, Jr. Award is presented annually by the Engineering Geology Division and GSA to the author or authors of a published work of distinction which advances knowledge concerning principles and practice of engineering geology, or related fields of applied soil or rock mechanics where the role of geology is emphasized.

The 1984 recipient is Mr. Roy E. Hunt for his authorship of Geotechnical Engineering Investigation Manual, a 983-page book published in 1984 by the McGraw-Hill Book Company.

Mr. Hunt received his Bachelor of Science degree in Geology from Upsala College in 1952 and his Master of Arts in Soil Mechanics and Foundation Engineering from Columbia University in 1956 where he informs me he had the privilege of taking one of the last courses taught there by Professor C.P. Berkey.

Since 1952 he has worked for a number of consulting firms and as an independent consultant specializing in geotechnical engineering and geology. His experience includes work on such diverse projects as earth and concrete dams, highways, airfields, foundations of large structures, including nuclear power plants, tunnels, development of large land areas, environmental conservation, retaining structures and slope failures. These projects have taken him across the U.S. and around the world, to France, Israel, Brazil, Bolivia, Indonesia, Sumatra and other countries.

Mr. Hunt, on behalf of the members of the Engineering Geology Division and the Geological Society of America, I am pleased to present to you this plaque.

BURWELL AWARD ACCEPTANCE BY R.E. HUNT, NOV. 6, 1984

Thank you, Frank Wilson, for your kind introduction, I am very much honored to have been selected as the 1984 recipient of the E.B. Burwell, Jr., Memorial Award and consider myself fortunate indeed to receive such recognition as a professional from such a distinguished group of my peers.

You can gather from Frank Wilson's introduction that by way of education I started out with a foot in both camps-the geologist and the engineer. This continued to be the case as I worked with various consulting firms. Early on I became aware of the strong animosity that often existed between the geologist and the engineer, which one can still encounter today, although to a much lesser extent. I would still advise any engineering geologist to work toward obtaining an engineering license to gain equal footing in the eyes of the engineering crowd.

The problem 30 years ago was that the geologist usually was too much of a purist and did not know what information the engineer required of him, and often he didn't really care. His reports were scholarly "tomes" filled with references to geologic ages and paleontology and sometimes not even a mention of the rock type, much less a discussion on groundwater and engineering soils. The engineer, on the other hand, did not have the training to understand the geologist's reports, nor the experience to know what information to ask the geologist to provide. This lack of communication between the two disciplines was the source of the animosity. The situation has been relieved in recent years, especially by those in geology, by providing today's specialized education in engineering geology including courses in soil and rock mechanics. Civil engineering education, unfortunately, still remains relatively weak in geology course work and very few engineers, even after graduate school, know the value of understanding geologic concepts.

There is no need, of course, for me to review for you here today the value of the engineering geologist on the civil engineering design and construction team. And, on certain types of major projects, such as for hydropower and others involving large dams, their team responsibilities are well established on a world-wide basis. I would like to mention, however, what I consider to be one of the more important functions of the engineering geologist; that is, the prediction of the impact of geologic conditions on the proposed development of almost any given site before the engineer starts flogging test borings into the ground. This is really my favorite subject and function as an engineering geologist.

The skilled engineering geologist interprets remotely sensed imagery, reviews published reports and various forms of topographic and geologic maps, and performs ground reconnaissance examining exposures such as cuts and outcrops. Through his understanding

of the origin and occurrence of geologic formations of soil and rock, and the inter-relationship with climate, landform, and other factors, he predicts the presence of, or potential for, the occurrence of geologic hazards and the significant soil and rock formations present and their general engineering characteristics (strength, deformability and permeability).

This brings us to why I spent the time to write this book of almost 1000 pages. By the way, McGraw-Hill and I chose the title Geotechnical Engineering Investigation Manual, not only from the marketing aspects but mainly because it's the first volume of a two-volume work. The second book, which covers geotechnical analysis and evaluation, is currently being prepared by McGraw-Hill and is scheduled for publication during March 1985. Anyway, Book 1 could have just as accurately been titled Engineering Geology, as the Burwell Award so honorably indicates.

The primary purpose of the book is to provide a ready reference or a form of encyclopedia for the very large array of terms, elements, procedures, techniques, etc. that the engineer and geologist should be familiar with if they are involved with any form of development on the earth's surface.

Another important purpose is to attempt to clarify the inter-relationship between the geologist and the civil engineer: to identify what information the geologist should provide the civil engineer and what information the civil engineer should request from the geologist. The scope and purpose of such information will vary from project to project depending upon its nature.

Thirdly, I wanted to present my philosophy and experience gained in the realm of predicting subsurface conditions and general engineering characteristics of the geologic materials as I mentioned before. Hence, the somewhat lengthy chapters on rock mass characteristics and soil formations and the emphasis on classification by origin and occurrence.

Forthly, I attempted to bring together the disciplines of rock and soil mechanics under one cover which usually are treated separately but which are really quite similar in principle.

Finally, I would like to take this opportunity to editorialize a bit about some areas where I think engineering geologists should work to improve our knowledge in addition to the more obvious areas such as earthquakes, slopes failures and collapsing ground.

1. In this day of computer technology, I would like to see a central location established as a data bank for receipt and storage of various categories of information. For example, for the compilation and correlation of the characteristic engineering properties of those geologic materials that are difficult to sample in the undisturbed state or test in situ such as jointed or weathered rock and residual soils and glacial tills. Typical values for various classes of rock masses and soil formations could be published from time to time with the proper "qualifying statements".

2. The development of a universally accepted "unified rock mass classification system". The system should be designed for various degrees of complexity to cover the range of practical information required for a tunnel as compared to a simple foundation, for example. The system should be applicable to materials varying from fresh rock to residual soils. The ISRM has made important strides in this direction but a universally accepted classification system remains to be developed.

3. Lastly, as a small detail, I would like to see more work published providing information on the relationship between vegetation and geologic conditions. There are some very useful correlations which form the basis for subsurface predictions but to my knowledge a general compendium is not available.

Again, ladies and gentlemen, thank you for the opportunity of speaking with you today and receiving the Burwell Award.

PRESENTATION OF THE 1982 DISTINGUISHED PRACTICE AWARD TO NEIL B. STEUER BY FRANK W. WILSON, 1983-84 DIVISION CHAIRMAN

The 1982-83 Management Board established the Distinguished Practice Award to honor those individuals, not necessarily members of the Division or GSA, who had made considerable and significant contributions to the technical and/or professional advancement of Engineering Geology. Neil B. Steuer, then of the U.S. Nuclear Regulatory Commission's Office of Nuclear Regulatory Research, was voted its first recipient for conceiving, organizing and administering co-operative studies by researchers from various state Geological Surveys, Universities and the Federal Survey on the geologic and tectonic settings of historic and potential earthquakes in the eastern U.S.

Mr. Steuer was not notified immediately because it was mistakenly thought that establishment of a new award had to be approved by the GSA Council. This turned out not to be the case for Division Awards. By the time this was cleared up in early 1983, Neil had retired from NRC because of health reasons and settled in Redmond, Oregon.

As Chairman of the Division, a former worker on the project and a friend, I informed Neil of his award and rather than simply sending it to him, asked if I could have the honor of presenting it to him at the 1984 Annual Meeting in Reno. He agreed and despite some health set-backs during the intervening period because of the effects of treatment for cancer he was still looking forward to coming to Reno to receive the award. Unfortunately, just as I was leaving for Reno his wife, Marjorie, called to tell me that Neil had suffered another health set-back and would be unable to travel to the meeting. Because I was planning a brief vacation in the Pacific Northwest after the meeting, I told her that we would officially present the award to him, in absentia at the Division Awards Luncheon and I would arrange my return trip in order to give the plaque to him personally in Redmond.

After explaining this at the meeting and reading the official citation which has been summarized above, I read Neil's reply.

> "I am very pleased and honored to be presented the first Distinguished Practice Award of the Engineering Geology Division of the Geological Society of America. To me it represents the most satisfying experience of a long and varied geological

career. It represents the opportunity that I had to bring together and work with a unique combination of dedicated participants from the state Geological Surveys, the Federal Survey and from various University Earth Science Departments who contributed effectively and cooperatively to research in the Seismotectonic Program of the U. S. Nuclear Regulatory Commission.

The results of these studies have been of inestimable value to the U.S.N.R.C. and other government regulatory and scientific agencies, as well as to the nuclear and electrical power industry and its consultants, oil and mineral companies, geophysical and geohydrological interests and many others in the earth sciences community.

These very significant contributions to earth science knowledge would not have been possible without the diligent and conscientious efforts of all program participants.

Thank you for this most prestigeous award. It will occupy a prominent place in my home and remind me often of all the satisfying experiences I have had working with you."

I went to Redmond on November 13, 1984 and presented the award to him at his home. Although he was obviously not feeling well, he was in no apparent pain, and he was able to be up and about under his own power periodically while I was there. We had a good visit. He was quite bright and cheerful, very appreciative of receiving the award but, as usual, gave much of the credit to those who had worked on the project that he had conceived and coordinated so successfully. I passed on the friendly greetings and concerns of those who had been at the Reno meeting and he asked eagerly of news of others, many of whom he had not seen since before his retirement from U.S.N.R.C. in 1981. At the insistence of Neil and his wife Marj, I stayed overnight as their guest and saw Neil off, again under his own power, when Marj drove him to the hospital the next morning for tests. He had bounced back from health crises so many times before that Marj was hopefully optimistic that he would do so again. As they left, Neil again asked that I be sure to say "hello" for him to all his friends.

After entering the hospital, Neil responded briefly to experimental medication but on November 21, a week to the day from when I had seen him last, his already weakened heart failed. Marj, who was with him at the end, said that his death was peaceful and without pain.

Neil will be missed by his many friends and colleagues but all of those I have talked to since his death have echoed the sentiment that he would not have wanted sadness because that was not in his nature.

Those of us who knew him will remember him as the friendly, cheerful, enthusiastic and unassuming person that he was. If anything, he was too modest. His accomplishments were impressive, but it was typical of him that when I asked for a copy of his Resume' so I could properly introduce him at his award presentation, he asked me to be sure and return it because it was the only one he had! I did, and then had to ask Marj to loan it to me again to write the memorial that will follow in the next issue.

NOMINATIONS FOR ENGINEERING GEOLOGY DIVISION AWARDS

The Engineering Geology Division is seeking nominations for its Meritorious Service Awards and Distinguished Practice Award.

The Meritorious Service Awards are for outstanding service to the Engineering Geology Division and only Division members are eligible. Each nomination must be accompanied by a brief written statement indicating the outstanding service provided by the nominee.

The Distinguished Practice Award recognizes outstanding individuals for their continuing contributions to the technical and/or professional stature of engineering geology. A nominee need not be a member of the Engineering Geology Division, but must have made a major contribution to engineering geology in North America. A nomination package should consist of the nominee's resume and a brief statement of the technical and/or professional contributions which form the basis of the nomination.

Send your nominations by June 30, 1985 to:

Richard E. Gray
GAI Consultants, Inc.
570 Beatty Road
Monroeville, Pennsylvania 15146

ENGINEERING GEOLOGISTS CELEBRATE 40TH ANNIVERSARY

On November 21, 1944, Chief Geologist W. H. Bradley established the new "Section (later: Branch) of Engineering Geology" in the U. S. Geological Survey; Edwin B. Eckel was designated as Geologist-in-Charge (later: Branch Chief). To celebrate the 40th anniversary of this event, which established engineering geology as a major entity in the USGS, some 90 USGS engineering geologists, colleagues, and friends gathered in Golden, Colorado, for a commemorative luncheon on November 14, 1984. The group included all five past Branch Chiefs (Ed Eckel, Dave Varnes, Jack McGill, Bob Schuster, and Don Nichols) of the Branch of Engineering Geology, and Al Rogers, Chief of the recently organized Branch of Engineering Geology and Tectonics.

The highlight of the celebration was the presentation to Ed Eckel of the GSA Engineering Geology Division's Distinguished Practice Award for 1984; the presentation was made by Bob Schuster, 1984-85 Chairman of the Division. Ed was to have received the Award at the annual Business Meeting of the Engineering Geology Division as a part of the 97th Annual Meeting of GSA in Reno, but he was unable to attend. However, the anniversary luncheon served as an excellent alternative for the presentation because most of those attending have worked with Ed during his distinguished practice of engineering geology. The citation on the Distinguished Practice Award for 1984 reads as follows:

The Geological Society of America Engineering Geology Division presents its Distinguished Practice Award to Edwin B. Eckel for his long and distinguished career in engineering geology. He served in the U. S. Geological Survey as Assistant Chief of the Military Geology Unit and later as

Chief of the Engineering Geology and Special Projects Branches. In all of these positions, he greatly contributed to the development of engineering geology and the training of engineering geologists in the United States. His service, after retirement, as Executive Director and Editor of GSA substantially advanced the profession of geology.

Ed graciously accepted the award with the following response:

"For many years I practiced engineering geology, but I never thought that anyone would class my career as worthy of being called a Distinguished Practice. So I was surprised and pleased to learn that the Division was giving me an award with that title.

Except for a few recent years with GSA, all of my professional life was spent with the U. S. Geological Survey. Almost from its inception, a few individual Survey Geologists had made engineering investigations from time to time, but there was no organized effort to develop engineering geologic expertise until the waning stages of World War II in late 1944 and early 1945. At that time, I and a tiny group of like-minded individuals were authorized to establish a Section of Engineering Geology in the USGS. We welcomed the opportunity, of course, and plunged into an effort that was to occupy us and many other additional recruits for most of our professional lives.

Ed Eckel (left) accepting the Engineering Geology Division's Distinguished Practice Award from Division Chairman Bob Schuster

Many facets of engineering geology were already in the domain of other agencies. Because of this, and because the multiple uses of aerial geologic maps, interpreted in engineering terms, had been so well demonstrated during the war, most of our early efforts were devoted to preparation of such maps. Later, we produced innumerable--and unglamorous--construction materials maps. Still later, we gradually went into such topical, and far more exciting, studies as those of landslides, earthquakes, volcanic eruptions, and underground nuclear explosions.

Establishment and development of engineering geology within the USGS did not come easily or quickly. The concept survived, however, and today, 40 years later, engineering geology is still an integral unit of the Survey's geologic organization. Engineering geology has never been the Survey's first priority, and never will be. The lessons we learned, however, and the demonstrative missionary work we did, most certainly played a large part in the general acceptance of engineering geology and in the striking growth and strength of our profession.

I suppose I have made enough personal investigations to justify thinking of myself as a practicing engineering geologist. In retrospect, however, I feel that my real contribution to the specialty was based not on my own investigations, but on the fact that I was able to make it possible for many, many others to discover the fun of engineering geology and to provide them with the means and the time to practice it. Their success was my success.

In closing, let me say a word about the Engineering Geology Division. It was established in 1947, and was the first of GSA's Divisions. I have belonged to it since its inception and have been pleased to watch its growth and impact on the profession. It has a permanent place in the Society's Annual Meetings, and its two book series--Review and Case Histories--are important items in the literature of our specialty. May the Division continue to grow and prosper!

Thank you all, very sincerely."

PRELIMINARY PLANS FOR THE 98TH ANNUAL MEETING OF GSA, ORLANDO, FLORIDA OCTOBER 28-31, 1985

The Engineering Geology Division is planning to sponsor a one-half-day symposium on engineering geology of low-energy coastlines at the 98th Annual Meeting in Orlando, October 28-31, 1985. Bob Schuster and Chris Mathewson are organizing the symposium, which will be held back-to-back with a parallel one-half-day symposium on geology and sedimentology of low-energy coastlines sponsored by the Quaternary Geology and Geomorphology Division.

Field trips for the Orlando meeting have been selected and scheduled by the Local GSA Organizing Committee. The Division has no

role with respect to field trips except to encourage members to propose them and to attend them. Field trips of interest to Division members include:

Premeeting trips

1. Sedimentology of a Barrier Island and Marsh Dominated Coast, West-Central Florida. Richard A. Davis, Jr., University of South Florida, Tampa; Albert C. Hine, University of South Florida at St. Petersburg; and Daniel F. Belknap, University of Maine. 3 days. Estimated cost: $225. Limit: 22 participants.

2. Pleistocene and Holocene Carbonate Environments on San Salvador Island, Bahamas. H. Allen Curran, Smith College, Northampton, Mass.; Roger J. Bain, University of Akron; James L. Carey, College of Charleston, Charleston, SC; John E. Mylroie, Murray State University, Murray, KY; James W. Teeter, University of Akron; and Brian White, Smith College. 3 1/2 days. Estimated cost: $390. Limit: 25 participants.

3. Karst Hydrogeology of Central and North Florida. Barry F. Beck, University of Central Florida; 1 day plus previous evening. Estimated cost: $90. Limit: 90 participants.

4. Coastal Geology and the Occurrence of Beach Rock: Central Florida Atlantic Coast. Donald K. Stauble, Florida Institute of Technology, Melbourne, FL; and Donald F. McNeill, Environmental Science and Engineering, Inc., Gainesville, FL. 3 days. Estimated cost: $230. Limit: 40 participants.

During-meeting trip

1. Winter Park Sinkhole. Self-guided with handout prepared by Florida Sinkhole Research Institute. One-half-day. Estimated cost: $5. Limit: 40 participants.

Post-meeting trips

1. Geology of Jamaica. Grenville Draper, Florida International University, Miami, FL. 4 days. Estimated cost: $600. Limit: 30 participants.

2. Geology of Haiti. Florentin J-M. R. Maurrasse, Florida International University. 5 days. Estimated cost: $700. Limit: 40 participants.

3. Coastal Morphology of Southwest Florida and Its Relevance to Past Human Occupation of That Coast. Jerald T. Milanich, Florida State Museum, Gainesville, FL.; and Thomas M. Messimer, Messimer and Associates, Cape Coral, FL. 3 days. Estimated cost: $65. Limit: 18 participants.

For additional information, contact the designated leaders or Douglas L. Smith, Department of Geology, University of Florida, Gainesville, FL 32661 (904/392-6766). Estimated costs are tentative; they cover lodging and transportation, but for some trips do not include all meals.

SHORTAGE OF VOLUNTEERED ENGINEERING GEOLOGY PAPERS FOR ANNUAL MEETINGS

Of the 14,000 members in GSA, about 1,000, or 7 percent, belong to the Engineering Geology Division. However, for the 1984 Annual Meeting in Reno, only 19 papers (11 oral and 8 poster) were volunteered for the general Engineering Geology Session and the Engineering Geology Poster Session. This number constituted only about 1 percent of the total 1827 papers volunteered for the entire Annual Meeting. Our 19 volunteered papers compared with 189 in Economic Geology, 186 in Tectonics, and 154 in Geochemistry. Do we have that much less to say than our fellow geology professionals?

The number of slots awarded to the Divisions for presentations and posters are based on available space for the entire Annual Meeting. Each Division is given the same percentage acceptance rate for volunteered papers. In 1984, the acceptance rate for papers to be presented in technical sessions was 72 percent; thus we were able to accept only 7 of the 11 volunteered oral papers. For poster sessions, the acceptance rate was 88 percent, and we were able to accept 7 of the 8 volunteered poster papers. Under this system, it is obvious that the Engineering Geology Division needs more volunteered papers. If you have a good paper on engineering geology that you feel is of national interest and quality, we suggest that you submit it for an annual meeting.

The 1985 Annual Meeting will be held in Orlando, Florida, from October 28-31. Deadline for receipt of abstracts at GSA headquarters for the Orlando meeting is June 7, 1985. The 1985 abstract forms are available from Abstracts Secretary, Geological Society of America, P.O. Box 9140, Boulder, CO 80301.

ENGINEERING GEOLOGY DIVISION ELECTIONS

A total of 888 ballots were mailed to members of the Division for the 1984 election of officers; 232 valid ballots were returned to headquarters. Divisions officers for 1984-85 are as follows:

Chairman----------Robert L. Schuster
Chairman-elect----David M. Cruden
Secretary---------Christopher C. Mathewson
Management Board
Member-at-Large--Jeffrey R. Keaton
Past-Chairman-----Frank W. Wilson

The results of voting on the proposed amendments to Articles IV-2, IV-3, and V-3 of the Engineering Geology Division Bylaws were as follows:

Approved the Bylaws Changes------193
Disapproved the Bylaws Changes----11

The amended sections of the Bylaws now read as follows (new wording is shown in italics):

Article IV-2:

Management Board. The Management Board shall be composed of the chairman, chairman-elect, secretary, the chairman for the preceding year, and one member of the Society to be elected from the division at large to serve for *one year* and to be designated as management board representative. The management board representative shall be *limited to one term and shall be ineligible for re-election to this office until three years have elapsed since the expiration of his or her term of office.*

Article IV-3:

Election of Officers and Management Board Representative. The nominating committee of the division shall nominate candidates annually for chairman, chairman-elect, secretary, and *for management board representative*. When approved by the management board, these nominations shall become the regular ticket and shall be submitted by the secretary of the division to the executive director of the Society, who shall have prepared and mailed to the voting affiliates a ballot which also shall have space for write-in nominees.

The election of officers and management board representatives shall be in accordance with the election procedure of the Society and shall be under the supervision of the Society. All provisions governing the election of officers of the Society that are applicable to the division shall govern the election of officers and management board representative of the division.

Article V-3:

Nominating Committee. A nominating committee consisting of three voting affiliates of the division, shall be appointed by the chairman with the approval of the management board.

The nominating committee shall nominate candidates annually for chairman, chairman-elect, secretary, and *management board representative*.

CORDILLERAN SECTION, GSA, LANDSLIDE SYMPOSIUM AND FIELD TRIP

The 81st Annual Meeting of the Cordilleran Section of GSA will be held in Vancouver, British Columbia, May 8-10, 1985. Of particular interest to Engineering Geology Division members attending these meetings will be the following landslide-oriented activities:

Symposium - Mass Wasting in Mountain Watersheds. J.V. DeGraff and J.W. Williams.

Field Trip (premeeting) - Debris Flows in Southern British Columbia. L. Jackson, J. Clague, M. Church.

Further information on registration, accomodations, and activities will be published in GSA News and Information. Additional information may be obtained by contacting the chairman of the organizing committee:

W. H. Mathews
Department of Geological Sciences
University of British Columbia
Vancouver, B.C., Canada V6T 2B4
Phone: (604) 228-2624.

U. S. NATIONAL COMMITTEE ON TUNNELING TECHNOLOGY

The activities of the parent U.S. National Committee on Tunneling Technology were covered in a special issue of the Underground Space magazine published in January 1983. Also, the parent committee published four issues of the Newsletter in 1983. Five technical articles published in these four issues were:

"TBM Tunnels in the Western Hemisphere-An Overview"
"Evaluation of TBM Performance from Case History Studies"
"ICBM Deep Basing Egress Systems"
"Vertical Egress Feasibility Field Tests"
"MBTA's Red Line Northwest Extension"

In addition, a special report, "Peacetime Use of Civilian Defense Shelters" was commissioned by the subcommittee on Planning and Evaluation on Subsurface use.

Dennis J. Lachel served as chairman of the parent committee from July 1, 1983 to June 1984. Dr. Z. T. (Dick) Breniawiski will serve as chairman from July 1, 1984 to June 30, 1985.

The substantive activities of the parent USNC/TT are carried out primarily by ad hoc sub-committees. Generally the sub-committees conduct their work as part of the Committee's continuing activities and are supported with core funding. Following is a list of the sub-committees funded by core funds.

Subcommittee on Contracting and Management Practices
Subcommittee on Demand Forecasting
Subcommittee on Design Considerations
Subcommittee on Education and Training
Subcommittee on Planning and Evaluation of Subsurface Use
Subcommittee on Research Needs

The activities of these subcommittees is published in a 43 page summary report for 1983. Members of the Engineering Geology Division who are interested in tunneling technology are encouraged to write for copies of the Summary Report from the National Academy of Sciences, 2101 Constitution Avenue, N.W., Washington, DC 20418.

However, from time to time a subcommittee conducts a separately funded study resulting in a published report. One example of such a separately funded study of specific interest to the Engineering Geology Division is the work of the Subcommittee on Geologic Site Investigation for Underground Structures. Eugene B. Waggoner is chairman of this subcommittee, the main effort of which will be a National Research Council publication documenting the cost savings of proper Engineering Geologic site investigation data and the blunder-related costs of not having such important data. In addition to serving as a member of the parent committee, your GSA representative served as a member of the sub-committee on Geologic Site Investigations.

Lloyd B. Underwood

NRC COMMITTEE ON GROUND FAILURE HAZARDS

The Committee on Ground Failure Hazards was established in 1983 by the National Research Council of the National Academy of Sciences under its Commission on Engineering and Technical Systems. The purpose of the Committee is to define national research needs and priorities, assist in coordination of research activities, develop mechanisms for communications between researchers and users, and facilitate interchange of scientific and technological information with other countries.

The 12-member committee, chaired by Dwight A. Sangrey of Carnegie-Mellon University, has concentrated its efforts on a report on

landslides. "Reducing Losses from Landsliding in the United States" is now complete and in review. It is expected to be published by the National Academy of Sciences in late 1984 or early 1985. The Committee also plans to publish a ground failure newsletter three times each year. Arthur G. Keene, Los Angeles County Geologist, is the editor. The first and second newsletters will emphasize landslides and land subsidence, respectively.

The Committee debated at its last meeting, February 29 to March 2, 1984, in Los Angeles, whether or not to concentrate next on land subsidence. An ad hoc committee of David B. Prior, Irwin Remson, and Barry Voight was formed to establish an agenda for the October 18-20 committee meeting in Pittsburgh to evaluate the merits of such a study.

Thomas L. Holzer

IVTH INTERNATIONAL SYMPOSIUM ON LANDSLIDES

Toronto, Canada, served as host city for the very successful IVth International Symposium on Landslides during the week of October 16-21, 1984. The Symposium, which was attended by over 300 landslide experts from more than 30 countries, was under the auspices of the Subcommittee on Landslides of the International Society for Soil Mechanics and Foundation Engineering, and the International Association of Engineering Geology. It was sponsored by the Canadian Geotechnical Society and the National Research Council of Canada.

The 37th Canadian Geotechnical Conference, which was called "Canada Day," was held the first day of the Symposium; it was devoted to landslide problems in the host nation. The technical program for the remaining 4 days was divided into seven technical sessions dealing with the following themes: (1) Climatic and groundwater aspects of landslides; (2) Slope movements in hard rocks; (3) Landslides in weathered rocks and residual soils; (4) Landslides in heavily overconsolidated clays and soft rocks; (5) Landslides in soft clays; (6) Landslides in silts, sands and loess, including subaqueous slides; and (7) Recent developments in landslide studies (analytical and probabilistic methods, landslide risk mapping, instrumentation and slide warning systems). Each session consisted of state-of-the-art presentations and discussions from the floor. Three post-meeting tours visited landslides in the Toronto area, in the Cordillera of western Canada, and in sensitive clays of eastern Canada.

Several Engineering Geology Division members from Canada and the United States participated in the Symposium. As part of Canada Day, Dave Cruden presented a keynote lecture entitled "Landslide Problems in the Canadian Cordillera" and Earl Christiansen was second author of a keynote lecture on "Landslide Problems in the Prairies". Dave Varnes and George Sowers served as session chairmen in the main Symposium. Barry Voight and Earl Brabb presented state-of-the-art lectures. Other members submitted technical papers that have been published in the Proceedings.

The Proceedings of the IVth International Symposium on Landslides consist of three volumes. Volumes 1 and 2, include state-of-the-art reports and more than 200 individual technical papers devoted to the above themes. Volume 3 will be made up of the discussion papers. The Proceedings can be ordered from the Canadian Geotechnical Society for $125 (Canadian) plus postage. The 37th CGS Canada Day Preprints, a separate volume of Canada Day papers not included in the Symposium Proceedings, can be ordered for $50 (Canadian) plus postage. In placing an order for either the Symposium Proceedings or the Canada Day Preprints, do not include payment; you will be billed by the Canadian Geotechnical Society. Please indicate whether you prefer surface mail or air mail. The address for orders is:

Canadian Geotechnical Society
c/o University of Toronto Press
5201 Dufferin Street
Downsview, Ontario M3H 5T8, CANADA

Previous symposia have been held in Japan in 1972 and 1977, and in India in 1980. The Vth International Symposium on Landslides, which will be hosted by the Swiss Society for Soil and Rock Mechanics, is planned for Montreux, Switzerland, in 1988.

CALL FOR PAPERS

The organizers of the Fifth International Congress of the International Association of Engineering Geologists have extended the deadline for receipt of abstracts of papers proposed for the Congress which is to be held in Buenos Aires in October 1986. The deadline for receipt of abstracts has now been extended to May 31, 1985. Abstracts should be limited to 300 words and copies written in both English and French should be submitted.

Selected topics considered for presentation include: engineering geological investigations of rock masses; foundations and excavations of weak rock; foundations in soils; groundwater hydrology; development of highway, railroad, coastal and offshore facilities; and engineering geological aspects of environmental planning. Abstracts should be submitted to: Mr. Joe Long, Chairman of the U. S. Steering Panel IAEG, International Engineering Co., Inc., 180 Howard Street, San Francisco, California 94105.

INTERNATIONAL SYMPOSIUM ON MANAGEMENT OF HAZARDOUS CHEMICAL WASTE SITES

An International Symposium on Management of Hazardous Chemical Waste Sites will be held on October 9 and 10, 1985 in Winston-Salem Hyatt Hotel, North Carolina. The Symposium is organized by the U. S. National Committee for the International Association of Engineering Geology (IAEG) in cooperation with the Association of Engineering Geologists (AEG) and other organizations. The U. S. National Committee for IAEG is a subcommittee of the U. S. Committee on Geology, consisting of members appointed by the National Academy of Sciences.

The Symposium is being held in conjunction with the Twenty-Eighth Annual Meeting of the Association of Engineering Geologists scheduled to be held on October 7-11, 1985. The Annual Meeting will also include a special symposium on INTRAPLATE EARTHQUAKES and two short courses: 1) AGE DATING METHODS FOR GEOLOGISTS: and 2) GEOLOGICAL AND HYDROLOGICAL TECHNIQUES FOR HAZARDOUS WASTE SITE MANAGEMENT. Several technical field trips, exhibition of equipment and books, and social events are planned.

ABSTRACTS

The abstract of a paper to be presented at the Symposium should be related to the geological, hydrological, and geotechnical aspects of the following topics and should be written in a single paragraph, not exceeding 300 words, giving the results and principal conclusions of the paper:

MANAGEMENT OF HAZARDOUS CHEMICAL WASTE SITES

Site Investigations: Deterministic Characterization

Geologic Mapping
Remote Sensing Techniques
Surficial Geophysical Techniques
Down-hole Geophysical Techniques
Sampling and Monitoring Wells
Test Pits and Trenching
Field Testing and Laboratory Analyses
Identification of Contamination Potential
Ground Water and Soil Contamination Studies
Contaminant Transport: Modeling and Prediction
Sampling and Monitoring Techniques
Geohydrology and Remedial Response
Aquifer Rehabilitation Methods
Barriers: Design and Construction Techniques
Ultimate Disposal
Risk Assessment
International Practices
Case Histories
Research and Development
Legal and Institutional Aspects

Abstracts of papers to be presented at the Symposium should be submitted to the Technical Program Chairman before March 15, 1985. Authors of abstracts will be notified concerning the acceptance of abstracts by May 1, 1985. The completed papers will be due by August 15, 1985.

For further information please contact one of the following:

Dr. Zuabair A. Saleem
GENERAL CHAIRMAN
c/o Department of Geology
Texas A & M University
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Phone: (409) 845-9682

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TECHNICAL PROGRAM CHAIRMAN
c/o Ebasco Services Incorporated
2211 W. Meadowview Road
Greensboro, NC 27407
Phone: (919) 855-7500.

THE 16TH ANNUAL GEOMORPHOLOGY SYMPOSIUM

"Hillslope Processes" is the theme of the 16th Annual Geomorphology Symposium to be held on Saturday and Sunday, September 28-29, 1985, at the State University of New York at Buffalo. The symposium is being organized by Athol D. Abrahams. The preliminary list of speakers and topics is as follows:

A. Young (University of East Anglia, England) and I. Saunders (Simon Fraser University, Canada) Rates of Slope Processes and Dunudation

T. Dunne (University of Washington, Seattle) Sheetwash Experiments on Savanna Hillslopes

R.P.C. Morgan (National College of Agricultural Engineering, England) Plant Cover Effects on Hillslope Runoff and Erosion

L.D. Meyer (U.S. Department of Agriculture, Oxford) Erosion Processes and Sediment Properties for Agricultural Cropland

J.S. Gardner (University of Waterloo, Canada) Debris Storage and Transport in Bedrock Gullies on Mountain Slopes, Canadian Rocky Mountains

T.N. Caine (University of Colorado, Boulder) Sediment Movement and Storage on Alpine Valley Sides

J. Dixon (University of Arkansas, Fayetteville) Solute Movement on Hillslopes in the Alpine Environment of the Colorado Front Range

M.G. Anderson and S. Howes (University of Bristol, England) Hillslope Hydrology Models for Forecasting in Unguaged Watersheds

K. Bevan (Institute of Hydrology, England) Hillslope Runoff Processes and Flood Frequency Characteristics

M.J. Kirkby (University of Leeds, England) A Slope-stream Model for Catchment Form and Drainage Density

B.P. Moon (University of Witwatersrand, South Africa) Controls on the Form and Development of Rock Slopes in Fold Terrane

I. Statham (Ove Arup and Partners, Wales) and S.C. Francis (University of London, England) Influence of Scree Accumulation and Weathering on the Development of Steep Mountain Slopes

R.J. Chandler (Imperial College of Science and Technology, England) Processes Leading to the Development of Landslides in Clay Soils: A Review

R.M. Iverson (U. S. Geological Survey, Vancouver) Dynamics of Slow, Persistent Hillslope Mass Movements

M.J. Bovis (University of British Columbia, Canada) The Morphology and Mechanics of Earthflow Mass Movement, with Particular Reference to British Columbia

T.C. Pierson (U.S. Geological Survey, Vancouver) Dynamics of Small Channelized Debris Flows

W. Dietrich (University of California, Berkeley) T. Dunne (University of Washington, Seattle) S. Reneau, and C. Wilson (University of California, Berkeley) Bedrock Hollows, Colluvium, and Landslides in Soil-mantled landscapes

T.H. Nilsen (U. S. Geological Survey, Menlo Park) Relative Slope-stability Mapping and Landuse Planning in the San Francisco Bay Region, California

For further information contact Professor Athol D. Abrahams, Department of Geography, State University of New York at Buffalo, Buffalo, NY 14260. Phone: (716) 636-2289.

GSA REVIEWS IN ENGINEERING GEOLOGY, VOL. VI

Man-induced Land Subsidence, a comprehensive summary of current studies in land subsidence has recently been published by GSA as Volume VI of the Reviews in Engineering Geology series. This 221-page volume, which is dedicated to Joseph F. Poland, world-

renowned subsidence expert who retired from the U. S. Geological Survey in 1974, was edited by Thomas L. Holzer. It is divided into three parts containing nine state-of-the-art papers as follows:

Part 1. Fluid Withdrawal from Porus Media

Field-based computational techniques for predicting subsidence due to fluid withdrawal (Donald C. Helm)

Subsidence over oil and gas fields (J. C. Martin and S. Serdengecti)

Subsidence due to geothermal fluid withdrawal (T.C. Narasimhan and K.P. Goyal)

Ground failure induced by ground-water withdrawal from unconsolidated sediment (Thomas L. Holzer)

Part 2. Drainage of Organic Soil

Organic soil subsidence (John C. Stephens, Leon H. Allen, Jr., and Ellen Chen)

Part 3. Collapse Into Man-made and Natural Cavities

Coal-mine subsidence -- eastern United States (Richard E. Gray and Robert W. Bruhn)

Coal mine subsidence -- western United States (C. Richard Dunrud)

Sinkholes resulting from ground-water withdrawal in carbonate terranes -- an overview (J. G. Newton)

Mechanisms of surface subsidence resulting from solution extraction of salt (John R. Ege)

This volume is available for $28.00 (20 percent discount for GSA members) from:

Publication Sales Department
Geological Society of America
P. O. Box 9140
Boulder, Colorado 80301.

TOM FLUHR'S NEW YORK CITY WATER SUPPLY REPORT AVAILABLE

A 186 page report, "The Engineering Geology of New York City's Water Supply System", by Thomas D. Fluhr and Vincent G. Terrenzio, has been released by the New York State Geological Survey. The report presents an historical review of the vast system that provides a reliable, high quality water supply to New York City. The exploration and construction geology of the dams, reservoirs, tunnels and aquaducts of the Croton, Catskill and Delaware sections of the system is discussed and illustrated with 39 cross-sections and maps. This book provides an excellent record of heretofore unpublished geology of much of southeastern New York State. The book can be ordered from: New York State Geological Survey, Publication Sales, Rm. 3140 State Museum Building, Albany, NY 12230. A $4.00 check for each copy, payable to "New York State Library" must accompany the order.

NEW TECHNIQUES FOCUSING ON IMPORTANT WATER ISSUES OUTLINED IN NEW JOURNAL

A series of short topical papers that touch on critical issues and innovative techniques in hydrology -- from determining concentrations of toxic metals to more reliable methods for estimating streamflow -- are presented in a new journal-type publication recently released by the U. S. Geological Survey, Department of the Interior.

The new "journal" is aimed at meeting widespread public and professional interest for timely results on hydrologic studies derived from the federal research program, the federal-state cooperative program, and to work done on behalf of other federal agencies.

The emphasis in this periodic journal of short papers will be on new methods, techniques and ideas or innovative applications of known techniques to solve hydrologic problems. The series is intended as a forum for new ideas in hydrology.

Copies of the report, "Selected Papers in the Hydrologic Sciences 1984," edited by Eric L. Meyer and published as USGS Water-Supply Paper 2262, may be purchased for $3.00 per copy from the Branch of Distribution, Text Products Section, U.S. Geological Survey, 604 S. Pickett St., Alexandria, VA 22304. Orders must include check or money order payable to Department of the Interior-USGS and must specify the report number (WSP 2262).

WORLD TUNNEL-MACHINE AUTHORITY AVAILABLE FOR LECTURE ENGAGEMENTS

EGD Past Chairman Allen W. Hatheway announces that Mrs. Barbara Stack, author of the highly successful Handbook of Mining and Tunneling Machinery, will be traveling and lecturing in the United States this Spring. Mrs. Stack is now the World's leading expert on the design and application of all forms of tunneling machinery - and she enjoys lecturing on the topic.

Mrs. Stack would be pleased to entertain offers to have her lecture before consulting geological and engineering firms, and university audiences. She will be in the United States before and after the Brighton (UK) Tunneling '85 Conference (held 11-26 March, 1985) and will remain in the U.S. for the 1985 Rapid Excavation and Tunneling Conference (RETC), to be held in New York, beginning 8 June, from where she will return to Australia via Japan.

Interested persons are encouraged to correspond directly with Mrs. Stack, at 554 Nelson Road, Mt. Nelson, Hobart, Tasmania, 7007, Australia (tel. 002-23-1427; Telex AA 58248) to set up arrangements for lectures.

As Mrs. Stack's long-time, encyclopedic work with tunneling machines has never been organizationally-financed, financial assistance in traveling between U.S. lecture stops, and some contribution toward lodging would be appropriate.

Allen Hatheway notes that this is a fine opportunity to gain access to a state-of-the-art worker in tunneling, and encourages all speaking chairmen to consider extending an invitation to Mrs. Stack. Call Allen (314) 341-4777 with any particular questions, as he is acquainted with Mrs. Stack and her work.

FEMA ANNOUNCES LANDSLIDE POLICY RELATING TO PUBLIC FACILITIES

On March 21, 1984, the Director of the Federal Emergency Management Administration, Louis O. Guiffrida, expanded the conditions under which the President's Disaster Relief Fund may be used to supplement repairs to public facilities from landslide damage. The clarification, which was explained in a letter to all of FEMA's ten regional directors, permits cost effective construction to restore public facilities, such as streets and roads, to predisaster functions. "That will include the replacement of lost fill and construction of fill retaining devices such as gabions, rock toes, cribwalls, binwalls, posts and sheathing, etc., to the extent necessary," the letter states. The guidance, which establishes eligibility retroactive to major disaster declarations by the President since September 12, 1980, permits State and local governments to apply for reimbursement for landslide projects which may require FEMA to pay several million dollars. This action will affect immediately the two Presidentially declared disasters in California and one each in Utah and the Virgin Islands.

Submitted by
Thomas L. Holzer

A.E.G. ANNOUNCES CITIES OF THE WORLD THESIS PROGRAM

The Association of Engineering Geologists, through its Geology of Cities Committee, suggests that faculty and students be aware of the advantages of incorporating master of science-level thesis work in engineering geology, geological engineering, or geotechnical engineering into the Cities of the World series of Bulletin papers.

The program, now being tested at the University of Missouri-Rolla, calls for the following sequence of events:

1) student and faculty advisor select City of interest to the student; student takes on independent studies assignment to develop an expanded outline (based on the standard outline of the series), a list of knowledgable practitioners in geology. engineering geology, geotechnical engineering, seismology, civil and environmental engineering, planning, hydrology, etc., and a working bibliography of literature dealing with the city; the standard outline includes the following headings:

   - BACKGROUND
   - GEOLOGIC SETTING
   - GEOTECHNICAL CHARACTERISTICS
   - MATERIALS
   - GEOLOGIC CONSTRAINTS
   - SEISMICITY OF THE CITY
   - ENVIRONMENTAL CONCERNS
   - MAJOR ENGINEERED STRUCTURES
   - USE OF UNDERGROUND SPACE
   - ITEMS OF INTEREST OR ADDITIONAL, SPECIALIZED SECTIONS
   - REFERENCES

2) the student presents a proposal to the faculty committee for compilation of the geology of the selected city; a list of available and interested professionals in and around the city is identified; some of whom will be willing to serve as coauthors of a Cities of the World paper;

3) the student undertakes thesis-level work in observing, mapping, photographing, interviewing, reading, and interpretating the geologic aspects of the city; special attention is given to incorporating work of the identified practitioner-specialists typified in stage 1)-above.

4) student completes and submits a MS thesis dealing with geologic aspects of the city;

5) the new MS graduate then begins compilation of the Cities of the World paper, in cooperation with selected members of the profession, as identified in step 2)-above, and;

6) the paper is submitted and reviewed in the usual Bulletin and Cities of the World manner.

The program is designed to afford an opportunity for energetic graduate students to become involved in a major publication effort, yet to insure a depth and breadth of coverage that would not be available without participation of experienced practioners in and around the city. Additionally, the student is introduced to a wide variety of practicioners, several of whom will likely develop into employment sources during the course of the compilation.

Details of the Cities of the World series are available from EGD Past Chairman (1980) and present EGD Publications Committee Chairman, Allen W. Hatheway, Professor of Geological Engineering, 125 Mining Building, University of Missouri-Rolla, Rolla, MO 65401 (314-341-4777/4867).

RETIRING EDITOR'S REPORT

It has been my pleasure to serve the Division as newsletter editor since January 1980. During that time, we published 12 issues of "The Engineering Geologist," totaling 125 pages. I am very happy to leave the newsletter in Ted Smith's capable hands, and wish him success. With the Division's treasury now in good shape, I believe the newsletter will once again flourish. Please remember the success and quality of "The Engineering Geologist" is the responsibility of each of us. Your colleagues are waiting to hear from YOU!

Bob Fickies
NYS Geological Survey

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