The 28th International Geological Congress: A Preview

by Charles L. Drake

The next International Geological Congress will be held in July 1989, in Washington, D.C., under the sponsorship of the International Union of Geological Sciences. In this brief preview, Charles Drake, President of the Organizing Committee, describes the planning now well advanced for the 28th IGC. Several features new to the Congresses promise to make this one of the most popular and successful international geological gatherings ever. (Ed.)

Background

The idea of holding an International Geological Congress (IGC) was conceived in 1875. The Founding Committee consisted of James Hall, W.B. Rogers, J.W. Dawson, C.H. Hitchcock, R. Pumpelly (all U.S.A.), J.P. Lesley (U.S.A. and Canada), T. Sherry Hunt (Canada), T.H. Huxley (Great Britain), O. Torvall (Sweden), and E.H. de Baumhauer (Low Countries). The idea germinated and the first Congress was held in Paris in 1878; 310 delegates from 23 countries attended. A little more than a century later (1980), also in Paris, there were 4883 members from 116 countries and the total attendance was 5722, including families and "amis." This steady growth attests to the validity of the IGC concept and the international nature of geological investigations.

There is no permanent organization for the IGC, so the responsibility for administration passes at each Congress from one Organizing Committee to another. Thus Dr. Yevgeny A. Kozlovsky, President of the 27th IGC in Moscow will officially transfer the responsibility for the IGC to the U.S. Organizing Committee at the opening of the 28th IGC, in Washington, D.C. in August 1989. There was no international geological association when the Congress began, but in 1961 the International Union of Geological Sciences (IUGS) was established. Since the 1964 IGC in New Delhi the Congresses have served as the principal international meetings of the IUGS, and the President and the Secretary General of the IUGS were made members of the IGC Steering Committee.

Initially Congresses were held every three years, but in recent years they have been quadrennial. The 28th Congress will be an exception, being in 1989 in order not to conflict with the 1988 centennial of the Geological Society of America. This latter event is highlighted by the Decade of North American Geology, a major effort by Canada and Mexico (both of whom have hosted IGC's in recent years), Central American countries, the United States, and cooperating groups in Greenland and Iceland to produce a modern series of maps and volumes on the geology of North America.

The invitation to hold the next Congress in the United States came from the National Academy of Sciences and the U.S. Geological Survey in cooperation with 36 scientific societies and industrial organizations. The U.S. National

Committee on Geology will act as an advisor to the Organizing Committee, but the 28th IGC is an independent organization. The 29th Congress will be held three years later, in 1992, in Japan. Formal acceptance of Japan's offer will come only in 1989, so the U.S. Organizing Committee has invited their Organizing Committee to participate in its meetings and has maintained close liaison in order to assist Japanese geologists with their planning.

This is the third IGC to be held in the United States, the other two being in 1891 and 1933, and like those earlier Congresses, it will be based in Washington, D.C. (Fig. 1, 2). Sessions will be held at the Washington Convention Center, conveniently located near subway stations. Meeting rooms are close together so there should be no difficulty in moving from one session to another. Housing will be in nearby hotels, and dormitory rooms have been reserved in several local universities for those seeking more economical quarters. The Organizing Committee is exploring other ways of helping to defray expenses for individual attendees in need of assistance.

Figure 1: Among the participants in the 1933 IGC were (front row, L-R): P. Teilhard de Chardin (China), W.J. Jongmans (The Netherlands), F.E. Suess (Austria, behind Jongmans), A.W. Grabau (China), A. Heim (Switzerland, behind Grabau's left), V.K. Ting (China), E.T. Hodge (U.S.A.) and T. Kobayashi (Japan). From Proceedings of the 16th IGC, Washington, D.C. (1933).

Organization

The Organizing Committee of the 28th IGC contains 38 members representing academia, federal and state government and industry, with a distinguished 35 member Committee of Advisors to provide counsel and assistance in the planning, and an Honorary Committee of 17 leaders in science and government. A major task has been to review the suggestions for improving the Congresses, made by an IUGS committee chaired by former IUGS President R. Trümpy, and to design a program that will reflect this committee's concerns.

At the same time, the Organizing Committee recognizes that the IGC's are international gatherings, each hosted by an individual country, and that there are many IGC or IUGS affiliates whose interests must be considered when changes are made. As a result, the Organizing Committee has consulted with IUGS and its affiliates and major international programs such as the International Geological Correlation Programme (IGCP) and the International Lithosphere Program (ILP). The first circular for the Congress, released in February 1987, reflects these discussions.

Figure 2: Geologists at the 16th IGC gather for an excursion to local research facilities. Among the participants were B. Rama Rao (India - 2 from L), E. Blackwelder (U.S.A. - 5 from L), F. Homma (Japan - 6 from L), A.S. Woodward (England - 7 from R), and S. Tsuboi (Japan - 6 from R). Photo courtesy of W. Monroe, field trip leader.

Technical Program

The Program Committee recognizes that problems in the geological sciences increasingly require interdisciplinary contributions for their solution. As a result, in most cases the symposia, themes and poster sessions are organized around broad topics in order to attract interdisciplinary participation. Symposia will consist of both invited and unsolicited presentations while themes will consist solely of volunteered papers. The Program Committee has given special emphasis to poster sessions because of their great success in scientific communication and potential for scientific interaction.

In addition to the regular sessions, and as an innovation, the 28th IGC will offer short courses and workshops to participating members. Workshops are gatherings in which knowledge of new research will be shared among participants who will, in general, be specialists in the subject area. Preference will be given to those members of the Congress who have research results to share. Short courses are sessions in which specialists summarize the state of knowledge in particular areas of scientific or technical interest in an instructional format. These are especially useful to those who find the specialized knowledge useful in their own work or who wish to broaden their general knowledge.

The Organizing Committee will publish extended abstracts for each paper accepted, but not the full papers themselves. Chairpersons are being encouraged to seek publication outlets for their own sessions if they so desire. Detailed publications on the geology of the United States and all of North America will, of course, be available at the Congress.

Scientific Excursions

An extensive program of field excursions has been planned for the 28th IGC (cf. Fig. 3). These will allow participants to see some of the spectacular geology of the United States, from the Paleozoic strata of the Grand Canyon to the Florida reef tract, from the Hawaiian volcanic chain to multiple deformation of the Appalachian mountains. Trips of varying lengths (4 to 14 days) and physical difficulty are planned for virtually every geological province of the United States and into adjoining parts of Canada, Mexico, and the Bahamas. The first formal field trip ever to visit the Antarctic continent is also being planned.

Several excursions are co-sponsored by other scientific associations. The International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI) will co-sponsor several trips to examine volcanic rocks in the western United States in conjunction with the IAVCEI Scientific Assembly to be held in Santa Fe, New Mexico in June 1989. The International Association of Engineering Geology will co-sponsor pre- and post-Congress trips to provide an overview of engineering geology and geologic hazards in major U.S. cities. An excursion co-sponsored by the International Association of Hydrogeologists includes visits to Zion and Grand Canyon National Parks and the proposed nuclear-waste-repository site at Yucca Mountain, Nevada to observe physical and hydrologic-flow properties of fractures. Another trip will journey from Kentucky and Florida to the Yucatan Peninsula of Mexico to examine and compare the karst hydrogeology of those areas.

An excursion to the classic vertebrate localities in the Rocky Mountains, co-sponsored by the Society of Vertebrate Paleontology, will emphasize the significance of vertebrates in modern evolutionary studies using Mesozoic and Cenozoic localities. Excursions to Dinosaur National Monument and to the Green River, Wind River and Bighorn Basins promise views of some of the most scenic wilderness areas in North America.

Some excursions will focus on areas rich in energy and mineral resources, where relationships of structural and tectonic processes to petroleum and ore formation will be stressed. This group includes several trips across the western Transverse Range and southern Coast Range of California, one to examine the Paleozoic-Tertiary reservoirs and petroleum source rocks of the Basin and Range province, and others to the Colorado Mineral Belt, the Colorado Front Range, the Cordilleran Foreland Fold and Thrust Belt, the Stillwater Complex, and the Duluth Complex.

For geologists interested in sedimentary environments, excursions to a variety of beach and deltaic locations are planned, including coastal and lagoonal environments in subtropical south Florida and the Pleistocene and Holocene carbonate rocks of San Salvador Island in the Bahamas. Another excursion will provide a trip to the recently discovered giant subtidal stromatolites of the Exuma Islands in the Bahamas.

Some field trips will be structured as field workshops or short courses. One will concentrate on geologic issues related to faunal and floral extinctions at the Cretaceous-Tertiary boundary, including laboratory examination of the boundary clay, spindle-stage study of shocked mineral grains, and demonstrations of techniques for preparing polished slabs of the clay. The field relationships will be demonstrated during excursions to the Raton Basin in New

Figure 3: Engraving of outlet of Lake Bonneville at Red Rock Pass. Visited by a 1893 Congress excursion led by G.K. Gilbert. Excursion 117 of the 28th IGC (1989) will revisit Lake Bonneville. From *Proceedings of the 5th IGC, Washington, D.C. (1893)*.

Mexico, Lance Creek, Wyoming, and Hell Creek, Montana, where an iridium anomaly and boundary clay mark the break between the Cretaceous and Tertiary periods.

Several excursions will combine an examination of geological phenomena with discussions of public policy issued such as concerns about natural hazards, water quality, and waste disposal. Another field trip will provide an overview of the geology and geologic hazards along the intensely urbanized plate boundary from the Los Angeles basin through the Mono-Inyo Craters/Long Valley caldera, and to the San Francisco Bay area. Measures taken by state and local governments to mitigate hazards and plans for emergencies resulting from earthquakes, faulting, landslides, subsidence over oil fields, groundwater management and potential volcanism will be discussed with local officials in each region.

Continental traverses, will also be made to examine, for example, the Quaternary Geology of the Great Basin and the Quaternary of the North American mid-continent, covering more than 1,000 miles of the western and central U.S.A., respectively. A riverboat trip on the Mississippi River, from St. Louis to New Orleans, will provide an unparalleled setting for discussion of the history of the evolution of the Mississippi River Valley.

Perhaps the most wide-ranging of the field trips is entitled "Contrasts in Style of American Thrust Belts." This will examine varying structural modes of thrust belts in four areas of the Appalachian-Ouachita and Rocky Mountain orogens, from Alabama through Arkansas and Oklahoma to Wyoming, Idaho, and Montana.

A geological excursion along the 500-mile Richardson and Glenn Highways between Fairbanks and Anchorage will parallel the Alaska oil pipeline for more than 250 miles; the influence of geology on pipeline construction will be discussed. The response of glacial, glaciofluvial, and glacio-estuarine deposits to the 1964 Alaska earthquake and the resulting ground failure is a major focus of another trip.

Some field excursions may start and terminate at Washington, D.C., but most will begin and end at other cities in the United States that have major airports. Most of the excursions will be limited to no more than 40 persons. The climates encountered and the physical difficulty of each excursion are noted in the First Circular and more detailed information will be given in later Circulars.

Other Activities

The American Geological Institute will coordinate educational activities for children aged 13-19 who accompany their parents to the Congress. These activities will include visits to local organizations, laboratories and museums engaged in geological activities as well as field trips of a day or less to local sites. The objective of this youth Congress is to provide unique learning experiences to enrich the children's knowledge of the earth sciences.

The 28th IGC will feature an extensive trade fair with representation from all geoscience-related industries, scientific societies, and government and academic institutions. Exhibits will occupy over 5000 square metres of space in the Convention Center convenient to the meeting rooms in

which the technical sessions are being held. In addition to these exhibits, arrangements are being made for special exhibits in local museums and scientific organizations.

The Organizing Committee is planning to subsidize registration, accommodation and/or field trip fees for a limited number of individual attendees in need of assistance. This Geohost program is aimed primarily at students and younger geoscientists from developing nations and other countries with severe currency restrictions. Efforts are also being made in conjunction with IUGS and AGID to secure funds for a limited number of travel grants for Third World participants.

More than 100,000 copies of the First Circular were mailed to geoscientists throughout the world at the end of February 1987. If you have not received a copy, write to the Secretary General of the 28th IGC, P.O. Box 1001, Herndon, Virginia 22070-1001, U.S.A. The Second and Third Circulars will incorporate comments and reflect the preliminary intentions for participation received in response to the First.

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