

NEWS &
INFORMATIONMonthly Newsletter of
The Geological Society of America

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NOVEMBER 1983

Palmer Keeps DNAG On Track

by Lee Gladish

He won first place in the Colorado Senior Games (55-59 year olds) 100-yard dash at Greeley this summer, his rapid-fire speech would also place first if there were such a contest, and his mind can work almost as fast as the Alpha-Micro computer just down the hall from his office at GSA. It's fortunate that DNAG (GSA's Decade of North American Geology project) has a man like Allison R. (Pete) Palmer heading it, for even though the final goal is more than five years away, it takes 100-yard-dash speed to keep up with it all now.

That distant goal involves the planning, production, or coordination of more than 35 major books, 4 new continental-scale geological or geophysical compilations on a common base map, and 24 continent-ocean transects around the margins of the continent.

Large-scale Coordination

No small task, and while Pete is at the very hub of things, he isn't working alone. Currently he estimates that there are about 600 geologists and geophysicists on the continent committed to or actually working on some facet of the project. They represent 104 universities, 20 provincial and state geological surveys, 23 oil or mining companies or consulting firms, 18 countries, and 23 national agencies in the U.S., Canada, Mexico, Central and South America, Greenland, and Israel.

Most of those involved are authors or co-authors of chapters in the centerpiece of the DNAG project, a 27-volume set of syntheses, *The Geology of North America*. Eighteen of these volumes will be produced by GSA; the remainder will be produced by the Geological Survey of Canada and will form the 1980s editions of the *Geology and Economic Minerals of Canada*.

An additional 50 or so individuals from 19 major North American oil companies have served as industry observers and have contributed substantially to the thinking that has been incorporated in the outlines of the various volumes to be produced. Some have become participants in the synthesis activities.

DNAG—Inception and Growth

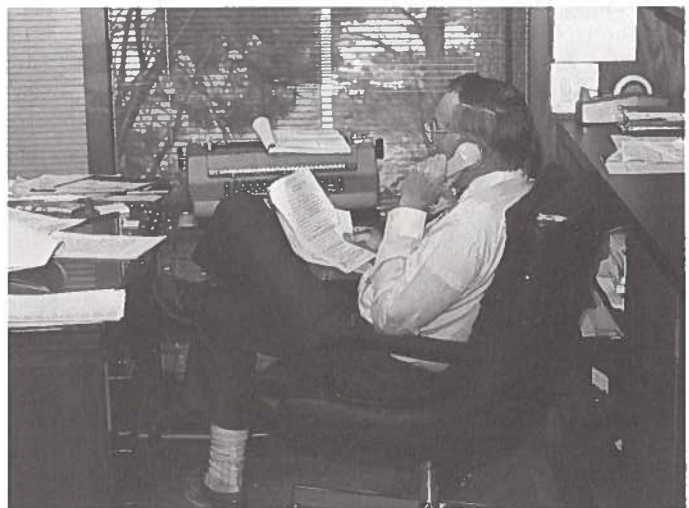
Where did it all start? Not with Pete, for back in 1977 Pete was just finishing up a three-year stint as chairman of the Department of Earth and Space Sciences at State University of New York at Stony Brook and had gone back to teaching. At about the same time, A. W. Bally was suggesting a set of books on the geology of North America to a GSA Centennial Planning

Committee chaired by R. H. Jahns. Three years later the DNAG project got underway with \$200,000 of GSA seed money and the hiring of Pete.

That seed money has germinated. Major support or pledges have been received from the Geological Survey of Canada, the U.S. Geological Survey, the National Science Foundation, industry, and the GSA membership and other individuals for those parts of the project that are being developed or published by GSA. The DNAG Fund of the GSA Foundation has now reached about 75% of the budgeted 10-year goal of \$4-\$4.5 million. The project has been endorsed by a joint committee of the Academia de la Investigación Científica (Mexico), the Royal Society of Canada, and the National Academy of Sciences (U.S.).

Publication Begins

How about results? Pete points with pride to the first product of the DNAG project—a preliminary statement, "Perspectives in Regional Geological Synthesis, Planning for *The Geology of North America*." Published in June 1982, "it has now sold more than 800 copies, with sales continuing strong," Pete says. First drafts of compilations of the southeastern quadrants of the new Geological

(continued on p. 174)

Pete Palmer coordinates GSA's centennial project, Decade of North American Geology.

PRELIMINARY ANNOUNCEMENT AND CALL FOR PAPERS

CORDILLERAN SECTION, GSA, Annual Meeting Anchorage, Alaska, May 30–June 1, 1984

The Cordilleran Section of the Geological Society of America will meet Wednesday morning through Friday afternoon, May 30–June 1, at the Anchorage Convention Center, Anchorage, Alaska. The section will meet with the Seismological Society of America and the West Coast Section of the Paleontological Society. The meeting is sponsored by the University of Alaska, Fairbanks, the State of Alaska Division of Geological and Geophysical Surveys, the Alaska Geological Society, and the Alaska Chapter of the Earthquake Engineering Research Institute.

CALL FOR PAPERS

Papers are invited for presentation at traditional technical and poster sessions and symposia. Fifteen minutes will be allotted for each paper in the technical session, including presentation, discussion, and changeover. Papers of regional interest to geologists working in Alaska and the western United States as well as those of general geological interest will be considered for the program. Technical and poster sessions will be arranged on the basis of the abstracts received and accepted. Consideration is being given to allocating one or two hours each afternoon for the poster sessions, during which time no other meetings would be scheduled. Abstracts for a symposium should be submitted directly to the symposium convener. Abstracts not accepted for a symposium will be considered for the general technical sessions.

SYMPOSIA

The following symposia are being organized. For further information contact the conveners of the individual symposia or David B. Stone (address given in Abstracts section below).

Yukon-Koyukuk Basin and Metamorphic Borderlands. J. Dillon, Alaska Division of Geology and Geophysical Surveys, W. W. Patton, U.S. Geological Survey.

Paleogeography: Eastern Siberia–Alaska–Western Canada.

K. Fujita, Michigan State University; H. Gabrielse, Geological Survey of Canada; D. Stone, University of Alaska.

Quaternary Geology of the Copper River Basin. D. Nichols, U.S. Geological Survey; R. Thorson, University of Alaska; J. Williams, U.S. Geological Survey.

Geology of Southwest Alaska: A Memorial to Joe Hoare. W. Coonrad, U.S. Geological Survey; J. Decker, Alaska Division of Geology and Geophysical Surveys; R. Wilson, U.S. Geological Survey.

Accreted Terranes of the Alaska Range Region: Stratigraphy, Structure and Tectonics. W. Gilbert, Alaska Division of Geology and Geophysical Surveys; W. Nokleberg, U.S. Geological Survey.

Some Aspects of Mesozoic Paleontology in Alaska. D. Bottjer, University of Southern California; L. Nesbitt, California Academy of Sciences.

Joint Symposia with Seismological Society of America
Deep Crustal Structure Studies. K. Aki, M.I.T.; F. Cook, University of Calgary.

The Bering Sea and Its Margins. K. Jacob, Columbia University;
(continued on p. 175)

DNAG on Track (continued from p. 173)

and Tectonic Maps of North America are on display at the GSA 1983 Annual Meeting in Indianapolis.

The DNAG 1983 Geologic Time Scale is another product of the project. In order to encourage uniformity among DNAG authors in the citation of numerical ages for chronostratigraphic units of the geologic time scale, the DNAG Steering Committee last year established an ad hoc Time Scale Advisory Committee. After nearly a year of evaluating numerical dating schemes that were either recently published or in press, the committee made its recommendations, and Pete sat down at his drawing board and compiled the camera-ready art for the DNAG Time Scale. The time scale has now been printed on wallet-size cards (available upon request from GSA) and is sold in packets of 50 copies each in 8½" x 11" size, suitable for classroom use. It was also published in the September 1983 issue of *Geology*.

Still a Paleontologist

Pete estimates he has traveled about 100,000 miles since joining GSA in 1980, mostly to attend organizational meetings for various components of the DNAG project and to assist in fund raising. But he hasn't lost touch with his specialty area of Cambrian paleontology. As current president of the Paleontological Society,

he will summarize his work on Cambrian extinction events at the Annual Meeting in Indianapolis, and as chairman of the Cambrian Subcommission of the International Stratigraphic Commission, he was able to work in a trip to Bristol, England, to assist in the recommendation for the placement of a "golden spike" at the Precambrian/Cambrian boundary. On that rare evening of leisure you might find him in his lab at his Boulder home reducing a rock specimen to see if it contains a useful trilobite.

"It's all part of that 100-yard dash," Pete explains.

GSA News & Information

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Prepared from contributions from the staff and membership. Executive Director: F. Michael Wahl; Managing Editor: Faith Rogers; Associate Editor: Lee Gladish; Production and Advertising Manager: James R. Clark; Production Assistants: Ann H. Fogel and June E. Thomas.

Cordilleran Section (continued from p. 174)

S. Mahlburg-Kay, Cornell University; D. Scholl, U.S. Geological Survey.

FIELD TRIPS

The following field trips are in various stages of consideration and/or planning. For further information, contact the leaders of the individual trips or Ruth Schmidt, Field Trip Coordinator, 1040 C Street, Anchorage, AK 99501; (907) 272-2887.

1. **Turnagain Arm to Portage and Return.** Sedimentary, glacial, and bedrock geology. Special-interest stops will include ground water, engineering geology, and gold mining. Susan Bartsch-Winkler, U.S. Geological Survey, Anchorage; Hank Schmoll, U.S. Geological Survey, Denver.

2. **Matanuska Coal Mining Area.** Chuck Hawley, Anchorage.

3. **Willow Creek Gold Mining District; Castle Mt. Fault.**

4. **Glenn Highway.** Bedrock and engineering geology, faulting. Gar Pessel and Randy Updike, Alaska Division of Geology and Geophysical Surveys.

5. **Upper Cook Inlet Quaternary Geology.** Cynthia Gardner and Hank Schmoll, U.S. Geological Survey.

6. **Anchorage Area Engineering Geology.** Emphasizing earthquake effects. Randy Updike, Alaska Division of Geology and Geophysical Surveys.

7. **Copper River Basin Quaternary Geology.** Don Nichols and Oscar Ferrians, U.S. Geological Survey.

8. **Anchorage-Seward-Resurrection Bay.** Metamorphic geology, Cretaceous sedimentary rocks, turbidites. Visit University of Alaska, Institute of Marine Sciences facilities in Seward, charter boat trip in bay. Marti Miller and Gary Winkler, U.S. Geological Survey.

9. **Fairbanks Mining District.** Precambrian and Paleozoic geology, mining, permafrost. Florence Weber, U.S. Geological Survey; Mark Hall and Tom Smith, Alaska Division of Geology and Geophysical Surveys.

10. **Cook Inlet Volcanoes.** Overflight (depending upon weather). Sam Swanson, University of Alaska; Jim Riehle, U.S. Geological Survey.

11. **Tuxedni Bay, Western Cook Inlet.** Jurassic fossil locale. Sponsor, West Coast Section, Paleontological Society.

ABSTRACTS

Be sure to use the 1984 abstract form. Abstracts are limited to 250 words and *must* be submitted camera-ready on an official form available from

David Stone
Geophysical Institute
University of Alaska
Fairbanks, AK 99701
(907) 474-7622

or

Abstracts Coordinator
Geological Society of America
P.O. Box 9140
Boulder, CO 80301
(303) 447-8850

ALL ABSTRACTS ARE DUE JANUARY 9, 1984

Send one original and five copies of abstracts to be considered for *technical and poster sessions* to David Stone (address above); for symposia, send the original abstract and five copies directly to the convener first listed beneath the symposium title or topic. Acceptance or rejection of abstracts will be based on a review by the Technical Program Committee. Abstracts will be judged on the basis of scientific merit, informative content, readability, and relevance to geologic problems of western North America and Alaska. There is no limit to the number of abstracts that may be

submitted but not more than two abstracts bearing an individual's name will be accepted for the program. Authors will be notified of acceptance or rejection well in advance of the meeting.

STUDENT PAPERS AND FINANCIAL ASSISTANCE

Student papers are encouraged, and financial assistance will be awarded to students whose papers or poster sessions are accepted for presentation at the meeting.

EXHIBITS

Exhibit space will be provided on the lower level of the Convention Center. Standard (9' x 10') and double size booths will be available. For information, contact

Hans Pulpan
Geophysical Institute
University of Alaska
Fairbanks, AK 99701
(907) 474-7424

PROJECTION EQUIPMENT

All slides must be 2" x 2" and fit a standard 35mm carousel tray and projector. Only one projector and screen will be used in each of the technical sessions. Please plan your presentation accordingly, and bring your own loaded carousel tray, if possible. Extra carousel trays will be available.

WELCOMING PARTY AND EARLY REGISTRATION

There will be a welcoming party and early registration on Tuesday evening, May 29, 1984

ADDITIONAL INFORMATION

Detailed information on registration, accommodations, activities, and entertainment will be published along with the preregistration forms and final announcement of the meeting in a future issue of *GSA News & Information*. Further information may be obtained by contacting the appropriate session or symposium convener, the field trip coordinator, or the general coordinator:

John N. Davies
Alaska Division of Geology and Geophysical Surveys
Geophysical Institute
University of Alaska
Fairbanks, AK 99701
(907) 474-6166

PEOPLE

GSA Fellow **Robert R. Jordan**, Delaware Geological Survey, has been elected president of the Association of State Geologists for 1983-1984.

Fellow **John G. Sclater** has been appointed to a distinguished chair in geophysics, Shell Companies Foundation, College of Natural Sciences and professor of geological sciences and associate director of the Institute for Geophysics, University of Texas at Austin.

Member **Kenneth P. Henderson** has been appointed deputy of the Oil and Gas Division for the Santa Maria District of the California Department of Conservation.

Fellow **George Ericksen**, USGS, Reston, has been made an honorary member of the Chilean Academy of Geologists, in recognition of his major contributions to the development of geological institutions and research in Chile.

GSA Student Associate Wins Name That Face Contest

By Lee Gladish

He named them all correctly—from James Hall, GSA President 1889, to Morgan J. Davis, GSA President 1969, and won a copy of Memoir 155, *The Geological Society of America—Life History of a Learned Society* by Edwin B. Eckel.

Stephen Laubach, a Ph.D. candidate at the University of Illinois, entered the contest announced in the May issue of *News & Information* which involved identifying the past presidents of the Society pictured in an ad for Memoir 155. His entry was the first received to name all 18 presidents correctly. Six later entrants also provided correct names.

Laubach, who became a GSA Student Associate in 1982, received his B.S. in geology at Tufts University and his M.S. at the University of Illinois. He specializes in structure and volcanology and this past summer was a teaching assistant for a field geology course in Great Britain. His dissertation work is on control by basement fractures of later anisotropy in the north-western highlands of Scotland.

The runners-up in the contest are Don Crownover, Steve Lipshie, Mark Nelson, Gordon Oakeshott, George G. Shor, Jr., and A. G. Unklesbay.

The GSA presidents pictured in the ad and their year of office are, clockwise from the upper left corner, James Hall—1889, Alexander Winchell—1891, G. K. Gilbert—1892 and 1909, N. S. Shaler—1895, J. C. Branner—1904, H. L. Fairchild—1912, Charles Schuchert—1922, Waldemar Lindgren—1924, R.A.F. Penrose, Jr.—1930, Arthur L. Day—1938, Charles P. Berkey—1941, Ernst Cloos—1954, Walter H. Bucher—1955, James Gilluly—1948, Raymond C. Moore—1958, William W. Rubey—1950, Harry H. Hess—1963, and Morgan J. Davis—1969.



Contest winner Stephen Laubach

ANOTHER CONTEST?

Sure! Since so many of you seemed to enjoy trying to "Name the Presidents" in our last contest, we thought you might like to try the same thing with some of your contemporaries. The October issue of *News & Information* contained the GSA Annual Report (pages 161-168) and pictures of several of your fellow members and colleagues busy in committee meetings. How many of those pictured on pages 161-168 can you name? Jot the names down and mail to: Contest, GSA, P.O. Box 9140, Boulder, CO 80301. The person correctly naming the most persons pictured will win a copy of Memoir 155, *The Geological Society of America—Life History of a Learned Society*. Earliest postmark will win in case of a tie. Contest closes December 31, 1983.

Memoir 157

TECTONICS AND STRATIGRAPHY OF THE EASTERN GREAT BASIN

Edited by David M. Miller, Victoria R. Todd,
and Keith A. Howard

Dedicated to Max D. Crittenden, Jr., this volume of 19 topical papers examines the tectonic history of eastern Nevada, western Utah, and southern Idaho.

Memoir 157, iv + 328, 8½ x 11", hard bound, CIP, ISBN 0-8137-1157-6 \$37.00
Check, money order in U.S. funds, or MasterCard or VISA accepted. Colorado residents add sales tax.

Order from: Publication Sales, Geological Society of America, P.O. Box 9140, Boulder, CO 80301

Council Approves Policy Statement on Science Teaching

At its May 1983 meeting, the GSA Council adopted the following statement as GSA's policy on the teaching of science and creationism:

The Geological Society of America believes in the importance of using scientific documentation and reasoning. Biological evolution is a particularly impressive example of a principle derived in this way; we geologists find incontrovertible evidence in the rocks that life has existed here on Earth for several billions of years and that it has evolved through time. Although scientists debate the mechanisms that produced this change, the evidence for the change itself is undeniable.

The ideas of "creationism," on the other hand, lack any similar body of supporting evidence. We oppose including creationism in science courses in public schools on the grounds that its conclusions were not obtained using scientific methods. Creationism weakens the emphasis on scientific reasoning that is essential to the continued advancement of scientific knowledge.

The statement was drafted by Councilors Rosemary J. Vidale, Maria Luisa B. Crawford, and Peter J. Wyllie.

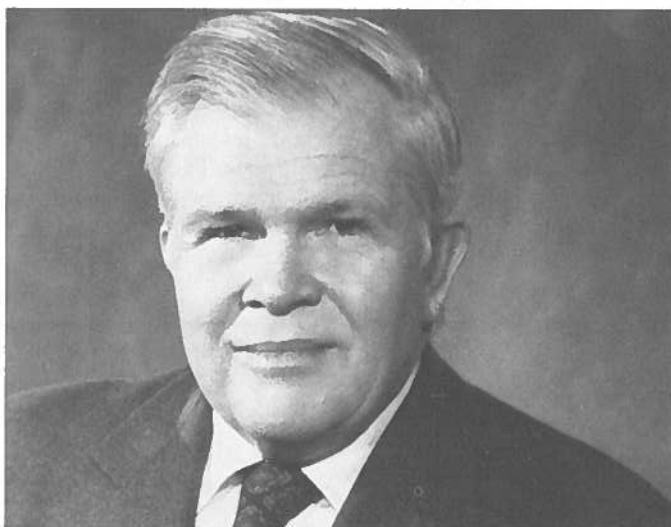
GSA Foundation Elects New Trustee

Thomas D. Barrow, Vice Chairman of Standard Oil Company (Ohio) has been elected to a five-year term on the GSA Foundation Board of Trustees.

Barrow replaces Hollis D. Hedberg. Hedberg served for two years as a charter member of the Board and asked not to stand for re-election. At their May 16th meeting, the Trustees unanimously passed a resolution commending Hedberg for his long and dedicated service to GSA and the Foundation, and elected him an honorary trustee.

Barrow became Vice Chairman of Sohio in August 1981. He is responsible for Sohio's oil and natural gas exploration and production activities, the world-wide minerals business of Kennecott Corporation (an independent subsidiary of Sohio), and the corporate planning, research and development, engineering, and technology functions.

Barrow, a native of Texas, earned his B.S. degree in petroleum engineering in 1945 and his M.A. degree in geology in 1948 from the University of Texas, and in 1953 he received a Ph.D. in geology from Stanford University.



Thomas D. Barrow

American Institute of Physics Offers Reduced Subscription Rates to GSA Members

Because the Geological Society of America is an affiliated society of the American Institute of Physics, GSA members may subscribe to AIP journals at reduced rates. This offer is limited to one subscription per person to each journal. Listed at right are AIP-owned journals, with rates available to GSA members and the nonmember rates (for comparison) for 1984. (The 1984 member rate for *Review of Scientific Instruments* and the affiliated society rate for *Physics Today* have been decreased.)

GSA members who want to subscribe to any of these journals should send their subscription orders, with remittance, to the American Institute of Physics, 335 East 45th St., New York, NY 10017, and include a statement that they are members of GSA, an affiliated society.

	Domestic Rates		Foreign Rates (including Canada and Mexico)	
	Member	Nonmember	Member	Nonmember
<i>Applied Physics Letters</i>	\$ 40.00	\$220.00	\$ 61.00	\$241.00
<i>Current Physics Index</i>	65.00	265.00	79.00	279.00
<i>Journal of Applied Physics</i>	80.00	390.00	122.00	432.00
<i>Journal of Chemical Physics</i>	100.00	660.00	155.00	715.00
<i>Journal of Mathematical Physics</i>	50.00	375.00	64.00	389.00
<i>Journal of Physical and Chemical Reference Data</i>	48.00	190.00*	55.00	197.00*
<i>Physics of Fluids</i>	45.00	345.00	63.00	353.00
<i>Physics Today</i>	20.00	50.00	32.00	62.00
<i>Review of Scientific Instruments</i>	35.00	210.00	49.00	224.00

*Nonmember subscriptions are handled by the American Chemical Society in Columbus, Ohio.

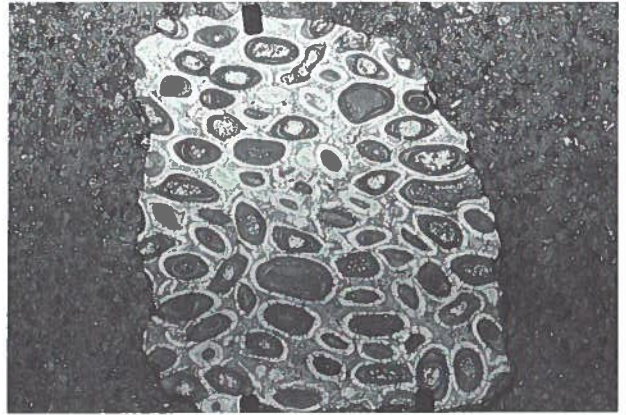
Smithsonian Institution Offers Research Training Program

The Smithsonian Institution's program of research training in higher education for 1984-85 includes fellowships in earth science. Smithsonian Fellowships are awarded to support independent research, in residence at the Smithsonian, related to research interests of the Institution's professional staff and using the Institution's collections, facilities, and laboratories. Six- to twelve-month predoctoral and postdoctoral fellowship appointments and ten-week graduate-student appointments are awarded. Proposals for research in sedimentology, planetary geology, mineralogy, petrology, meteoritics, volcanology, and history of the earth sciences may be made.

Applications are due January 15, 1984. Stipends supporting the awards are \$18,000 per year plus allowances for postdoctoral fellows; \$11,000 per year plus allowances for predoctoral fellows; and \$2,000 for graduate students for the ten-week period of appointment. Predoctoral and postdoctoral stipends and allowances are prorated on a monthly basis for periods of less than one year. Awards are based on merit. Smithsonian Fellowships are open to all qualified individuals without reference to race, color, religion, sex, national origin, age, or condition of handicap of any applicant.

For more information and application forms, write to Office of Fellowships and Grants, 3300 L'Enfant Plaza, Smithsonian Institution, Washington, DC 20560. Indicate the particular area in which you propose to conduct research and give the dates of degrees received or expected.

SPECIMEN OF THE MONTH



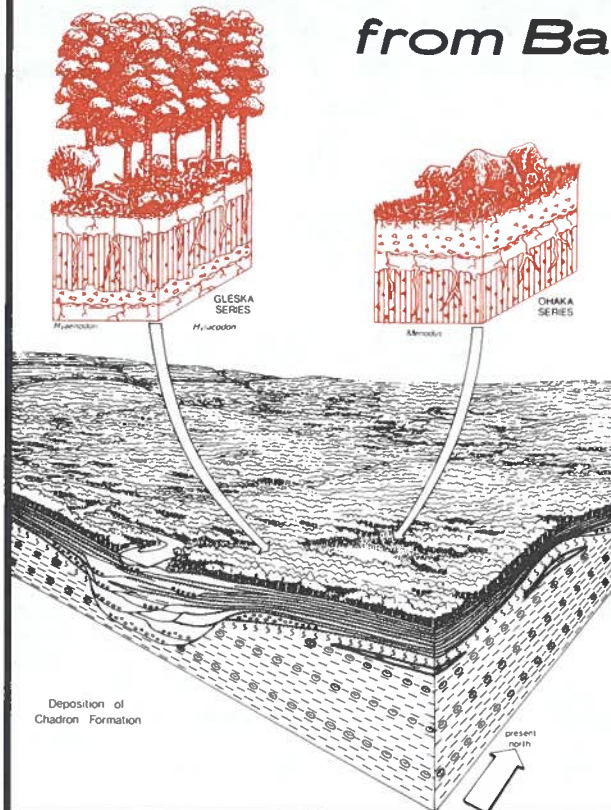
Some brave souls use their bicycles to race up and down the mountains, other even braver souls go back and forth to work on their bicycles, but Francis G. Koopman of the Water Resources Division, USGS, Albuquerque, converted his bicycle into a home-made, bicycle-operated wire saw and cut the slabs of orbicular biotite syenodiorite that decorate the walls inside the front doors of the GSA headquarters in Boulder. His wife Florence discovered the outcrop of Precambrian granite and schist along the west side of Sandia Mountain near Albuquerque.

These gifts from the Koopmans are among many specimens on display at your GSA headquarters. As a member, you own a piece of this rock. Come see it when you're in Boulder.

GSA Special Paper 193

Late Eocene and Oligocene Paleosols from Badlands National Park, South Dakota

By Greg J. Retallack



The Late Eocene and Oligocene White River and lower Arikaree Groups in the Pinnacles area of the Badlands are largely superimposed fossil soils (87 of them in 143 m of stratigraphic section). In this volume the author describes the features of the paleosols and provides description and classification of 10 paleosol series. He also reconstructs paleosols and their environments. Fascinating artwork.

Special Paper 193, vii + 82, ISBN 0-8137-2193-8, CIP \$15.00

Check, money order in U.S. funds, or MasterCard or VISA accepted. Colorado residents add sales tax.

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

Are you teaching or thinking of teaching a course in regional geology?

CONSIDER DNAG SPECIAL PUBLICATION 1

Perspectives in Regional Geological Synthesis

Planning for
The Geology of North America

Edited by A. R. Palmer

A valuable mini-text for any graduate or undergraduate course in North American geology. Twenty chapters cover the area from the Arctic to northern South America and from the mid-Atlantic Ridge to Hawaii. Each chapter is a precis of information to be developed in individual volumes of *The Geology of North America* that will begin to appear in 1984.

DNAG Special Publication 1, vi + 176 pages, 8½ x 11", 1982, bound in leatherette cover, CIP, ISBN 0-8137-5201-9. Priced for ALL geologists \$7.50*

*special low price made possible by a grant from the GSA Foundation

*** The price is still better (\$6.00) with GSA 20% member discount ***

Order from: Publication Sales, Geological Society of America, P.O. Box 9140, Boulder, CO 80301

To order, mail check or money order in U.S. funds for full amount or include MasterCard or VISA account number, expiration date, and your signature. Include GSA membership number with order at discount price. Colorado residents add sales tax.

MEETINGS

1983

Eastern Oil Shale Symposium, Nov. 13-16, 1983, Lexington, Kentucky. Information: Connie Blakemore, University of Kentucky Institute for Mining and Minerals Research, P.O. Box 13015, Lexington, KY 40512; (606) 252-5535, ext. 400/404.

Oklahoma Geological Survey Symposium, Mineral, Energy, and Water Resources Development: National and Oklahoma Perspectives, Nov. 30-Dec. 1, 1983, Norman, Oklahoma. Information: Symposium Committee, Oklahoma Geological Survey, 830 Van Vleet Oval, Room 163, Norman, OK 73019; (405) 325-3031.

AGU Fall Meeting, Dec. 5-10, 1983, San Francisco, California. Information: American Geophysical Union, 2000 Florida Ave., N.W., Washington, DC 20009.

1984

25th U.S. Symposium on Rock Mechanics, June 25-27, 1984, Evanston, Illinois. Information: Charles H. Dowding, Dept. of Civil Engineering (25), Northwestern University, Evanston, IL 60201; (312) 492-7270.

International Symposium on Deep Structure of the Continental Crust: Results from Reflection Seismology, June 26-28, 1984, Ithaca, New York. Information: Muawia Barazangi, Dept. of Geological Sciences, Cornell University, Ithaca, NY 14853; (607) 256-6411; Telex 937478.

Canning Basin Symposium, June 27-29, 1984, Perth, Western Australia. Information: Phil Connard, Shell Development (Australia) Pty. Ltd., G.P.O. Box W2050, Perth, W.A. 6001, Australia.

GSA Penrose Conferences

January 16-21, 1984

The West-African Connection—Evolution of the Central Atlantic Ocean and Its Continental Margins

Giens, France

Conveners: John Rodgers, Yale University; Xavier T. LePichon, University of Paris; Jean Sougy, University of Marseilles

April 30-May 4, 1984 (tentative)

Structural Styles and Deformational Fabrics of Accretionary Complexes

Eureka/Arcata area, northern California

Conveners: J. Casey Moore, University of California, Santa Cruz; Daniel E. Karig, Cornell University; Darrel S. Cowan, University of Washington

April 29-May 4, 1984

Processes and Products of Multistage Melting and Metasomatism in the Mantle

Apache Junction, Arizona

Conveners: Jane E. Pike, USGS, Menlo Park, California; Arthur L. Boettcher, University of California, Los Angeles; Frederick A. Frey, MIT; Frank M. Richter, University of Chicago

June 23-30, 1984

Melanges of the Appalachian Orogen

Stephenville, Newfoundland

Conveners: Harold Williams, Memorial University of Newfoundland; Nicholas Rast, University of Kentucky; Brenna E. Lorenz, Memorial University of Newfoundland

WHAT THEY WERE READING

25 years ago . . .

"(1) Linear features are conspicuous on most aerial photographs of southeastern Alaska. These linear features, herein called linears, are interpreted in most cases as faults.

"(2) Three large lineaments are recognized: the Clarence Strait lineament, the Chatham Strait lineament, and the Coast Range lineament. The last two may be splits from the Denali lineament extending for 1600 miles from southeastern Alaska along the Alaska Range to Bristol Bay.

"(3) Linears in southeastern Alaska may be grouped into a well-defined and widespread system that strikes northwesterly and three ill-defined systems that strike northerly, northeasterly, and easterly.

"(4) Most of the hot springs in southeastern Alaska are on conspicuous linears, whereas carbonated and sulfur springs do not seem to be preferentially located on linears.

"(5) We believe that the distribution of the mineral deposits in the Juneau gold belt and the Chichagof-Sitka belt is related to the position of regional faults; this hypothesis is worthy of testing in other mineralized districts in southeastern Alaska. We suggest that prospecting and exploration might be profitably guided by such a concept."

From "Fault Patterns in Southeastern Alaska"
by William S. Twenhofel and C. L. Sainsbury
Bulletin of the Geological Society of America
v. 69, p. 1431-1442, November 1958

50 years ago . . .

"The Knoxville-Shasta succession of Mesozoic strata in the Coast Ranges of California is separable into two distinct stratigraphic units; one, Jurassic in age, and the other, mainly Lower Cretaceous. Between these two series is a clearly marked unconformity. The Knoxville, or older, series, in its type district and throughout the zone that may be designated as its type area, forms a stratigraphic unit distinct from any other with which it is in contact. It rests unconformably upon older formations, including the Franciscan series, and is overlaid unconformably by later deposits of Lower Cretaceous age. The Knoxville series is characterized by a fauna of boreal character, the nearest allies of which are found in the upper Jurassic (Portlandian and Aquilonian) of Russia and of western Europe. . . . It attains a stratigraphic thickness of 13,820 feet. Although in point of thickness it exceeds any other recognized sequence of Jurassic strata in the West, its known areas are limited to the Coast Ranges of California and Oregon; no equivalent beds have been proved to exist in other Jurassic areas on the Pacific Coast. None such has been described from these areas between southern Oregon and the northern coast of Alaska. Most, if not all, of the known Jurassic areas in these regions show only older (pre-Portlandian) horizons of this system, differing from the Knoxville in lithology and in fauna.

"The Shasta series, which overlies the Knoxville throughout its type area, is, for the most part, of Lower Cretaceous age (Infra-Valangian to Albian). It likewise forms a distinct stratigraphic unit, bounded above and below by clearly marked unconformities. Its stratigraphic thickness approximates or exceeds that of the Knoxville, varying from 12,000 to 20,000 feet, according to the location of the measured section. Its fauna is, for the most part, distinctly Neocomian below, passing into middle Albian horizons above. The most characteristic elements of its

fauna are of southern, or subtropical, aspect, in which regard it contrasts strongly with the fauna of the Knoxville series.

"The Shasta series is capable of division into two parts, which have been called, respectively, Paskenta beds (below) and Horsetown beds (above) which, in the measured section, aggregate 5340 and 7660 feet.

"The Shasta series can be recognized in many areas of the Coast Ranges of California and Oregon, and in many areas beyond the borders of these States. In fact, it seems to extend throughout the entire Pacific Coast, from California to the Yukon River, Alaska. Wherever it has been found in California it rests unconformably upon older terrains (Paleozoic or Mesozoic), showing conditions of overlap and of marine transgression beginning with Cretaceous time. This overlap, well shown in California and Oregon, is noted in the literature pertaining to all the areas thus far described on the Pacific Coast between California and northern Alaska.

"The Knoxville-Shasta succession, as now known in California, covers one of the most interesting and critical periods of geologic history, showing by its deposits and by its record two distinct and profound diastrophic events (orogeny) that should furnish the key to the Mesozoic geologic record and stratigraphic sequences throughout the Pacific Coast."

From "Knoxville-Shasta Succession in California"
by F. M. Anderson
Bulletin of the Geological Society of America
v. 44, p. 1237-1270, December 31, 1933

75 years ago . . .

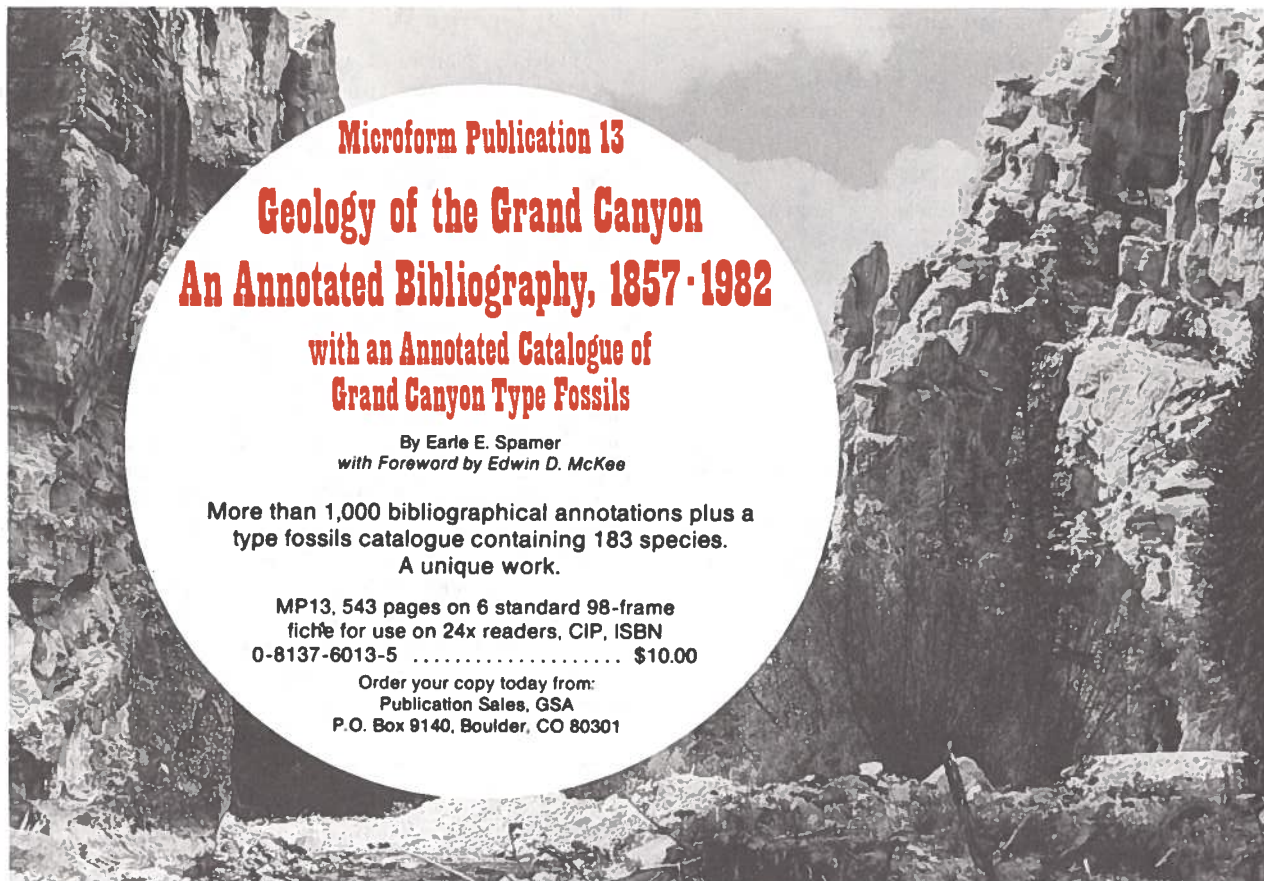
"Some general cause, applicable to the whole world, must be assumed, such as a change in the sun's heat or in the composition of the atmosphere, to account for periods of universal refrigeration, separated by long periods of mild climate reaching even to the polar regions. But the cause must permit also comparatively rapid oscillations to account for warm interglacial episodes. The astronomical theories founded on the varying eccentricity of the earth's orbit seem to be ruled out, as shown by more than one writer, because of the relatively large number of rather evenly distributed ice ages which they suggest, and also by the assumption of alternating conditions in the two hemispheres. All the geological evidence points toward simultaneous glaciation in the northern and southern hemispheres, and the great extension of glaciers on mountains under the equator is inexplicable on the theory of varying eccentricities of the earth's orbit.

"On the other hand, the strange clustering of great ice-sheets about certain centers suggests some factor which is not universal, but local in a broad way. A shifting of the poles of the earth has naturally been brought forward to account for the Permo-Carboniferous ice-sheets on low ground on both sides of the tropics; and this would aid in solving some of the problems connected with such an ice age, but would raise new difficulties in other directions.

"A shifting of the poles would do little toward accounting for the Permo-Carboniferous ice age, and would, of course, be quite inapplicable to the Pleistocene period, so that it may be left out of account.

"The most probable general cause for ice ages is to be found in changes of the composition of the earth's atmosphere, as suggested long since by Professor Tindall and more recently by Professor Arrhenius and elaborated by Professor Chamberlin,

(continued on p. 181)



Microform Publication 13

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NSF Offers Graduate Fellowships

As one means of aiding the progress of science and engineering in the United States, NSF Graduate Fellowships and Minority Graduate Fellowships will be offered to individuals who have demonstrated ability and special aptitude for advanced training in science or engineering. Applicants must be citizens of the United States, and will be judged on the basis of ability. Applicants for Minority Graduate Fellowships must be citizens of the United States who are members of one of the following ethnic minority groups: American Indian, Black, Hispanic, Native Alaskan (Eskimo or Aleut), or Native Pacific Islander (Polynesian or Micronesian).

What They Were Reading (continued from p. 179)

since known or possible results of the increase or decrease of carbon dioxide and of aqueous vapor would go far to produce the necessary changes of climate. It is highly probable, however, that to the general atmospheric causes should be added important local changes, as, for example, of level, of ocean currents through rising or sinking of sea-bottoms and land surfaces, or of the shifting of centers of high and low pressure.

"It may be that ice ages can only be produced by a combination of causes, local and general, and that an eclectic grouping of theories will ultimately prove most satisfactory."

From "Glacial Periods and Their Bearing on
Geological Theories"

by A. P. Coleman

Bulletin of the Geological Society of America
v. 19, p. 347-366, November 10, 1908

NSF Graduate and Minority Graduate Fellowships are intended for students at or near the beginning of their graduate study; they will be awarded for study or work leading to master's or doctoral degrees in the mathematical, physical, biological, engineering, and social sciences, and in the history and philosophy of science. Eligible applicants will, in general, be college seniors or first-year graduate students who, at the time of application, have not completed more than 20 semester or 30 quarter hours, or equivalent, of study in any of the aforementioned science and engineering fields following completion of their first baccalaureate degree, or its equivalent.

Subject to the availability of funds and to sustained academic progress, new fellowships awarded in March 1984 will be for maximum tenured periods of three years. The annual stipend for NSF Graduate and Minority Graduate Fellows will be \$8,100 for a twelve-month tenure.

Applicants will be required to take the Graduate Record Examinations (GRE) designed to test aptitude and scientific achievement. The examinations, administered by the Educational Testing Service, will be given on December 10, 1983, at designated centers throughout the United States and in certain foreign countries. The Foundation will pay December 10 test fees for fellowship applicants, providing NSF application is the primary purpose.

Deadline date for the submission of applications for NSF Graduate Fellowships and Minority Graduate Fellowships is November 23, 1983. Further information and application materials may be obtained from the Fellowship Office, National Research Council, 2101 Constitution Avenue, Washington, DC 20418.

In Memoriam

Geoffrey Bond
Harare, Zimbabwe
June 19, 1983

Vincent P. Gianella
Auburn, California
July 9, 1983

Richard E. Koch
Lugano, Switzerland
July 3, 1983

Robert S. LaMotte
Oakland, California

Joseph L. Lindner
Green Valley, Arizona
April 30, 1983

Rupert H. MacNeill
Wolfville, Nova Scotia

Harrell L. Strimple
Iowa City, Iowa
August 21, 1983

Memorial Preprints

The following memorial preprints are now available, free of charge, by writing to GSA, P.O. Box 9140, Boulder, CO 80301:

Henry Raymond Aldrich, by Robert W. Webb
Carl Bernard Anderson, by Rudolph F. Anderson
(Everett) Philip Andrews, by Bruce F. Curtis
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and David E. Pope
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Willard Frank Libby, by Leona Marshall Libby
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Denis Eugene Marchand, by Jennifer W. Harden
Elliott Bates McKee, Jr., by Julian D. Barksdale
Phillip Leonidas Merritt, by Thomas E. Gillingham
Earl Leroy Packard, by Ira S. Allison
Claude Nathan Valerius, by C. Lane Sartor

Applications Sought for Senior and Postdoctoral Research Associateships

The National Research Council announces the 1984 Postdoctoral, Resident, and Cooperative Research Associateship Programs for research in the sciences and engineering to be conducted on behalf of 19 federal agencies or research institutions, whose laboratories are located throughout the United States.

About 250 new full-time associateships will be awarded on a competitive basis in 1984 for research in chemistry, engineering, and mathematics, and in the earth, environmental, physical, space, and life sciences.

Awards are made for one or two years; senior applicants who have held the doctorate at least five years may request shorter tenures. Stipends for the 1984 program year will range from \$24,500 a year for recent Ph.D.s up to approximately \$50,000 a year for senior associates.

Applications to the National Research Council must be post-marked no later than January 15, 1984. Initial awards will be announced in March and April, followed by awards to alternates.

Information on specific research opportunities and federal laboratories, as well as application materials, are available from Associateship Programs, Office of Scientific and Engineering Personnel, JH 608-D2, National Research Council, 2101 Constitution Avenue, N.W., Washington, DC 20418, (202) 334-2760.

Travel Grants Will Send Geochemists to IGC

The U.S. National Committee for Geochemistry is seeking funding for its Travel Grant Program to the 27th International Geological Congress to be held in Moscow, USSR, August 4-14, 1984. In cooperation with other organizations, the committee seeks to ensure appropriate U.S. participation by providing 10 to 20 travel grants to enable geochemists residing in the United States to attend. Travel grant awards will be based in part on a Screening Subcommittee's ranking of 900- to 1,200-word abstracts submitted for presentation at the congress. Special consideration will be given to younger geochemists and those judged to benefit most by participating in this important international congress.

To apply: Six (6) fastened-together sets of completed applications, including a completed form and a 900- to 1,200-word abstract of the paper to be presented, must be received by W. L. Petrie, USNC/Geochemistry, NAS-NRC, 2101 Constitution Avenue, Washington, DC 20418 by *January 31, 1984*. (Forms available from Petrie.) *Two stipulated requirements of travel grantees are* (1) use of U.S. Flag Carriers wherever possible, and (2) filing of a meaningful trip report before October 14, 1984.

Depending on the availability of funds, travel grant awards may be made by May 1, 1984. However, cancellations and other factors may delay a few grant awards to as late as August 1, 1984, or possibly after the congress.



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