

Rock Stars

INTRODUCTION

Bernard of Chartres, an 11th-12th century philosopher and teacher, said that we are like dwarfs on the shoulders of giants, so that we can see more than they and for a greater distance, not by any virtue of our own but because we are carried high and raised aloft by their stature.

All of us have our geological heroes, those giants on whose shoulders we stand. To encourage recognition of these

luminaries and to provide inspiration for students and young professionals, the GSA History of Geology Division presents *Rock Stars*, brief profiles of our geological giants. Here is the first one. If you have any comments on this or subsequent profiles, please contact Robert N. Ginsburg, University of Miami, RSMAS/MGG, 4600 Rickenbacker Causeway, Miami, FL 33149-1098, E-mail: rginsburg@rsmas.miami.edu.

—Robert N. Ginsburg, Chair, History of Geology Division

Formative Years of the Scientific Career of T. Wayland Vaughan

Robert N. Ginsburg

Soon after I came to Florida some decades ago to study recent carbonate sediments and reefs, I found references to publications by T. Wayland Vaughan. At first I thought they could not be of much value to me because they were already decades old and Vaughan's name was not linked with any major concepts in the geology of carbonates. Fortunately, I did take two of his major papers with me on my first field trip to study reefs and sediments on Loggerhead Key in the Dry Tortugas off Key West. That island was the site of the Carnegie Institution's Marine Biological Laboratory, where Vaughan and other pioneers studied reefs during the first 40 years of this century. I had my first look at beach rock, coral reefs, and associated sediments; I snorkeled over the reefs that Vaughan studied; and I visited nearby Fort Jefferson, where he planted corals to study their growth rates. At the same time I was establishing a connection with the historical Vaughan, I was reading his major works on reefs and geologic history of Florida. I was amazed and impressed to learn how much he had done in less than 20 years when there was no scuba, no outboard motors or aerial photographs, and only primitive bottom-sampling gear. I found that Vaughan began the first effort to analyze the origin of grains in carbonate sediments from the sea floors of south Florida, and I was inspired to expand the effort in one of my first major research projects. Later, I discovered that he was also a pioneer in measuring the growth rates of corals, that he combined well logs and outcrop data to provide an outline of the geologic his-

tory of southern Florida, and that he posed most of the significant questions about the origin of ooids and lime mud in the Bahamas and the effects of Pleistocene lowstands of sea level on the margins of the banks.

The more I read of Vaughan's works, the more I was impressed with his accomplishments not just in Florida, but in the West Indies and Panama, as well as in the Pacific. In addition to his scientific accomplishments, he served with distinction as one of the early directors of Scripps Institution of Oceanography in California. He was a key player on two National Research Council committees that had seminal effects in oceanography and paleoecology. My appreciation for Vaughan's contributions, especially those in Florida and the Bahamas, led me to name the lab I established, in 1970, the T. Wayland Vaughan Laboratory for Comparative Sedimentology.

Jonesville, Texas (population about 300), near the Louisiana border, is not much larger than it was in 1870 when T. Wayland Vaughan was born to a prosperous family with distinguished ancestors back east. What Jonesville lacked in intellectual stimulation was more than compensated for by Vaughan's family. His physician-father was an ardent scholar who had one of the finest libraries in the region. This climate of interest in books is probably one of the sources of Vaughan's lifelong addiction to learning, which extended to poetry, philosophy, and language, as well as science. With this background, it is no wonder that he was precocious and entered Tulane University at age 15.



Field geologist T. Wayland Vaughan at 26, in Texas.

At Tulane, Vaughan intended to study medicine, following his father's example, but the emerging applications of electricity were what was exciting—New Orleans was just beginning to have indoor lighting when he arrived—and Vaughan, ever-sensitive to opportunity, enrolled in the physical science curriculum. At Tulane, his B.A. in physical science was only the tip of an iceberg of interests. At commencement he read a paper on 18th century author Oliver Goldsmith, and in later life he said he was thankful he spent his third year of French studying the *Chanson de Roland*. In his acknowledgment of the Penrose Medal from the Geological Society of America in 1946, Vaughan explained that he “read and still have all the recommended books” from his undergraduate days and annually reread reviews of Greek philosophy. The seeds of his future career were also planted at Tulane, where two of the faculty inspired his interest in the history of life that could be read in fossils.

His infatuation with electricity was probably dulled by two happenings in the summer of his junior year at Tulane, 1888. Partly, it may have been his first job of reading electric meters in the heat and humidity of a New Orleans summer, but more likely, it was his first discovery of fossils. Only eight miles from his father's farm, he and a crew of laborers excavated, with much excitement, specimens of fossil leaves and the skeleton of an elephantlike mammal; all were sent to the Tulane museum. Later, with additional collections, he prepared a paper on these Eocene fossils.

Graduating from Tulane before he turned 19, Vaughan took a teaching position in Mt. Lebanon, Louisiana, at a school so small that it combined

junior college level with that of high school and elementary—not exactly the launching pad for a scientific career. But there his curiosity and opportunism led him to study all sorts of plants and animals in the surroundings, and thus began his scientific career at the border between geology and biology. There also were the turning points in his future, those seemingly insignificant circumstances that so often lead in one direction or the other. An interest in plants, inspired probably by the earlier discovery of fossil leaves, led to a summer course in botany at Harvard, where, as a result, he became a graduate student in 1892. The nearby outcrops of Eocene marine sediments near Mt. Lebanon are rich in corals and mollusks. Vaughan's collection of them provided the material for his doctoral dissertation, which in turn led to study of living reefs, carbonate sediments, and Cenozoic geology of the Caribbean.

Harvard in the 1890s must have been an exciting experience. It retained the aura of the Louis Agassiz years as the country's premier institution of natural history; it had a faculty that included N. S. Shaler, William Morris Davis, and Alpheus Hyatt at the nearby Boston Society of Natural History—all leaders in the study of sedimentary deposits; and it had the excitement of graduate-student participation in cruises led by Alexander Agassiz to explore the reefs of Florida and the Bahamas. One of these assistants was Vaughan's fellow student, Alfred G. Mayor, a biologist, who subsequently convinced the Carnegie Foundation to establish, in 1904, the first laboratory for tropical marine biology at the Dry Tortugas, reef-ringed islands off Key West, Florida. Given Vaughan's interest in corals, it is not surprising that he soon became a regular researcher at the Carnegie Laboratory on idyllic Loggerhead Key. There, during part of the year, he did pioneer research on corals and their growth rates, on reefs, and on calcareous sediments of both south Florida and the nearby Bahamas. The rest of the year found him studying Cenozoic counterparts of his beloved corals and mollusks in Cuba, the Dominican Republic, and Panama.

Vaughan's subsequent career expanded like the ripples from a pebble thrown into a lake. His publications extended from the corals, sediments, and geologic history of Florida and the Bahamas to the Cenozoic stratigraphy of the Caribbean and the Atlantic coastal plain. He helped to establish, and chaired, the National Research Council's influential Committee on Sedimentation that inspired research and led to the publication of the *Treatise on Sedimentation*, a milestone in the development of sedimentary geology. His interest in reefs and marine deposits led him increasingly into oceanography, and from 1924 to 1936 he was the director of the Scripps Institution of Oceanography, wrote an influential report on international oceanography, and was a member of the committee that was instrumental in founding the Woods Hole Oceanographic Institute. When he retired from Scripps, he resumed his scholarly career with studies of the larger Foraminifera, but he still found time to organize a Committee on Marine Ecology as related to paleontology that produced a seminal two-volume *Treatise on Marine Ecology and Paleoecology*. He also continued to develop three hobbies: the study of comparative religions, old Teutonic legends, and oriental art. He was so taken with Japanese art and customs



The Vaughan family without T. Wayland, in about 1886, Jonesville, Texas. Vaughans still occupy this house.

Vaughan continued on p. 234

that he learned the language when in his 60s, and he lectured often on oriental art.

A photograph of Vaughan hangs outside my office, and when students ask who he was, there is an opportunity to explain how curiosity, drive, and making the most of every opportunity helped him to become a leading scientist who, through his own works and leadership, left a lasting influence on sedimentary geology.

T. Wayland Vaughan was born on September 20, 1870 and died on January 16, 1952.

For more on Vaughan:

Thompson, T. G., 1958, T. Wayland Vaughan: Academy of Sciences Biographical Memoirs, National Academy of Sciences, v. 32, p. 399-437.

Vaughan, T. W., 1919, Corals and the formation of coral reefs: Smithsonian Institution Annual Report for 1917, p. 189-276.

Vaughan, T. W., 1946, Response to presentation of the Penrose Medal: Geological Society of America Proceedings, Annual Report, p. 69-76. ■

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Positions Open

UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

The Department of Geography and Earth Sciences invites applications for a tenure-track geoscientist (Ph.D. required) at the assistant professor level with research expertise in surface/near surface processes, particularly in one of the following areas:

(1) water/rock/sediment/soil interactions from the perspective of paleoclimatology, global change, clay mineralogy, stable isotope geochemistry, or low temperature aqueous geochemistry;

(2) geophysics from the perspective of geotechnical and computational modelling applications in near-surface studies and environmental site characterization, or hydrogeology.

The successful candidate is expected to teach in areas of specialization, interact with existing faculty, and contribute to student research experiences. The ability to teach earth history is desirable.

The department offers B.A. and B.S. degrees in earth sciences, organized into four tracks: geology, geotechnology, atmosphere/hydrology and environmental science, and an M.A. in geography which includes an environmental analysis track. An M.S. in earth sciences is in the planning stages.

The position begins in August 1996. Interested individuals should submit a letter articulating qualifications, teaching interests, research goals, plus a curriculum vitae with the names and addresses of at least three references to Wayne Walcott, Chair, Department of Geography and Earth Sciences, University of North Carolina at Charlotte (UNCC), Charlotte, NC 28223. Review of applications will begin January 15, 1996, and will continue until the position is filled. AA/EOE.

COLLEGE OF WILLIAM AND MARY FACULTY POSITIONS

The Department of Geology at the College of William and Mary invites applications for two tenure-track positions to begin in August 1996. The successful individuals must possess a strong commitment to excellence in undergraduate teaching in the classroom, laboratory, and field. Courses which must be taught between them are Mineralogy, Igneous/Metamorphic Petrology, and Structural Geology. One person will teach at least one of these courses, and the other person will teach two of them. Other courses which may be taught include introductory geology courses and elective geology courses of the candidates' choice. Supervision of undergraduate research projects is required of each candidate. Both positions require the Ph.D. and a commitment to research involving undergraduates. One position is for an entry-level assistant professor, and the other will be filled at the assistant or associate professor level. Review of applications will begin on December 20, and will continue until the positions are filled.

Send a letter of application, statement of teaching and research interests and objectives, curriculum vitae, undergraduate and graduate transcripts, and three letters of reference to Bruce K. Goodwin, Chair, Department of Geology, College of William and Mary, Williamsburg, VA 23187-8795.

The College of William and Mary is an Equal Opportunity/Affirmative Action university. Members of under-represented groups (including people of color, persons with disabilities, Vietnam veterans and women) are encouraged to apply.

ARIZONA STATE UNIVERSITY MINERALOGY

The Department of Geology at Arizona State University invites applications for a faculty position in Mineralogy defined in the broadest sense. Applicants are sought whose research will complement existing programs in the department. Individuals with research interests in fields such as mineral microstructures, electron microscopy, crystallography, reaction kinetics, high-pressure mineralogy, mineral physics, mineral surfaces, or mineral interfaces are encouraged to apply. Interdisciplinary interests are encouraged. Preference will be given to applicants at the assistant professor level, but we will consider applications from outstanding individuals for a senior faculty position.

The successful candidate will be expected to develop a vigorous research program and to be strongly committed to quality teaching. A Ph.D. in geology or related science is required, with emphasis in mineralogy or a related field and evidence of research and teaching achievement or potential appropriate to rank are required. Starting date: 16 August 1996.

Send letter of application describing current research and teaching interests, curriculum vitae, and names and addresses of three potential references to: Prof. James A. Tyburczy, Mineralogy Search Committee Chair, Department of Geology, Box 871404, Arizona State University, Tempe, AZ 85287-1404, (602) 965-2637, 602 965-8102 fax.

The closing date for applications is 1 December 1995 and the first day of each month thereafter until the position is filled. Arizona State University is an Equal Opportunity/Affirmative Action Employer.

PETROLOGIST/ GEOCHEMIST

The Department of Earth Resources at Colorado State University invites applications for a 9-month, tenure-track position in petrology at the assistant professor level starting August 1996. We seek individuals with a strong commitment to undergraduate and graduate teaching, research, and service. A Ph.D. in geology or a closely related field must be completed by time of appointment.

The Department of Earth Resources offers field-oriented undergraduate and graduate programs in geology and watershed science. Candidates should be able and willing to teach any part of undergraduate mineralogy-petrology sequence, introductory physical geology, and other courses. Candidates should complement and be able to interact with existing faculty in the department. Interest in and ability to teach geochemistry and/or economic geology are desirable.

Candidates are expected to establish an active research and graduate student training program with external funding. Diverse research opportunities and facilities are available to CSU and other academic, industry, and government organizations in the Front Range area.

Applicants should send a curriculum vitae, a statement of teaching and research interests, and three reference letters to: Petrology Search Chair, Depart-

ment of Earth Resources, Colorado State University, Fort Collins, CO 80523. Applications must be received by December 15, 1995.

Colorado State University is an EEO/AA employer. E.O. Office: 21 Spruce Hall.

IGNEOUS/METAMORPHIC PETROLOGIST UNIVERSITY OF CALIFORNIA, SANTA BARBARA

The Department of Geological Sciences is opening a tenure-track position in Petrology at the University of California, Santa Barbara. Applicants should have demonstrated research potential and a strong commitment to undergraduate and graduate instruction. Teaching responsibilities to include field geology, undergraduate igneous and metamorphic petrology, and advanced graduate classes including kinetics and thermodynamics of petrological systems. It is expected that the candidate will oversee the Electron Microbeam Analysis Lab at UCSB, and be a primary user of same.

The appointment will be made at the assistant professor level and will be effective July 1, 1996. A Ph.D. is required at time of appointment.

Completed applications will be accepted through November 30, 1995. Submit resume, statement of research and teaching interests and objectives, and names of three referees to: Professor Frank J. Spera, Search Committee Chair, c/o Lou Anne Paluis, Geological Sciences Department, University of California, Santa Barbara, Santa Barbara, CA 93106-9630.

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LAFAYETTE COLLEGE

Assistant Professor, tenure-track position beginning Fall 1996 to teach courses in Sedimentology/Stratigraphy, Earth History, Oceanography/Marine Geology, and to participate in Introductory Geology courses. Applicants are invited to describe additional courses that they might teach in an undergraduate geology and environmental geosciences curriculum. A Ph.D. is required and teaching experience is preferred.

Please send a resume, a statement of teaching and research interests, graduate and undergraduate transcripts, and three reference letters to: Dr. Lawrence L. Malinconico, Jr., Department of Geology and Environmental Geosciences, Lafayette College, Easton, PA 18042-1768. Women and minorities are encouraged to apply. We will interview candidates at the Geological Society of America meeting in New Orleans, LA. However, applications will be accepted until December 31, 1995, or until the position is filled. An equal opportunity employer.

PALEONTOLOGIST/PALEOECOLOGIST UNIVERSITY OF MIAMI, CORAL GABLES

Department of Geological Sciences, College of Arts and Sciences invites applications for a tenure-track position at the assistant-professor level from persons who use paleontology as a research tool in such fields as paleoecology, environmental geology, and global climate change. The department is particularly interested in expertise in shallow marine paleoecology and paleontology as a complement to our coastal stratigraphy and paleoenvironmental research program.

The position is located at the main campus in Coral Gables.

Applicants will be expected to teach undergraduate courses in invertebrate paleontology, historical geology, and evolution of the biosphere. Also, the successful applicant will be expected to collaborate with other faculty, guide graduate students, advise undergraduate students, seek extramural research funds, develop and maintain an active research program, and participate in the general activities of the university.

Research interests of the current four faculty members range from coastal and shallow marine sedimentation to isotopic studies of the mantle, climatic and hydrologic modeling, Caribbean ore deposits, volcanism, tectonics, carbonate and organic sediment processes, and diagenesis.

The Department works closely with the 15 faculty members of the Division of Marine Geology and Geophysics at the Rosentiel School on the Key Biscayne campus approximately seven miles from the main campus.

Applicants should submit a letter summarizing their research interests, a curriculum vitae and the names of three references before January 15, 1996, to Dr. Harold Wanless, Chairman, Faculty Search Committee, Department of Geological Sciences, University of Miami, Box 249176, Coral Gables, FL 33124-0401.

We expect to fill the position by June 15, 1996, with a start date of August 15, 1996. The University of Miami is an equal opportunity affirmative action employer and a smoke/drug-free workplace.

ENVIRONMENTAL GEOSCIENTIST HYDROGEOLOGIST

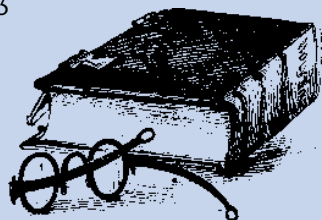
THE UNIVERSITY OF TEXAS AT DALLAS

We have an opening for a tenure-track, faculty position (rank open) in the field of Environmental Geosciences for Fall 1996. The successful candidate will complement our existing strengths in high resolution geophysics and geochemistry and will lead an expanding research effort in environmental geosciences. Applications are invited from hydrogeologists with strengths in environmental geophysics or low-temperature geochemistry. Teaching responsibilities will include graduate and undergraduate courses in hydrogeology, courses in the area of specialization, and supervision of graduate students. We expect to fill this position at the assistant professor level, but rank and salary are negotiable. A Ph.D. must be held at the time of appointment.

Formerly the Southwest Center of Advanced Studies, UTD was established in 1969. The Department has 14 faculty, 3 technical support staff, 5 research scientists, 5 research associates, and a well equipped laboratory and computational facilities. There are about 75 graduate and 50 undergraduate

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Department of Earth and Planetary Sciences
The University of New Mexico

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An application for admission to the UNM Graduate Program, transcripts, Graduate Record Examination scores (general and geology), three letters of recommendation, and a brief statement of research goals are required for consideration for the fellowship. Application materials may be obtained from:

Barry S. Kues
Chair
Department of Earth and Planetary Sciences
University of New Mexico
Albuquerque, NM 87131



The deadline for applications is January 31, 1996 for the Fall Semester of 1996

Edward Lamb McCollough Chair in Petroleum Geology

The University of Oklahoma School of Geology and Geophysics solicits applications and nominations for its new Edward Lamb McCollough Chair. The individual holding this Chair is expected to add significantly to the School's petroleum geology program and initiate a new Institute for Petroleum Geology in cooperation with the Sarkeys Energy Center. The Chairholder is expected to teach 1-2 courses/year (undergraduate or graduate) and support graduate students. The individual must have qualities of leadership which will bring together academic and industry interests toward building an effective Institute. The specific field of the Chairholder is open (e.g., stratigraphy - structural geology - geochemistry - geophysics) as long as creative application in the field of petroleum geology is evident. We seek the kind of individual who shows promise of continuing to excel.

The Chairholder will be appointed as a tenured Full Professor and must meet the qualifications for that academic rank. The individual is expected to hold the Ph.D., although exceptional experience may be substituted. Review of candidates will begin November 1, 1995 and continue until the position is filled. We are looking toward a starting date of July 1, 1996. Parameters of the position are negotiable. Applications and nominations should be sent to Professor J.M. Forgotson, Jr., School of Geology and Geophysics, The University of Oklahoma, 100 East Boyd Suite 810, Norman, OK 73019-0628. Additional information may be obtained by calling 405/325-3253 or e-mailing smoody@uoknor.edu. The University of Oklahoma is an EO/AA employer.