

NSF Grant To Study Chemical Composition Of Basalt Glasses

By Ann Robey
Special To The Post
Three of the most important questions ever asked by humanity are what, how and why, particularly as related to the creation of the Earth. More and more of the whats are being answered, and now Dr. John Bender of the University of North Carolina at Charlotte's Department of Geography and Earth Sciences hopes to answer a few hows and whys.

His research has been found important enough to earn a \$56,000 grant from the National Science Foundation (NSF) to study the chemical composition of basalt glasses formed by rapid cooling of volcanic lava under the oceans.

Dr. Bender explained his work this way: "The magma (molten rock material under the Earth's crust) in the upper 200-300 kilometers of the Earth migrates up and erupts as volcanic activity along undersea ridges. Because the water is so cold, the lava is rapidly solidified and forms glass. These glasses are the purest samples of the chemical make-up of the magma. We can't study the magma, but we can study the next best thing—the glasses."

Dr. Bender said by studying the chemistry of the glasses, scientists can learn how the Earth evolved, how it is changing now and where it is going.

For this study, Dr. Bender will use samples collected by colleagues at the State University of New York at Albany over a period of years. There are more than 300 pounds of samples taken from the Atlantic and Pacific

Oceans available for study. The samples will be prepared at UNCC by Dr. Bender and a few of his students then taken to SUNY-Stony Brook for analysis by a mass spectrometer.

The spectrometer will be able to separate the prepared samples into as many as 20 different chemical elements.

Dr. Bender expects to answer a fundamental question: what causes the earth's plates to move and separate. He said that many scientists think convection is the answer, but no one knows how large, how many, or even if convection cells exist beneath the earth's crust.

"By studying the glasses from along transform faults, we can perhaps answer these questions," Dr. Bender said.

He continued, "We know all areas do not spread at the same rate. Therefore, they are creating crusts with potentially different compositions. We think the differing spread rate may not be haphazard."

Dr. Bender explained that the glasses alter but not as fast as rocks when exposed to sea water.

"That's one reason why glasses are so appropriate for study," he said.

Dr. Bender said that it is very exciting work. New sonar technology has created very sophisticated ways to map the ocean floor.

"There is something very dramatic occurring along the transform faults," Dr. Bender said.

"The chemical composition on one side of a ridge fault may be very different than on the other side. We

want to know why. Is it age related? Otherwise, there should be no fundamental change. By doing this study, we may be able to answer why."

Dr. Bender also said that one method of collecting samples is by using a three-man submersible submarine named ALVIN. The sub was donated to the NSF


by the U.S. Navy about 10 years ago. It has made more than 1,200 dives, yet no one has witnessed an actual volcanic eruption.

New technology has shown that the Earth's evolution is complicated on a scale never before realized. Dr. Bender has been doing research in this field since his graduate

school days. Unexpected findings from previous studies led to this project. He also has requested a grant to obtain his own samples from specific undersea locations.

All of these studies, Dr. Bender hopes, will help unravel some of the mysteries that have been baffling scientist for


centuries.
Dr. Bender is a native of New York City and has been a member of the UNCC faculty since 1982. He is a graduate of SUNY at New Paltz. He holds a master's degree from Pennsylvania State University and a Ph.D. from SUNY at Stony Brook.



**June 22-24, 1984
Hampton Coliseum
Hampton, Virginia**

Presented by
**Hampton Institute,
The City of Hampton and
Brown & Williamson
Tobacco Corporation**

Produced by
George Wein



Fri., June 22, 7:30 p.m.
Gladys Knight and the Pips
B. B. King, Les McCann
Stanley Turrentine and Shirley Scott

Sat., June 23, 7:30 p.m.
Al Jarreau, David Sanborn
Patti Austin with the Tom Scott Band

Sun., June 24, 3:00 p.m.
Patti LaBelle, Pointer Sisters
Bob James, Pieces of a Dream

Ticket Prices: \$15 and \$14 per night, per person
All seats reserved

Ticket Information
Tickets for all shows are available at the Hampton Coliseum and all Ticketron outlets in the Peninsula and Tidewater areas
Richmond, Washington and Baltimore.
For ticket information call (804) 838-4203

**Warning: The Surgeon General Has Determined
That Cigarette Smoking Is Dangerous to Your Health.**

Filter Kings, 17 mg. "tar", 1.1 mg. nicotine av. per cigarette, FTC Report Mar. '84.

© 1984 B&W T Co.

Red Cross To Prepare Babysitters

For many of us, babysitting is our first "job." And, along with the opportunity to earn extra money comes the responsibilities that go with caring for another individual.

This summer, the American Red Cross will offer several courses to help young people learn how to handle the responsibilities of babysitting.

The Red Cross "Babysitting" course covers such things as how to act in an emergency, what to do in case of illness, how to prevent accidents, how to select safe games and toys, how to supervise children, how to diaper and dress infants, and how to prepare simple foods for babies.

The course is designed for ages 11 to 14. Classes are limited to 15 participants, so interested individuals should call in advance to register for an upcoming course. No

course fee is charged.

In July, the Red Cross "Babysitting" course will be offered on Monday and Wednesday afternoons, from 1 p.m. - 3 p.m. (July 16, 18, 23, & 25), and on Monday and Wednesday evenings from 6:30 p.m. - 8:30 p.m. (July 23, 25, 30, and August 1). And, other classes will be scheduled later in the summer.

For more information on this course or other Red Cross health and safety courses, call 376-1661, Monday through Friday, 9 a.m. - 5 p.m.

**SHOP THE
POST
FOOD PAGES
AND SAVE**