

## GEORGE P. F. WALKER: SO MANY VOLCANOES, SO LITTLE TIME

George Walker was born in London, England on March 2, 1926. He was fascinated by geology early in life, and made it his career decision by his senior year in high school. He attended Queens University of Belfast in Northern Ireland, from which he received his Bachelor of Science in June of 1948 and his Masters the following year. He received his Ph.D. in Geology in 1956 from the University of Leeds, England. The title of his Doctor's Thesis was "Amygdale Minerals in the Tertiary Basalt of Ireland." He earned a Doctor of Science from the University of London in 1981 and received an honorary D.Sc. from the University of Iceland in 1988.

His geological and volcanological field research has taken him to Argentina, Australia, the Azores, Canary Islands, Chile, Columbia, Costa Rica, Ecuador, Greece, Guatemala, Iceland, Indonesia, Iran, Ireland, Italy, Japan, Madeira, Mexico, Micronesia, New Zealand, Nicaragua, Papua New Guinea, Peru, the Philippines, Portugal, the United Kingdom, the United States, and the West Indies. Dr. Walker has served as a consultant to California authorities during the Long Valley unrest and to the State of Hawaii in connection with volcanic hazards in geothermal fields.

George Walker's list of honors, volcanoes studied, and publications -- like the Energizer Bunny -- just keep going and going and going...

But it had to start somewhere...

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As an 8-year old avid reader of boy's romantic books about coral islands and only child of a widow trying to make ends meet in London (England) in the Depression, I told myself that the books were just romantic stories - that I could never get to see a coral island. I was wrong. The probability of eventually becoming a Thorarinsson-Medalist volcanologist with such a background and with no relative or friend remotely interested in science was however incredibly small.

At high school 8 years later I realized that I knew nothing whatever about geology or botany. I had saved some money and bought a book about each. That on geology was very interesting. I was then living in Northern Ireland on the margin between Cenomanian chalk and overlying Paleocene flood basalts of Antrim, and followed up with fieldwork, roaming widely to chalk and basalt quarries on my bike. I can still remember how excited I was to make my first mineral identifications: calcite and apophyllite. Within weeks I knew I wanted to become a geologist.

With a scholarship to the local University (Queen's, Belfast) where I met my first geologist, I took B.Sc. and M.Sc. degrees in geology. I then proceeded to do research for Ph.D. with **W. Q. Kennedy** at Leeds University on the distribution of amygdale minerals in the Antrim lavas. I remember the efforts I made to establish that the zeolites in my amygdales were secondary: a 10 minute visit to Hawaii would have saved that effort. I achieved Ph.D. in 1956.

From 1951 to 1978 I taught mineralogy and geology (and, latterly, volcanology) at Imperial College, London, as Assistant Volcano Quarterly

Lecturer later promoted to Lecturer (equivalent to Associate Professor in the U.S.) and Reader (equivalent to Full Professor). I also did as much research as time permitted.

The scarcity of good outcrops made it impossible to determine whether the dikes in Antrim were coeval with the basalts. In 1954 I visited Ireland to see if I might resolve this problem there. So exciting did I find Iceland that I took driving lessons (at age 30), borrowed some money to buy an old car, and set off with the car by boat to Reykjavik the following summer. Thus began a 10-year mapping project in the fjordlands of eastern Iceland. Most of my time in the field was spent alone. I ascended the equivalent of one 3500-ft. mountain each day and never once met anybody in the mountains. I learned how to survive. A number of graduate students participated in this project; **Ian Carmichael** was the first, and all are still pursuing successful careers in geology.

We had problems. Third day out on this first trip saw a rent torn in the car's fuel tank. A few days later, crossing a pass en route to E. Iceland the car stalled and the brakes failed to prevent the car from running backward. I had to make a quick choice between going out of control down the mountainside or driving into a ditch. I made the right choice.

This project provided the key to the geological interpretation of the relatively old plateau basalts that constitute more than half of Iceland. This was recognized by the Knighthood conferred by the President of Iceland and the honorary D.Sc. by the University of Iceland. One achievement of this study was the recognition of the essential parts of the story of crustal spreading in the North Atlantic. Another was to establish a profile 10-km thick containing 1000 lavas which were sampled for paleomagnetic study. Three teams are currently resampling parts of this profile to study in more detail how virtual paleomagnetic pole paths and intensities vary during magnetic reversals.

My interests gradually moved toward volcanology, but my project was in the period between 1947 and 1963 when only one volcanic eruption occurred in Iceland, I did not have an opportunity to see my first volcanic eruption (Surtsey) until I was 37. Strangely, I think that this delay in exposure to active volcanism was advantageous to me as a volcanologist because it forced me to stretch my imagination to its limits.

In 1965 with **Peter Hadwen** I took a student field trip to Italian volcanoes. We rented a van in London and spent nearly 3 weeks in Italy. I collected a load of samples of pyroclastic deposits which I sieved. It was my first visit to Italy and first real introduction to pyroclastic deposits and grain size analysis. I remember that we arrived very late one night in Milazzo and slept on the ground around our parked van. We were rudely awakened next morning by the local fishermen laying their nets on the ground to dry.

Gradually with **Basil Booth** and graduate students **Steve Self**, **Steve Sparks**, **Geoff Wadge**, **Colin Wilson**, **John Wright**, and others we developed a flourishing school of pyroclastic studies in Imperial College. We successfully persuaded **Lionel Wilson** that studying volcanoes was more interesting than studying the sun.

This was a period in which we all had many ideas and tested them out in the field and the lab. and discussed them daily during coffee breaks. We can claim that our work contributed significantly to founding modern volcanology. I can well remember spending most of one Christmas dropping and timing the fall of pumice down a stair-well at Imperial College as a first step in analyzing fall deposits. This experiment had to be done when there was no-one about and the air was still. About this time I was elected Fellow of the Royal Society.

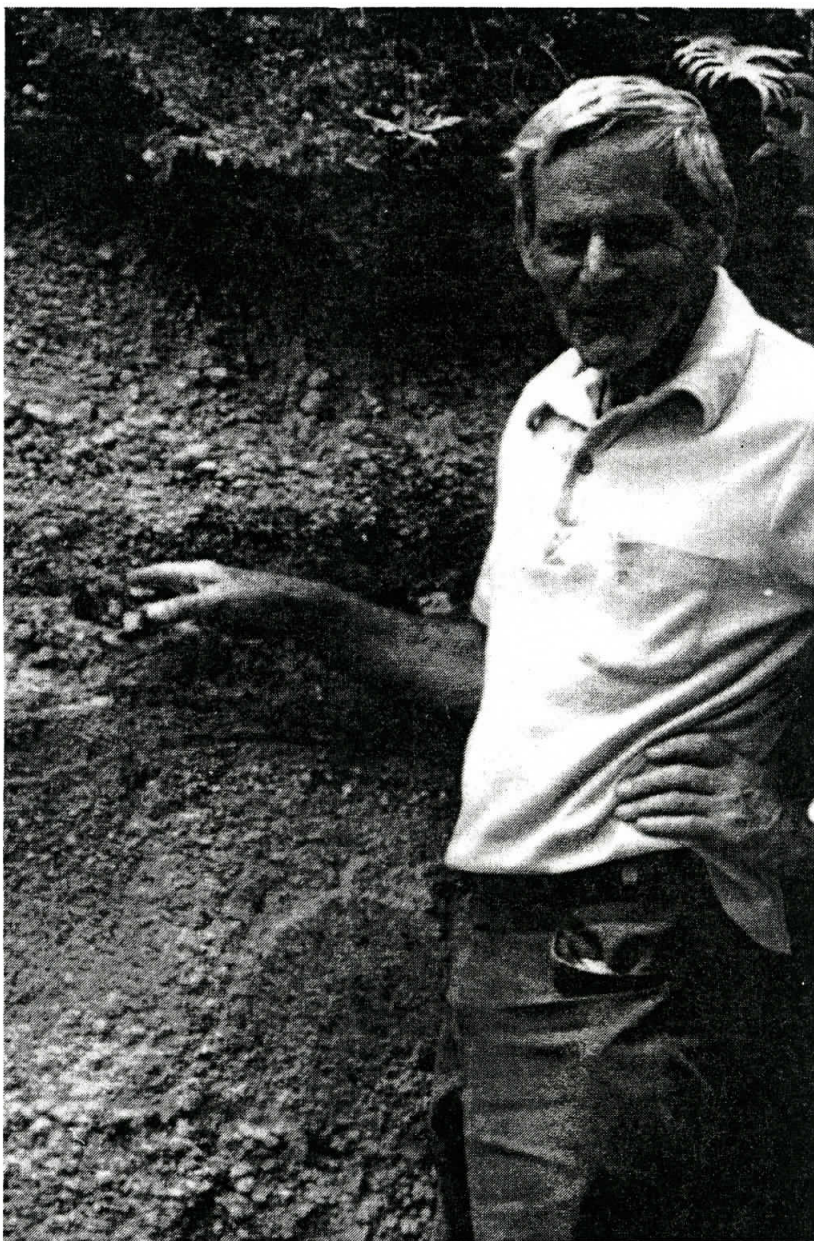
1978-1980 I spent in New Zealand with Captain James Cook Research Fellowship (instituted by the N.Z. government to commemorate the bicentenary of Cook's arrival). I immediately began work on the **Taupo ignimbrite** which I had wondered about ever since I saw it while attending an IAV meeting in N.Z. in 1965. Colin Wilson, who had already spent one year as a postgraduate with me in London came out to N.Z. and together we investigated the Taupo eruption. Our research was most fruitful and led to many new concepts such as low-aspect ratio ignimbrites, ground layers, fines-depletion, and ignimbrite facies. Emplacement of the Taupo ignimbrite still holds the position of being the most violent volcanic event known. I am fond of teaching, but it was wonderful to have this mid-career spell of almost 3 years doing nothing but research.

1981 to the present I have spent in Hawaii as Gordon A. Macdonald Professor of Volcanology. This position has involved a lot of teaching and participation with graduate students, a lot of research on a wide spectrum of field-based topics, and a lot of travel. It has included making UN-sponsored volcanic assessments in Ecuador and Columbia. This time in Hawaii has been very enjoyable and productive.

I have been remarkably fortunate ever since about 1960 in having had several thousand dollars per year (on present values) available to support 2 or 3 months of fieldwork each year on volcanoes of my own choice. This funding was mostly obtained without the need to submit lengthy, highly detailed, and specific proposals. I have thus had the freedom to go out and make discoveries. Perhaps I am the last volcanologist to have this kind of freedom.

I have tried to get all of my observations and ideas published, and have achieved roughly a 50% success rate. I have not seen as many volcanoes as did the late Kraaft family, and have had no exciting adventures on volcanoes, but I probably hold the record for the largest number of volcanoes researched on **and published**. Who is my **role model**? Most likely **Johann Sebastian Bach**. His output was incredibly high, and his musical compositions display a remarkably creative imagination.

I am now approaching the end of a career in which I conducted about 150 courses (each 3 days to one semester long). spent over a thousand days on student fieldtrips, and was highly involved with about 30 graduate students. I am due to retire soon. Have I given up? Certainly not! I have just returned from a 4-week project in New Zealand with a graduate student mapping the rhyolitic deposits of **Okataina** volcano erupted during the 55 to



21 ka time-period. It is this kind of interaction with graduate students (almost all of whom have since pursued successful scientific careers) that I consider as my most useful contribution to science.

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