



## **John D. Bird**

December 27, 1931 – April 28, 2017

John M. Bird, Professor Emeritus of Geology, died April 28, 2017 after a long and distinguished career of teaching and research. Throughout that long career Jack, as he was known to his friends, was driven by his conviction that there was much yet to be learned about the dynamics of Earth's evolution; the formation of continents, origin of the oceans, building of mountains, causes of volcanism, as well as many other well-known but poorly understood features of the Earth. He had a favorite expression, "conventional wisdom"; not because he had an urge to add to it but because he was convinced that so much of it comprised misinformation. He was dedicated to exposing that misinformation and replacing it with more reliable information. Generating new ideas was his passion. If his new ideas bothered others, well, that just added a little extra incentive.

Jack was born on 27 December 1931 in Newark, N.J. In June, 1955, he received a Bachelor of Science degree in Geology from Union College, Schenectady, N.Y. In December, 1955, he enlisted in the U.S. Army and served two years in the Counter Intelligence Corps, Munich, Germany, and four years in the U.S. Army Reserves. He entered Rensselaer Polytechnic Institute in September 1957, received his Master of Science in Geology in June 1959, and a Doctor of Philosophy in June 1962. From 1961-1972 Jack served on the faculty in the Department of Geological Sciences at State University of New York (SUNY) at Albany. In 1972 he took a position of Professor of Geology in the Department of Geological Sciences at Cornell University and retired to become Professor Emeritus in 2004.

Jack's experience in field studies and his love of field work took him to many parts of the world: Newfoundland, Greenland, Italy, and Siberia, not to mention the U.S. from Alaska to Vermont.

Unraveling their fascinating structural histories with colleagues and students motivated him throughout his active career.

When Jack was a faculty member in the Geology Department at SUNY Albany in the 1960s, the greatest upheaval of conventional wisdom was just starting to take place. Although it had been suggested that continents drifted across the surface of the Earth, most geologists rejected the idea. They questioned how continents could possibly drift when they are so clearly rooted in solid rock? The similarity between the east coast of South America and the west coast of Africa had been suggested as evidence for continental drift, but the conventional geological explanation was that it was just a coincidence. These and other misconceptions held by the majority of geologists were about to be overthrown and replaced with “Plate Tectonics”. In the early 1960s the hypothesis of continental drift rapidly morphed into the theory of Plate Tectonics. The key evidence was to be found under the oceans when patterns of magnetic stripes on ocean floors provided convincing evidence that the Earth’s lithosphere consists of plates that spread at some edges and collide at others.

Plate Tectonics would throw the doors wide open for revisiting numerous questions that geologists thought they knew the answers to. One of the most fascinating of these was the origin of ophiolites, large areas of an odd assortment of iron- and magnesium-rich rocks that were poorly understood. With Plate Tectonics they suddenly made sense; they could be explained as large slabs of ocean floor and upper mantle thrust up onto the Earth’s surface by the newly understood plate tectonic forces, forces caused by the slow convection of the mantle. Details of these features were described in two classic papers that Jack co-authored in 1970 and 1971 with his friend and colleague, John F. Dewey. These areas offered an extraordinary opportunity for geologists to explore firsthand, and on dry land, samples of ocean floor and mantle rocks. In other words, material otherwise inaccessible except by very deep holes drilled at great expense.

Jack and John Dewey leapt at this opportunity to pursue the study of these rocks as a way to bring into better focus our understanding of the composition and properties of Earth’s interior. Keeping up with the rapidly expanding literature about Plate Tectonics in the 1970s and 1980s posed a challenging task for geologists, a task crying out for a major publication that would pull it all together in one place. It was Jack who prepared this gift for fellow geologists, a task which resulted in a 951-page tome in 1972 and an updated 986-page second edition in 1980, both published by the American Geophysical Union. These publications undoubtedly played an important role in establishing Plate Tectonics as the term for one of the greatest paradigm shifts.

The study of ophiolites continued to be a captivating interest for Jack, one that he actively pursued for the rest of his life as Professor of Geology at Cornell University. He was particularly interested in the extraordinary collection of metallic phases found in the Josephine Ophiolite in southwestern Oregon, metals including iron, nickel, cobalt, osmium, iridium, ruthenium, platinum, and gold. He considered these metals to be primordial, that is, in the form of metals ever since the Earth formed.

Jack and his student, Maura Weathers, collected what samples they could find in Josephine Creek, the creek crossing the Josephine Ophiolite but soon found a much more prolific source in the form of an old bearded prospector who had been concentrating the metals found in the creek.

The prospector had been living on the income from the gold, and tossing the other metals in a pile. The study of these specimens occupied years of analysis leading to a Ph. D. degree for Maura who later became Jack's wife.

Jack is survived by his wife, Maura Weathers Bird, daughters Anne Bird Sindermann (Maryland) and Marsha Bird (San Francisco), grandchildren Andrew and Laura Sindermann, as well as numerous in-laws, nieces, nephews, and dear friends.

Jack will be missed, especially for his frequent stimulating challenges to what we thought was accepted knowledge but that he considered to be conventional wisdom just waiting to be questioned.

*Written by William A. Bassett (Chair) and Thomas D. O'Rourke*