

**Francis Raymond Boyd Papers, 1912-2003
(Bulk 1951-2003)**



**Carnegie Institution of Washington
Geophysical Laboratory Archives
Washington, DC**

Finding aid written by:
Ann Mulfort
September 2004
Revised August 2010

Francis Raymond Boyd Papers, 1912-2003 (Bulk 1951-2003)

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GL-2004-03

Introduction

Abstract: The collection contains the personal papers of Francis Raymond (“Joe”) Boyd, Jr., an eminent geologist, who conducted his entire career at the Geophysical Laboratory of the Carnegie Institution of Washington. High-pressure studies of mantle rocks, particularly kimberlite volcanics, and his expertise in the study of the Kaapvaal craton in southern Africa are well documented.

Extent: 8 linear feet, 5 records center cartons, 3 document boxes, 2 partial map case drawers.

Acquisition: The collection was donated by Dr. Boyd’s wife, Marguerite Kingston, in 2004.

Access Restrictions: There are no access restrictions to this collection.

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Preferred Citation: Francis Raymond Boyd Papers, 1912-2003, Geophysical Laboratory, Carnegie Institution of Washington, Washington, D.C.

Processing: This collection was processed by Ann Mulfort, Library/Archives Intern, in September 2004, through the generous support of the National Historical Publications and Records Commission. An addition of seven field notebooks was processed in August 2010.

F. R. Boyd Biographical Sketch

Francis Raymond Boyd, Jr., known as “Joe” Boyd, was born in Boston, Massachusetts on January 30, 1926. He received an AB degree in 1949, an MS degree in 1951, and a PhD degree in 1958 all in geology from Harvard. He also received an MS degree in geology from Stanford in 1950. His Ph. D. work was entitled: “Geology of the Yellowstone Rhyolite Plateau,” and his research was featured in the 1998 IMAX film, “Yellowstone.” Boyd began work for the Geophysical Laboratory (GL) of the Carnegie Institution of Washington (CIW) in 1953, and conducted geological research throughout his entire career there. He continued researching and contributing to the scientific world of geology even after his retirement in 1996, until just before his death on January 12, 2004.

Boyd’s contributions to the field of high-pressure experimental studies and petrologic investigations are many. His first major achievement was the development of a piston-cylinder apparatus in the early 1960s. In collaboration with GL machinist, Joe England, the Boyd-England device has been used by hundreds of scientists around the world to create synthetic diamonds by simulating high pressure on minerals in the earth’s mantle. The apparatus allowed Boyd to conduct studies on pyroxene-garnet phase relations, and created a career long interest in studying mantle xenoliths. This interest led him to his involvement in the studies of kimberlites found in Lesotho, Africa being collected by Peter Nixon in the early 1970s.

The First International Kimberlite Conference (IKC) was held in Cape Town, South Africa in 1973. The work presented at this conference, in collaboration with Nixon, paved the way for Boyd's continued involvement in the seven subsequent conferences held worldwide through 2003. His expertise in this field was widely recognized and he remained an active member of the Advisory Committee for the conferences. Because of his wide-ranging studies in this area, his interest in the mantle root of the Kaapvaal craton in southern Africa also developed.

He traveled extensively for his investigations, and collaborated with scientists from around the world. His major collaboration included work with petrologists and geochemists at the Institute of Mineralogy and Petrology at Novosibirsk, Russia, and the Department of Earth Sciences at the University of Leeds, UK. This work, presented at the fifth IKC in 1991 with Nixon; Graham Pearson, Louis Brown, Steve Shirey and Richard W. Carlson of the Department of Terrestrial Magnetism at CIW; and N. P. Pokhilenko, focused on similarities and differences between lithospheres forming the Siberian Platform and the Kaapvaal craton. Boyd authored or co-authored over 75 research papers, and was generous in his sharing of information with fellow scientists.

In 1974, he was elected to the National Academy of Sciences, and in 1982, he received a medal of honor from the town officials while at the third IKC in Clermont-Ferrand, France. He was a fellow in the Mineral Society of America, the Geological Society of America, the American Geophysical Union, and served as both the secretary and president of the Geochemical Society. He was called upon by many institutions to lecture on the numerous subjects within his expertise for which he became widely known.

In his later career, he collaborated with fellow CIW staff member, Yingwei Fei, to create a cubic-anvil apparatus. This device allows scientists to conduct phase studies providing data that aid in the understanding of the processes of the earth's formation. Dr. Boyd will be remembered as one of the great contributors to the understanding of the evolution of the earth's upper mantle.

Scope and Contents Note

The collection includes correspondence, photographs, apparatus design drawings, meeting and lecture notes, and field and laboratory notebooks that document the work of Francis Raymond Boyd, Jr. throughout his career at CIW, which spanned over 40 years. His research involved high-pressure experimental studies and petrologic investigations of mantle rocks, including kimberlites. The materials are housed in five records center cartons and two document boxes. There are also oversized materials contained in two map case drawers.

Arrangement

The collection is arranged in five series.

- Series 1. Correspondence, n.d., 1912-2003
- Series 2. Meeting and Lecture Notes, 1969-2003
- Series 3. Single Stage Designs, n.d., 1930-1974
- Series 4. Laboratory Notebooks, n.d., 1957-1969
- Series 5. Field Notebooks, 1951-1954

Series 1: Correspondence, n.d., 1912-2003

This series contains Boyd's extensive correspondence. He organized his files by correspondent, and by topic. Maintaining Boyd's organization of these materials, files previously placed in storage by Boyd were reintegrated into his main files resulting in several folders for a few correspondents. The first set of files is alphabetical by correspondent followed by topical categories. For the researcher's ease of use, these topical categories are alphabetized and within each category original order was maintained. Boyd's topical categories, when not included in the folder title, are supplied in brackets preceding the folder title.

The materials in this series demonstrate Boyd's congeniality and willingness to share information within his scientific community. There are also examples of his enthusiasm for making recommendations of colleagues in the profession. Communication between correspondents began on strictly professional bases, but many personal relationships developed which illustrate the respect and admiration that Boyd enjoyed from his colleagues. The last folder in this series contains the correspondence gathered from his desk after his passing.

Series 2: Meeting and Lecture Notes, 1969-2003

The materials in this series well document Boyd's extensive travel, as he conducted geological research and shared his scientific discoveries in meetings and presentations. It concludes with the International Kimberlite Conference materials, which comprised a major portion of Boyd's professional life. Boyd's original order of the folders is maintained, and is in roughly chronological order.

Series 3: Single Stage Designs, n.d., 1930-1974

This series includes original drawings presumably created by Boyd and his colleagues which document designs for high pressure devises. These drawings were maintained separately from Boyd's files. The original order of the drawings was preserved.

Series 4: Laboratory Notebooks, n.d., 1957-1969

These notebooks detail Boyd's experimental runs of high-pressure studies on geological samples. There were eight separate notebooks, only one of which bore a title. They are arranged in chronological order by the earliest date within each notebook and numbered accordingly. Due to the size of the notebooks, each notebook spans several folders. Where it was possible to determine discreet experimental runs by the coding and titling found in the data, these notebook sections were placed in separate folders. Otherwise, folder breaks are based on volume of pages.

Series 5: Field Notebooks, 1951-1954

These notebooks document Boyd's field studies in Yellowstone National Park during 1951, 1952, 1953, and 1954. They were donated to the Archives in 2006. Seven other field notebooks spanning 1973-1993 were donated at that time to the Smithsonian Institution, National Museum of Natural History, together with the corresponding thin sections.

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Subject Terms

Topics:

- Geochemistry
- Geologists -- Correspondence
- Geology
- International Kimberlite Conference
- Nixon, Peter H. -- Correspondence
- Petrologists -- Correspondence

Occupations: Geologists

Corporate Names: Carnegie Institution of Washington. Geophysical Laboratory.

Locations: Yellowstone National Park

Forms: Correspondence
Field notes
Laboratory notebooks
Plans (drawings)

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