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## MEMORIAL OF ARIE POLDERVAART<sup>1</sup>

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Arie Poldervaart was a petrologist. His earliest work and last major contribution dealt with the petrology of basaltic rocks. He began by studying dolerites in South Africa under the tutelage of Frederick Walker. This work, which began in 1939, eventually led to publication in 1949 of their classic paper on the Karroo dolerites. Problems encountered in those studies led to his interest in rock forming minerals, particularly pyroxenes in basaltic magmas. This was followed by studies of the areal distribution of basaltic rocks in various parts of southern Africa. He also worked on problems of contact metamorphism caused by dolerite intrusions. In the late 1940's he conducted a field study with von Backstrom of the complex metamorphics in the Kakamas area, Cape Province. Shortly after moving to the United States in 1951, he became interested in metabasaltic rocks as a means of interpreting the polymetamorphic history of the Blue Ridge Province, North Carolina. The following year he initiated an ambitious and far-reaching program of research in the metamorphic terrain of the Beartooth Mountains in southern Montana and northern Wyoming. Thus, his main interest had broadened from basalts to general problems of metamorphism. These two principal fields of interest were brought together in his 1953 review, "Metamorphism of basaltic rocks."

The culmination of his lifelong interest in basalts was publication of the Poldervaart treatise on rocks of basaltic composition entitled simply "Basalts", which he conceived and organized, but which was published posthumously in collaboration with H. H. Hess in 1967. Another major work, which Poldervaart initiated, planned, and saw through to publication, is *Geological Society of America Special Paper No. 62* entitled "The Crust of the Earth", a symposium held in conjunction with the Bicen-

<sup>1</sup> A more detailed account of Arie Poldervaart's career and his bibliography have been published by W. H. Bucher, 1965, *Bull. Geol. Soc. Amer.* 76, 125-132.



*Arie Poldervaart*

ennial Celebration of Columbia University in 1954. Both of these volumes symbolize Poldervaart both as a scientist and as a man. They both required foresight, broad interests in geological problems, and a realization that complex geological problems must be solved by collaboration of various specialists. In addition, both volumes required a tremendous amount of dedication and tedious time-consuming intellectual effort on his part.

Additional areas of interest to Poldervaart were the chemistry of basaltic rocks, of individual minerals, and of metamorphism and granitization and the significance of zircons in petrology, generally, and their use in deciphering the nature of certain metamorphic rocks. As with other leading scholars and scientists, so Poldervaart's most significant memorial is the information and knowledge recorded in over fifty of his papers which appeared over the relatively short time span of a quarter of a century.

Arie Poldervaart, the man, was an intriguing individualist with a most unusual background—he was born and reared in the Dutch East Indies, educated in Europe and South Africa, fought the Japanese from Australia and helped to liberate the East Indies during the second World War. He returned to South Africa following the war to teach and conduct his research. In 1949 he began two years as petrologist for the Geological Survey of the Bechuanaland Protectorate (now Botswana), after which he accepted a professorship in petrology at Columbia University, New York.

This varied background led to his fluency in half a dozen languages and a broadly based cultural heritage. He possessed a compelling modesty coupled with fierce determination and constant personal drive to accomplish those ends which he considered most worthy, both personally and professionally. Arie would not wish to be remembered as bigger or greater than he was in life—he was imperfect and he had failings and problems like all mortals—but more often than not, he viewed life philosophically and with pleasure, enjoying his wife and children, his students, and his colleagues, both through personal contact and through his worldwide, voluminous correspondence.

I remember Arie Poldervaart as a pragmatist, one who was impatient with the past or lost causes, and one who continually looked to the future and worked during the present to further his goals in science.