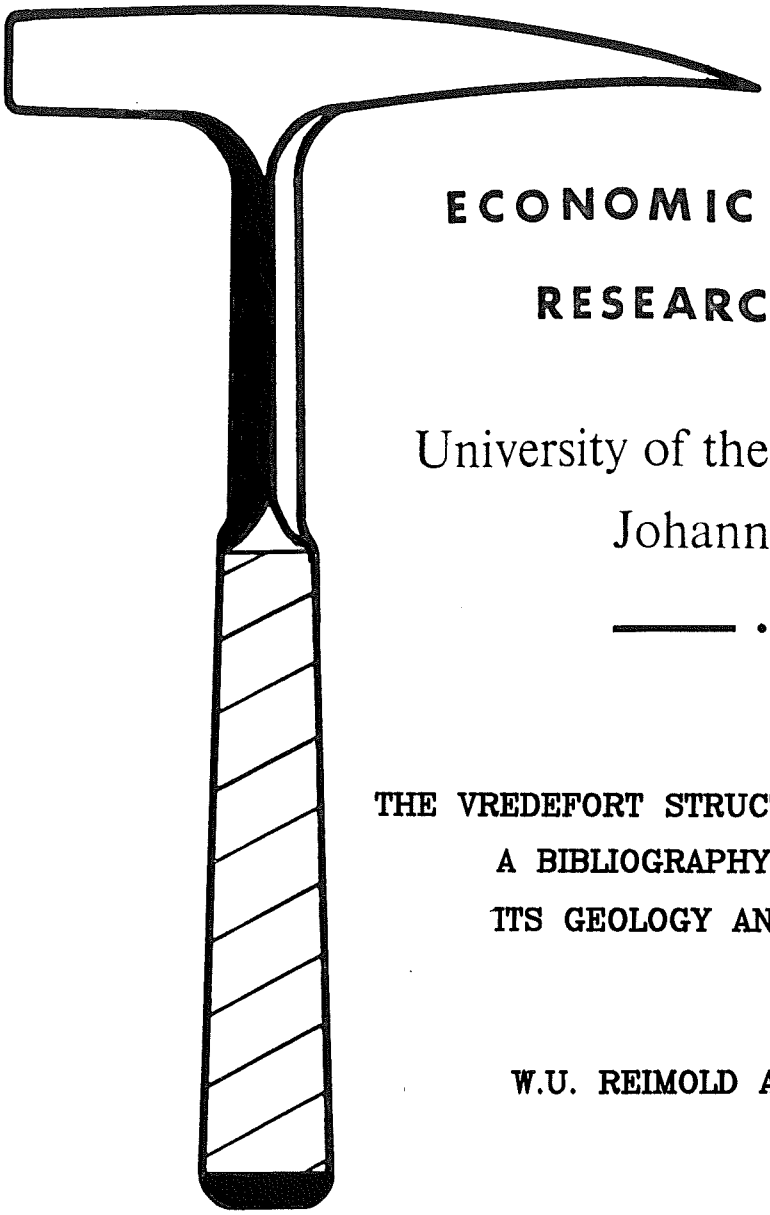

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THE VREDEFORT STRUCTURE, SOUTH AFRICA: A BIBLIOGRAPHY RELATING TO ITS GEOLOGY AND EVOLUTION

W.U. REIMOLD AND G. LEVIN

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THE VREDEFORT STRUCTURE, SOUTH AFRICA: A BIBLIOGRAPHY RELATING TO ITS GEOLOGY AND EVOLUTION

Compiled by

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PREFACE

The Vredefort Structure (also known as the Vredefort Dome), located in the centre of the gold mining districts of the Witwatersrand Basin, has attracted the attention of numerous local and overseas geologists since 1886. As a result, this enigmatic structure has led to the proliferation of geological literature on an unprecedented scale. A large number of geological aspects of the Vredefort Dome, be they structural, chronological, metamorphic or rock deformation phenomena, amongst others, have direct implication on the geological understanding of the evolution of the entire Witwatersrand Basin. In addition, there are other aspects that have made the Vredefort Structure famous far beyond the realms of Witwatersrand geology: foremost among these remains the controversy over the origin of the dome, either by internal geological processes or by external bolide impact. Also important is the debate as to whether there are criteria for the recognition of impact structures or impact-generated effects. This debate has been linked to that concerning the cause(s) of major mass extinctions in the geological record - clearly one of the major scientific controversies of this century.

The nature and origin of Vredefort deformation phenomena, namely "shatter cones", microdeformations in quartz, and pseudotachylite, have been and continue to remain topical. Questions still requiring answers include the following:

(i) are Vredefort-type micro-deformations in quartz identical with those shock-produced (and widely believed to be impact-characteristic) planar deformation features (PDFs)?;

(ii) was Vredefort pseudotachylite formed as an impact-produced shock breccia or is it related to those pseudotachylites found in tectonic environments?; and

(iii) if this is not the case, what are the criteria to distinguish between impact melts and tectonically formed pseudotachylites?

All these, and many other topics have greatly contributed to a vast Vredefort literature. The authors therefore considered that a compilation of references could be useful to ongoing Vredefort research. While every effort has been made to ensure the accuracy of the entries appearing herein, errors and omissions may have occurred. Advice of such would be greatly appreciated by the compilers.

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