

Paper Number: 1938

How closing the Sperrgebiet affected geological research: a brief history

Pickford, M.¹

¹Sorbonne Université, MNHN, UPMC Univ Paris 06, CNRS, UMR 7207 CR2P, F-75005 Paris, pickford@mnhn.fr

The closure of the Sperrgebiet (Forbidden Zone) in the interests of diamond security by the German Government in 1910 has affected geological research in the area ever since, often adversely. The foundations of Sperrgebiet Geology were laid down in the post-war decade by Kaiser and Beetz, both of whom were employed to oversee the geological mapping of the region. Since the publication of the monograph *Die Diamantenwüste* by Kaiser in 1926 [1] few geologists have visited the area, among whom were company geologists whose duties focused on economic geology such as extending mine life and assessment of ore reserves rather than carrying out fundamental geological research. From time to time consultants were called in to solve, or to carry out research on, particular issues deemed to be important by company geologists, but they generally worked under sub-optimal conditions, being escorted to particular outcrops where they would spend a few hours or a few days. Most of the reports were unpublished, and it is evident from reading some of them that they were sometimes edited by in-house geologists so as to conform to ideas prevalent at the time. Furthermore, because most of the reports were unpublished, the community of geologists world-wide remained ignorant of their contents. Scientific debate was thus severely curtailed, since no-one could examine outcrops independently to challenge or verify previous observations and interpretations. As a result no post-war geologist obtained, on the basis of personal observation, the synoptic overview of the superficial geology of the Sperrgebiet necessary for making significant advances in the understanding of its geological history. The outcome has been that in-house geologists (with input from selected consultants) tended to impose interpretations on Sperrgebiet geology based on external geological models, rather than studying the local geology for what it could contribute to the understanding the geological development of the region.

Over the years, interpretations of Sperrgebiet geology have been modified in phase with developments in biostratigraphy (marine and continental fossil record), geomorphology (erosion surfaces), diagenesis (silcrete, ferricrete, calcrete), glacial stratigraphy, eustacy (sea-level curves), plate tectonics, palaeoclimate, volcanology (phonolites, carbonatites) and radio-isotopic dating. Many of the studies imposed these developments on Sperrgebiet geology rather than allowing the rocks in the region to speak for themselves. As a result, the geological history of the Sperrgebiet as currently understood is fundamentally flawed, not only concerning the sequence of events, but also the nature and the timing of events. One example among several, concerns the supposed presence of Cretaceous rocks in the Sperrgebiet. So-called freshwater limestones in the region were correlated to the mid-Cretaceous or late Cretaceous depending on the authors, but the discovery of fossils in several of the outcrops reveal that the oldest ones are Lutetian (Middle Eocene) and the younger ones are Bartonian (Late Eocene) implying an offset of some 20 to 40 million years from previous interpretations of the stratigraphy. Furthermore, the bulk of the so-called freshwater limestones are carbonatitic tuffs and breccias of volcanic origin (Pickford, 2015 [2]).

References:

[1] Kaiser, E. 1926. *Die Diamantenwüste Südwest-Afrikas*. Reimer, Berlin, 2 volumes.

[2] Pickford, M., 2015. *Communications of the Geological Survey of Namibia*, **16**, 10-104.

