

THE IMPACTITE COLLECTION AT MUSEUM FÜR NATURKUNDE BERLIN.

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Introduction: The Museum für Naturkunde Berlin houses more than 30 million collection items in its zoological, paleontological, and mineralogical-petrological research collections. The mineralogical-petrological collection was founded originally as a Royal Mineral Cabinet in 1781 by the Prussian king Friedrich II with Carl Abraham Gerhard as its first director. Together with other precursors of this collection, the Royal Mineral Cabinet was subsequently integrated into the University of Berlin, which was founded 1810 by the Prussian king Friedrich Wilhelm III, renamed to Mineralogisches Museum, and stored together with other natural science collections in the university's main building (the former Palace of Prince Heinrich) at the boulevard "Under den Linden". Nevertheless, the rapidly growing collections lead to the decision to build a dedicated collection and museum building, the Museum für Naturkunde, which was opened in 1889, and integrated most of the university natural science collections. Since that time the mineralogical-petrological collection is stored within this building, and retained in many cases in their original place and inventory.

Originally, the mineralogical-petrological collection was only subdivided into a systematic mineral and a regional rock collection. Due to the establishment of new research areas (e.g., ores, meteorites, impactites), the set-up of a systematic rock collection for teaching and the takeover of a crystalline erratic rock collection, the structure of the collection is nowadays more complex and can be subdivided at present into ten subdivisions. Since 1994 the meteorites are curated in a separate collection unit due to their importance for the research topics of the Museum für Naturkunde. Altogether, the mineralogical-petrological collection contains acutally approximately 180,000 mineral and 70,000 rock samples.

The youngest sub-collection is the Impactite collection, which comprises shocked rocks, impact breccias, suevites, impact melt rocks, tektites, and other distal impact ejecta, as well as unshocked target rocks from impact structures around the world. This collection as well as the Meteorite collection is strongly associated with the section "Global Catastrophes" within the Science Program "Evolution and Geoprocesses" of the Museum für Naturkunde.

History: The Impactite collection was established in 1994 by Dieter Stöffler, and combines samples from his personal research collection build up during his work at the universities of Tübingen and Münster, with samples already available in the petrological collection of the Museum für Naturkunde, especially tektites. In this sub-collection the oldest samples known so far originate from the Nördlinger Ries in southern Germany, were collected by the German geologist Julius Ewald (1811 – 1891), and donated to the museum in 1892. Nevertheless, at the time of collecting by Ewald these impactite samples were misinterpreted as volcanic rocks. Confirmed impactite rocks were for the first time acquired by the museum in 1933 from the Kyancutta Museum in South Australia, and come from the Henbury craters in the Northern Territory, Australia. Since the establishment of this sub-collection in 1994 there is a continual growth in sample numbers due to research projects at several impact structures.

Content: The Impactite collection hosts actually around 4,815 samples arranged in geographical order, contains samples from 75 of the worldwide known 188 impact structures [1], and is among the largest collection of its kind worldwide. The main focus is on European impact craters, and especially the Nördlinger Ries in southern Germany, which is represented by 1,138 samples. Nevertheless, there are also numerous samples from American, Asian, African, and Australian impact craters available. Notable are the 630 samples from the Araguainha impact structure in Brazil (mainly collected by Wolf von Engelhardt in 1984 and 1988 [2], and donated by the University of Tübingen in 2012).

Access: The samples of the Impactite collection are completely databased, which allows fast access for dealing with inquiries. The collection serves as a research and public outreach tool. About 45 samples of this collection are permanently on display in the exhibition hall "System Earth" of the Museum für Naturkunde. External users can leant samples from this collection for research and/or exhibition purposes.

References: [1] Earth Impact Database, <http://www.passc.net/EarthImpactDatabase/>, 11.05.2016. [2] Engelhardt, W. von, Matthäi, S. K. and Walzebuck, J. 1992. Araguainha Impact Crater, Brazil. I. The interior part of the uplift. *Meteoritics* 27: 442-457.