

TOCOWO

In support of the international travel of the ethnographic collections: Identification of Congolese wooden objects using micro-CT and sub-micro-CT

DURATION

15/12/2019 - 15/03/2022

BUDGET

218.732 €

PROJECT DESCRIPTION

Organizing travelling exhibitions and the circulation of artefacts on international loans is a core activity of the Royal Museum for Central Africa (RMCA) in response to the museum's mission to make the collection accessible to a large public. Importantly, the international travel of museum objects is subjected to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) regulations of trade and as a consequence, disclosure of all materials from which artefacts are made is mandatory before shipping. The identification of the wood species on ethnographic objects is carried out by the wood scientists of the RMCA by means of detection of anatomical key features observed under the microscope. Samples with a radial thickness of at least 1 cm are taken from the artefacts, undergo elaborate and labour intensive preparation and are sliced into several thin sections. It is probable that the sample is damaged during preparation and cannot be used for identification. Furthermore, there is a possibility that the wood cannot be identified through the anatomical examination of the thin sections, since there can be intraspecific anatomical variability within a wood species. Since sampling the object is currently essential for the determination of the wood species, this analysis is routinely carried out for objects selected for travel. Sampling artefacts implies intentional removal of material from an object, and is in contradiction with one of the main tasks of every museum according to the ICOM museum definition: the preservation of collections. Ideally, an identification technique is aimed for requiring no sampling. This research project will evaluate the use of micro X-ray Computed Tomography (μ CT) and sub- μ CT as an imaging technique to observe anatomical key features of wood. Small objects or small parts of objects can be scanned without the need of a sample or only a fraction of the sample needed for microscopic anatomical examination. The CT approach will create a digital 3D reconstruction of the X-rayed area at very high resolution. This image can be digitally sliced in multiple thin sections, highly improving the probability of finding enough key features for the identification of the wood species.

The project will be carried out in three main phases. First, a database will be created of wood species relevant to the identification of African ethnographic objects from the RMCA-collection. Second, the CT images will be compared with microscopic analysis through the re-examination of wooden objects that have been sampled in the past. In a third phase, objects will be analysed using CT to evaluate whether the technique is suitable for systematic identification of the wood species of ethnographic objects.

The tool will also encourage worldwide circulation of artefacts on international loans or in any other traveling context. As such, the results of the project support the development of the federal collection management policy to the benefit of the public of museums and to the benefit of future research projects.

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Although the scope of the project is restricted to the systematic non-invasive and non-destructive analysis of ethnographic and art objects in wood of the collections of the RMCA, the CT technique has no geographic or temporal limitations and can be operational on any wooden object. Manipulation of artefacts including invasive identification for travel is in conflict with their preservation. CT scanning provides a tool for reliable identification with respect for the object's integrity and will facilitate access to information on the wooden objects. It will contribute to the advancements in conservation research; specific species of wood respond differently to fluctuating atmospheric conditions in museum storage and display facilities.

The technique will assist in provenance research because in scientific projects knowledge on the wood species informs on the natural environment of the makers and their choice of materials. Publication of the information online will inform the public on the manufacturing context of the objects. In matters of customs or legal confiscations for which assistance of the federal scientific institutes is asked, less invasive identification techniques are an asset in proving an object as original or originating from a specific area that is the natural habitat of the wood species concerned.

CONTACT INFORMATION

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LINKS

https://www.africamuseum.be/en/research/discover/projects/prj_detail?prjid=712

<https://www.africapatform.ugent.be/projects/support-international-travel-ethnographic-collections-identification-wood-congolese-objects>