The Late Bronze Age and Early Iron Age Cemetery in Kainach near Wildon, Styria
Computed Tomography and Archaeology: Innovative Application Possibilities for Archaeology, Conservation, Restoration and Anthropology
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The project is based at the Department of Archaeology of the Federal Monuments Authority Austria and is running since 2012. It is concerned with possibilities of computed tomography (CT) and its application for archaeology. The project is directed by Prof. Univ. Doc. Dr. Bernhard Hakert, cooperation partners are ASIMAG and Siemens Austria since 2013. This pilot project aims to perform a first specific study of the evaluability of virtual 3D CT data generated from graves retrieved on bloc for conservation and restoration, archaeology and anthropology. Object of research is the internationally significant cemetery at the “Herrschaftsacker” (Wildendorf near Wildon, Styria, Plot no. 500, 33640, Castedal Unit Kainach, Market Community Wilden). It is distinguished by a multitude of important burial objects which are challenging to conserve and to restore.

COMPUTED TOMOGRAPHY MEASUREMENT AND EVALUATION

Computed tomography scans of the findings recovered on bloc were carried out at the Siemens Diagnostic Flash medical computer tomography system. The CT data were processed, were evaluated using the Siemens Syngo via software application, with which data were produced by Siemens software application for data analysis and evaluation using standard computer. Concerning processing and evaluation of acquired data, publicly available, it is established that this process is performed in a standard fashion, that is, the programmes of cross-sectional images and manual 3D visualisation from head, furnace, prepared.

ARCHAEOLOGY

The urn is examined. Almost right-angled, snapped-off, piece visible bronze knife (red arrow). CT-based examination of cremation remains from Grave 42: (Figs. 1, 2)

ANTHROPOLOGY

A search for relevant anthropological projects revealed that, by the end of the present project, only one other project from Denmark had, to date, kept publishing offering comparable results. Features and insights gained from the anthropological examinations conducted are described using the remains from Urn 1 of the cemetery at the “Herrschaftsacker” as an example.

CONSERVATION AND RESTORATION

The required effort of conservation and restoration work can be highly effectively assessed, and less carting, and more planned to be carried out in a more time following a precise reduction in block size, or a partial block excavation is in progress using the Syngo via software application for data analysis and evaluation using standard computer.

Conclusion Anthropology

The CT-based examination of cremation remains from Grave 42: (Figs. 1, 2)

Fig. 1: Virtual succession of the context of the urn from Grave 42 in horizontal CT data: the exact shape and state of preservation of the knife are not discernible, because of the difference in density of the findings, and, in turn, rendering precise and careful retrieval of the metal sheet is partly very thin, and the metal heavily corroded. The difference in density of the findings, and, in turn, rendering precise and careful retrieval of the metal sheet is partly very thin, and the metal heavily corroded.

• Metals, ceramics and calcinated bones are clearly recognizable using CT data. All excavated findings as well as the cremation remains from Grave 42 were examined. The CT data are processed and evaluated using the Siemens Syngo via software application. The findings were divided into two main groups: bones and metal.

Fig. 2: Virtual证监会 of the context of the urn from Grave 42 in horizontal CT data: the exact shape and state of preservation of the knife are not discernible, because of the difference in density of the findings, and, in turn, rendering precise and careful retrieval of the metal sheet is partly very thin, and the metal heavily corroded.

• Average: "very small to small", also "large to very large", white to grey, grey-white:

Distribution of ceramic fragments in the large block lifting from Grave 42, the urn is rendered visible. Figs. 10, 11: Findings recovered en bloc from Grave 42 during excavation, in order to obtain improved resolution.

All small vessels, as well as the large vessel left in the background, were located in the large block lifting from Grave 42, the urn is rendered visible. Figs. 10, 11: Findings recovered en bloc from Grave 42 during excavation, in order to obtain improved resolution.

Fig. 12: Ceramic items from Grave 42 following conservation and restoration. 5

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