

A multidisciplinary handshake between the humanities & sciences vis-à-vis Qumran and the Dead Sea scrolls

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The famous Dead Sea scrolls that were found in 1947 at Qumran point to a group of people, the “Essenes” who were surrounded by 850 manuscripts of biblical, sectarian and non-religious writings. In 1998, interdisciplinary laboratory research has started between material scientists, museum curators and archaeologists to obtain the utmost information from what the manuscripts as well as the Qumran artefacts may demonstrate from the past, as well as how to preserve this piece of cultural heritage for the centuries to come.

The Dead Sea scrolls are not only of great importance for understanding the biblical texts we have, but also what went on in the period of time that coincided with the dawn of Christianity.

Instrumental Neutron Activation Analysis^[1] provided the origin of the scroll jars and the interactions of the sectarian “Essenes” with other Jews between 50BC-70AC. Petrography and Thermoluminescence combined with Magnetic Susceptibility confirmed the NAA results. Microscopy, SEM and Synchrotron X-Ray Diffraction^[2] was used to identify the threads of textile wrappings that covered the scrolls as well as clothe that was worn 2000 years ago. A successful tentative was made to identify the used pigments of the yarns by High Performance Liquid Chromatography too, especially with regards to the use of Indigo that will now be verified by Raman microscopy and Synchrotron XRD at the ESRF in Grenoble where we are analyzing Bar Kochba textiles.

The date for the scrolls, the settlement and the cemetery was provided by AMS Carbon 14 that was applied to textiles, wood and date kernels, whereas the date for pottery was obtained by Thermoluminescence. Further research was done on the DNA of the parchment of the scrolls. Sr 87/86-ratio research will start on the diet of the Qumran population, whereas isotope analysis of the bones will explain why they died young.

The photographed fragments of the scrolls undergo an intensive cleaning and conservation process before they will be studied and re-exhibited.

Unbiased scientific cooperation with multidisciplinary data bases assembled in European or global framework is a sine qua non if historians and museum curators must show modern man what his ancestors accomplished and with what consequences.

References

[1] - J-B Humbert and J. Gunneweg 2003, Khirbet Qumran and ‘Ain Feshkha, II, ISBN 3-7278-1452-7 (Academic Press Fribourg, Ch)

[2] - M. Müller, B. Murphy, M. Burghammer, C. Riekkel, M. Roberts, M. Papiz, D. Clarke, J. Gunneweg, E. Pantos 2004, Identification of ancient textile fibres from Khirbet Qumran caves using synchrotron radiation microbeam diffraction, Spectrochim. Acta B, 59(10-11):1669-1674