

Radiocarbon dating and the protection of cultural heritage

Irka Hajdas¹, A.J. Timothy Jull^{2,3,4} and Hans-Arno Synal¹

(1) Laboratory of Ion Beam Physics, ETH Zurich, Switzerland. Email: hajdas@phys.ethz.ch

(2) University of Arizona, Geosciences, Tucson, Arizona, United States. Email:
jull@email.arizona.edu

(3) Institute for Nuclear Research, Hungarian Academy of Sciences, Debrecen, Hungary

(4) University of Arizona, AMS Laboratory, Tucson, Arizona USA

Abstract

The modern antiquities market uses radiocarbon dating to screen for forged objects. Although this fact shows the potential and power of the method, the circumstances where it is applied can be questionable and call for our attention. Here we present an outline of a call to radiocarbon laboratories for due diligence and best practice approaches to analysis of antique objects requested by non-research clients.

Background

Protection of cultural heritage is considered one of the most important national and international goals. Each nation has the right to protect their past and present cultural goods, both tangible and intangible. The fact that international involvement is needed has been recognized in the early 20th century. The need of protection of culture is essential for building peace as it was stated by founders of the UNESCO, when it was established in Nov-Dec 1945. In 1970 a UNESCO Convention on protection of cultural heritage was published and recognized by most of the countries. Concerns of the post-WW2 era were with the destruction of cultural heritage that wars and crises impose on whole communities (Gerstenblith 2008).

The present day antiquities trade is operating in a world that is far from being free of conflicts and wars. It is a most striking fact that remains of old cultures and civilizations are located and endangered by conflicts and looting. Illicit trade of antique objects is driven by the demand for antiquities in countries outside of conflicts. (Huysecom et al. 2017) have shown that on the part of buyer this demand is accompanied by the need for a secure investment. Whenever possible, antiquities on the market are tested using scientific methods such as thermoluminescence (TL) and radiocarbon dating. However, the use of the scientific techniques and involvement in authentication appears questionable and rises ethical issues similar to those faced by conservators (Sease 1998).

The radiocarbon community has recognized this problem and is committed to follow due diligence protocols, which will help to minimize the involvement of laboratories in providing data for illegally displaced antiquities.

Here, we propose the first measures that can help to minimize an access of the illicit market to radiocarbon analysis and to prevent misuse of ¹⁴C ages in promotion of illicit trade and looting. This would also protect the radiocarbon laboratories. These procedures are

proposed to be applied when analysis is requested by private persons or for-profit organizations such as auction houses, antiquity dealers, private collections (sometimes privately owned museums).

Proposed procedures

1. All radiocarbon laboratories who have agreed to follow the guidelines proposed below (point 2 to 7) will be listed at www.radiocarbon.org
2. Radiocarbon laboratories providing ^{14}C ages as a service to external users have a clear statement on their web page about their policies (including required forms and documents)—each laboratory is free to formulate their own forms or requirements.
3. The following documents should be requested and reviewed by ^{14}C laboratories prior to the agreement of sampling:
 - a. Pictures of the object
 - b. Declaration of origin (country of origin, provenance) for antique objects.
 - c. A declaration that the submitter is the owner, or acting for the owner.
4. Laboratories accepting samples in the form of graphite or CO_2 request the above stated information from their satellite laboratories
5. The 1970 UNESCO Convention is the base line for the acceptance however the legislation of some source countries predates 1970. In other countries, the effective date is when the treaty was ratified in that country.
6. Objects from critical regions and countries, with questionable provenance should not be accepted, nor should they be forwarded to other laboratories as a potential request.
7. An inter-laboratory support group operating via google discussion group will provide opportunity to ask questions and share experience.

Useful links and documents can be found at www.radiocarbon.org and <http://www.ams.ethz.ch/LIPServices/radiocarbon-dating-and-protection-of-cultural-heritage.html>

References

- Gerstenblith P. 2008. 2007 Cultural Heritage Legal Summary. *Journal of Field Archaeology* 33: 102-110.
- Huysecom E, Hajdas I, Renold M-A, Synal H-A, and Mayor A. 2017. The “Enhancement” of Cultural Heritage by AMS Dating: Ethical Questions and Practical Proposals. *Radiocarbon* 59: 559-563.
- Sease C. 1998. Codes of ethics for conservation. *International Journal of Cultural Property* 7: 98-115.