

THESIS REVIEW

Plastination as a Consolidation Technique for Archaeological Bone, Waterlogged Leather and Waterlogged Wood

Author: V. De La Cruz Baltazar, Department of Art,
Queen's University, Kingston, Ontario, Canada, 1996

In April 1996, Vera De La Cruz Baltazar submitted a thesis to the Art Conservation Program in the Department of Art in conformity with the requirements for the degree of Master of Art Conservation. This is the fourth thesis to be reviewed in the *Journal of the International Society for Plastination*. The first one was devoted to the comparison of thin plastinated human slices and magnetic resonance images (Olry, 1997). The second one aimed at introducing a basic knowledge of plastination procedures in French scientific literature (Olry, 1998a). The third one dealt with the use of plastinated specimens for surgical training in otorhinolaryngology (Olry, 1998b).

De La Cruz Baltazar's 177-page thesis includes 76 tables, 36 figures and a bibliography of 121 references (2 from our *Journal*).

The first chapter (pp. 1-2) gives the objectives of De La Cruz Baltazar's thesis. These were to monitor some of the changes that plastination produced in samples (archaeological bone, waterlogged leather and waterlogged wood), to improve the physical appearance of the samples, to compare the plastination treatment with air-drying and vacuum freeze-drying, and finally to gain some understanding about the chemical composition and stability of the substances used in plastination.

The second chapter (pp. 3-46) is a literature review of the composition, decay and consolidation of bone, leather and wood. It gives a very interesting and well-documented summary of the consolidation or conservation methods used in the last decades.

Chapter 3 (pp. 47-53) is a literature review of silicone polymers and plastination technique.

Chapter 4 (pp. 54-65) deals with the experimental procedure: origin of samples and experimental design (standard plastination technique, plastination without dehydration and defatting, bleaching before plastination, solvent cleaning before curing, air-drying, vacuum freeze-drying, and vacuum freeze-drying followed by plastination).

The weight changes, dimensional stability, colour changes, hardness, indentation resistance, flexibility, removability and surface clean up, and light aging were analyzed by means of electronic digital scale, Craftsman calipers, spectrophotometer, durometer, etc.

Chapter 5 (pp. 66-95) contains the results. Many interesting informations are to be found in this chapter: the weight gain of plastinated bones is around 25% of its original weight, no change of colour could be observed on plastinated bones (standard technique), the hardness of plastinated bones decreased (2 to 12 points), etc.

Chapter 6 (pp. 96-107) analyses the results and chapter 7 (pp. 108-111) summarizes the conclusions.

The bibliography occupies pp. 112-125. The last pages are devoted to appendix 1 (tables of results, pp. 126-159), appendix 2 (MS-GC, IR and NMR spectra, pp. 160-170), appendix 3 (data sheets, pp. 171-176), and the author's vita (p. 177).

This thesis is the result of a minutely detailed study of the potential of plastination in archaeology. The methodology is by far the most scientific one I never found in a research devoted to plastination. I would advise the author to submit a summary of her thesis to the *Journal of the International Society for Plastination*.

Regis Olry Vice-
President ISP

References

- Olry R: Thesis Review: An Educational Comparison of Thin Cadaveric Sections and Magnetic Resonance Images. *J Int Soc Plastination* 12 (2): 34, 1997. Olry R: Thesis Review: La Plastination: de la Theorie a la Mise en Application. *J Int Soc Plastination* 13 (1): 30, 1998a. Olry R: Thesis Review: Plastination et Angle ponto-cerebelleux. *J Int Soc Plastination* 13 (2): 26, 1998b.