

## LETTER FROM THE EDITOR



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### **Plastination: Global Impact on Science, Education, and Culture**

Dear Colleagues,

Proof, if proof were needed, of the wide range of applications, durability, and global impact of plastination is amply demonstrated in this issue of the Journal of Plastination.

The papers published here cover topics as diverse as marine biology, archaeology, parasitology, and conservation of plastinates. In “The Challenges of Plastinating a Blue Whale (*Balaenoptera musculus*) Heart” Miller et al. describe a notable achievement, which is of massive cultural, educational, and scientific significance. The whale in Miller et al.’s paper was 23 metres in length, while at the other extreme, González et al. describe the application of plastination, on a very much smaller scale, to the preservation of the larvae of *Oestrus ovis* (the sheep bot fly), a mere 1.5 cm in length. There are very few studies in the literature on the application of plastination to parasitology: this paper is a welcome addition to the field.

Plastination has also been used to conserve archaeological artefacts, and in this issue we publish a paper by Buendía et al. on the application of plastination to the field of marine archaeology. In their paper “Plastination Applied to the Conservation of Cultural Heritage” the authors describe the preservation of very significant ivory artefacts recovered from a Phoenician ship that sank off the coast of Spain between 7th – 6th centuries BC. And, as Miller et al. write: “The longevity of plastinates is advantageous for preservation biological tissue, but especially *rare or unique specimens of inherent scientific interest*” (emphasis added), which describes perfectly the various, very different, specimens that form the focus of these three papers.

However, while longevity is one of the hallmarks of plastination, repeated use in teaching inevitably leads to damage. It is our experience at St George’s, University of London that arteries are particularly brittle, and repairs are not always satisfactory. Plastinated specimens, by their very nature, are ideal for students to handle and inspect for themselves: the dilemma we face as educators is whether to allow students to handle them and risk damage, or restrict access so that they last longer, but deny students the important “hands-on” experience. This issue is discussed by Johnson and Baker in their paper “Rehabilitation of Plastinated Anatomical Prosections Using Silicone Adhesive and Pre-Cured S10/S3-Impregnated Fascia and Muscle”, in which they describe an ingenious use of silicone-impregnated, but as yet uncured, tissue, to repair damaged and broken specimens

In the controversy that surrounded the first ‘Body Worlds’ exhibition in the UK, in 2002, Gunther von Hagens was demonised in the popular press, and portrayed as being a modern-day Dr Frankenstein (Harris & Connolly, 2002). Interestingly, the two countries where von Hagens encountered the strongest opposition to his Body Worlds exhibitions

were the UK and Germany (von Hagens, 2008.) In the UK there were, at that time, heightened sensibilities following the revelations of unlawful retention of thousands of organs from babies and children at post mortem. This scandal ultimately led to a change in the law, and the introduction of the Human Tissue Act (Human Tissue Authority, 2018), which has helped to rebuild public confidence to the point where exhibitions of human and animal plastinates have proved hugely popular with the public, and body donations to anatomy have recovered from their post-scandal slump. In Germany, opposition to the display of human bodies appears to have been as a result of uncomfortable associations with the Third Reich. Anatomists and historians are now beginning to address the Nazi era; the careers of prominent anatomists of that time, such as Eduard Pernkopf (Hildebrandt, 2006) and Hermann Stieve (e.g. Winkelman & Schagen, 2009; Hildebrandt, 2013), to whom bodies were delivered fresh from the executioner, are now being analysed and discussed.

In these thankfully more enlightened times, who can now doubt the positive contribution that plastination has made to education, science, and culture?

With best wishes,



Philip J Addis  
Editor-in-Chief

### References

Hildebrandt S. 2006: How the Pernkopf Controversy Facilitated a Historical and Ethical Analysis of the Anatomical Sciences in Austria and Germany: A Recommendation for the Continued Use of the Pernkopf Atlas. *Clin Anat* 19: 91-100.

Hildebrandt S. 2013: The Women on Stieve's List: Victims of National Socialism Whose Bodies Were Used for Anatomical Research. *Clin Anat* 26: 3-21.

Human Tissue Authority. 2018: About us. URL: <https://www.hta.gov.uk/about-us> [accessed March, 2018].

Harris P, Connolly K. 2002: World trade in bodies is linked to corpse art show. URL: <https://www.theguardian.com/world/2002/mar/17/paulharris.kateconnolly> [accessed March, 2018].

von Hagens, 2008. Personal communication.

Winkelman A, Schagen U. 2009: Hermann Stieve's Clinical-Anatomical Research on Executed Women During the "Third Reich". *Clin Anat* 22: 163-171.