

# Secrets of the ancient world

## REFERENCES

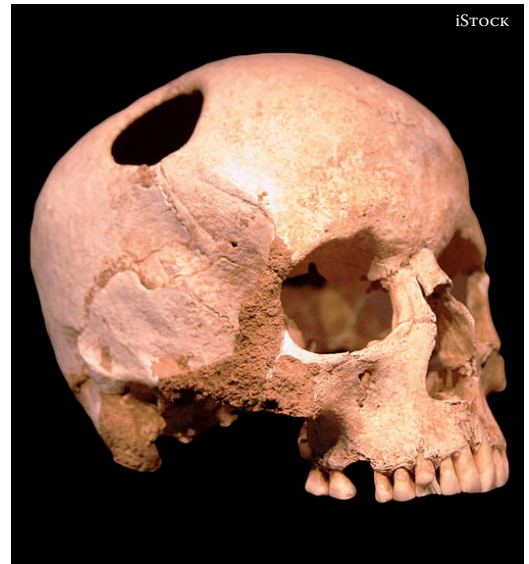
- Arnott R, Finger S, Smith C (2003) *Trepanation: History, Discovery, Theory*. Swets & Zeitlinger: Lisse, The Netherlands
- Caldwell MD (1990) Topical wound therapy—an historical perspective. *J Trauma* 30(12):S116–22
- Cooper DJ, Rosenfeld JV, Murray L et al (2011) Decompressive craniectomy in diffuse traumatic brain injury. *N Engl J Med* 364(16): 1493–502
- Craik EM (2009) Hippocratic bodily “channels” and oriental parallels. *Med Hist* 200953(1):105–16
- Lv X, Li Z, Li Y (2012) Prehistoric skull trepanation in China. *World Neurosurg* 80(6):897–9
- Mogliazza S (2009) An example of cranial trepanation dating to the Middle Bronze Age from Ebla, Syria. *J Anthropol Sci* 87:187–92
- O'Malley CD (1964) *Andreas Vesalius of Brussels, 1514–1564*. University of California Press: Los Angeles, USA
- Ottenhausen M, Bodhinayake I, Ewins AI et al (2014) Expanding the borders: the evolution of neurosurgical approaches. *Neurosurg Focus* 36(4):E11
- Papagrigorakis M, Toulas P, Tsilivakos MG et al (2014) Neurosurgery during the Bronze Age: a skull trepanation in 1900 BC Greece. *World Neurosurg* 81(2):431–5
- Toner JG, Walby AP (1990) Comparison of electro and chemical cauterization in the treatment of anterior epistaxis. *J Laryngol Otol* 104(8):617–8
- Vis E, van den Berge H (2011) Treatment of epistaxis without the use of nasal packing, a patient study. *Rhinology* 49(5):600–4
- Voorhees JR, Cohen-Gadol AA, Laws ER, Spencer DD (2005) Battling blood loss in neurosurgery: Harvey Cushing's embrace of electrosurgery. *J Neurosurg* 102: 745–52

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Modern-day acute healthcare benefits from a dizzying array of state-of-the-art technology; from fibre optic laparoscopy to robotics, and hydrosurgical debridement tools to negative pressure wound therapy. However, two procedures with their roots in the ancient world still exist, albeit with a significant degree of refinement: trepanation and cauterisation. It would doubtless come as a surprise to school-children nationwide to learn that those primitive operations, which seem so barbarous to modern minds, still hold validity today.

Trephining or trepanation, known today as decompressive craniectomy, remains a controversial technique (Cooper et al, 2011). In the ancient world, it appears to have been a common, and successful procedure. Studies conducted by Mogliazza (2009) of a 3,500-year-old skull suggest that the patient survived, living long after the surgery, as has been the case with later findings (Papagrigorakis et al, 2014). According to Arnott et al (2003), evidence of patient survival is suggestive of the technique being used for medical purposes, rather than for religious ceremonies. While it is viewed as something of a last resort, the fact that it still is considered an option, over 5,000 years since its estimated conception (Lv et al, 2012), makes it noteworthy — even if only to demonstrate the acuity of our ancestors.

Cautery is similarly ancient. According to Caldwell (1990), it was used 'by at least 3,000 BCE', and is mentioned in the Hippocratic Corpus, to 'reduce unwanted bodily moisture or to eliminate fleshy tissue' (Craik, 2009); presumably, these equate to haemostasis and debridement. The emergency use of cauterisation on the field of battle has largely been attributed to renaissance surgeon Andreas Vesalius, throughout whose writings are frequent mentions of the technique, and equally frequently, his whole-hearted approval for the approach (O'Malley, 1964). Cautery was famously the nemesis of Ambroise Pare, the brutality of which drove him to develop the rather more effective combination of ligature and tincture.



**Evidence of trepanation has been found in prehistoric human remains from Neolithic times onward. People believed the practice would cure epileptic seizures, migraines, and mental disorders.**

Despite its barbaric past, cauterisation continues to be employed (in a dramatically different guise) in a number of routine procedures in the present day, and to great effect. The first use of electrocautery to remove a brain tumour in 1926 is regarded as a crucial step for neurosurgery (Ottenhausen et al, 2014; Voorhees et al, 2005). Both chemical and electrocautery are used as routine treatments for epistaxis (Toner, 1990), the technique and instruments having advanced to the point at which cauterization is favoured over nasal-packing as the preferred treatment for reasons of both efficiency and effectiveness (Vis, 2011). Electrocautery is also a routine technique in another haemostatic operation — that of the haemorrhoidectomy, though a number of studies suggest that it may be losing ground to the more precise harmonic scalpel. Empirical data notwithstanding, the concepts of cauterization, electrocautery and electrocoagulation share a common theme, and their continued use proves that our ancestors' instincts were accurate, even if their sense of compassion was awry.

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