

Care and punishment: a history of coal tar and wood tar in dermatology

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Tar and Pitches

Tars (bitumen) and pitches (solidified product of tar) have been used for engineering, technical, ceremonial, punitive and medicinal purposes. Tars were initially obtained from naturally occurring deposits in association with coal, shale or petroleum oils. The use of tar to waterproof dams and storage tanks dates to 3,000 BC (Mohenjo Daro in the Indus valley). Cedar tree oils were found in mummy embalming materials from 1500 BC Egypt¹ (fig 1).



Figure 1
*Child mummy from the Roman Period.
Embalmed with tar and gold leaf on face.
(from British Museum)*

Tar and Punishment

Tar and feathering was advocated in 1189 by Richard I for thieves in the Crusades. The punishment has been used throughout history in Western Civilisations since this time. Tar and feathering was used in the USA for English customs officials, whiskey tax collectors, in racial attacks² and those failing to support US war efforts (fig 2). More recent published accounts were reports from Northern Ireland for women associating with soldiers (in the 1970s) and for an alleged drug dealer (2007)³. Bitumen melts at 54-173°C and Coal Tar pitch at 30-180°C so cutaneous burns may be mild or fatal depending on the substance used.

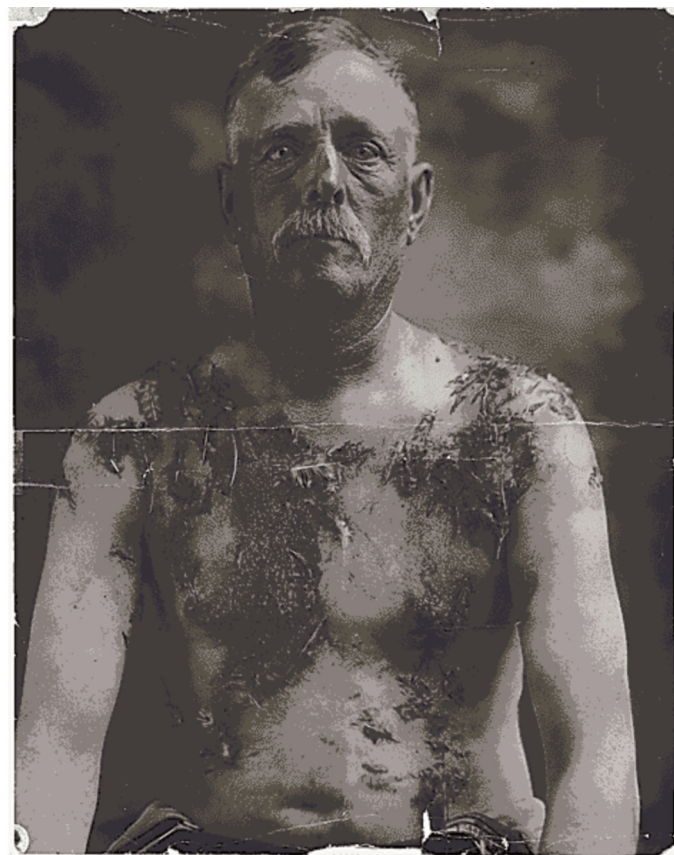


Figure 2
*Tar and Feathering
in Twentieth
Century USA for
failing to support
war bond drives
(source: US
National Archives)*

Early Medicinal Use of Mineral Tars

The medicinal use of tar found in Dead Sea mud (together with sunlight heliotherapy) has been practised since Biblical times (fig 3). Similar deposits were found in the Shropshire coal fields e.g. Pythford, and was probably first used by the Romans during their occupation. Paulus Aegineta reported the use of a liquid pitch for the treatment of leprosy and psora (probable psoriasis) in 700 AD in book 4 of his medical encyclopaedia⁴ (fig 4). More recently (1700-1850), the use of natural tar products (Oleum Britannicum; Betton's British Oil) (fig 5) was advocated for a variety of skin and rheumatic complaints in man and farm animals⁵.

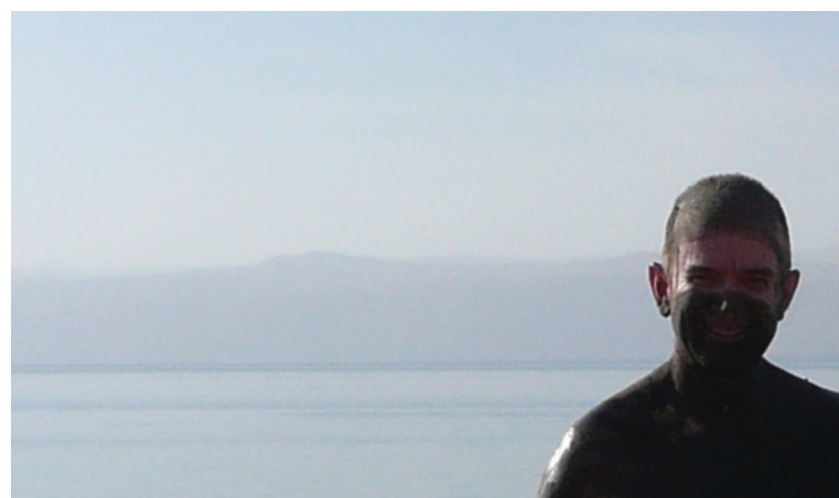


Figure 3
*Tar from the dead sea (Lacus
Asphaltites) has been used by skin
doctors since biblical times*

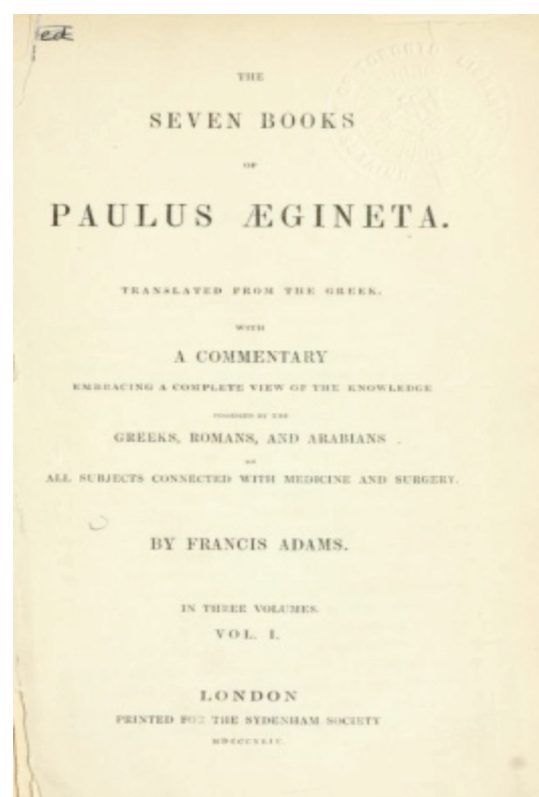


Figure 4
*Paulus Aegineta (c625-690 AD) wrote
the first dermatology textbook⁴. He
described tar as a treatment for psoriasis*

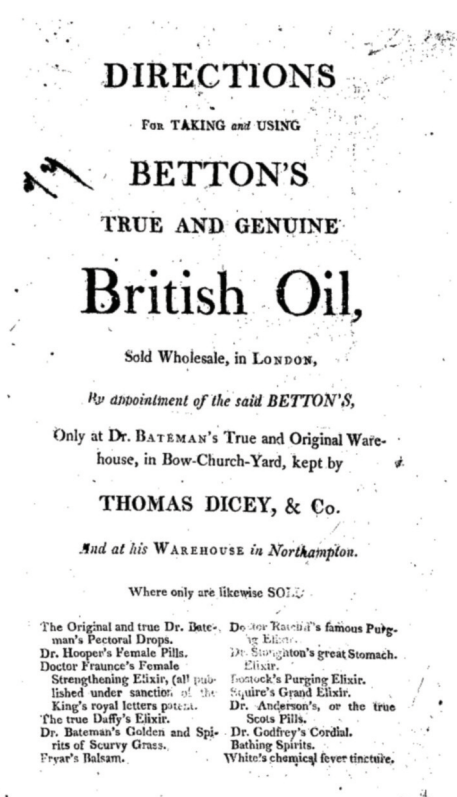


Figure 5
*Directions for use of Betton's British Oil.
A tar oil preparation useful in humans
and animals.*

Use of Wood Tars

Wood (Stockholm) tar was developed by the Vikings as a by-product of charcoal manufacture and used in house and ship building as well as medicinally from 800-1000 AD. The term "tar" for a sailor may derive from "tarpaulin" - tar covered canvas or possibly from the practice of applying tar to the hair (fig 6). Wood tars have predominantly anti-septic rather than anti-inflammatory properties and are still used in dermatology and veterinary practice. Specific therapeutic use of tar for cutaneous disorders was reported in the 18th and 19th centuries by Daniel Turner⁶, Thomas Bateman⁷ and Robert Willan but the exact source of the material was not recorded. Admiral Sir Francis Beaufort 1774-1857 (fig 7) suffered from a skin disease, thought to be psoriasis⁸, from which he got some relief with tar preparations, probably wood tar which would have been readily available at sea. Now infra-red spectroscopy is a convenient way of detecting the components of tar preparations.

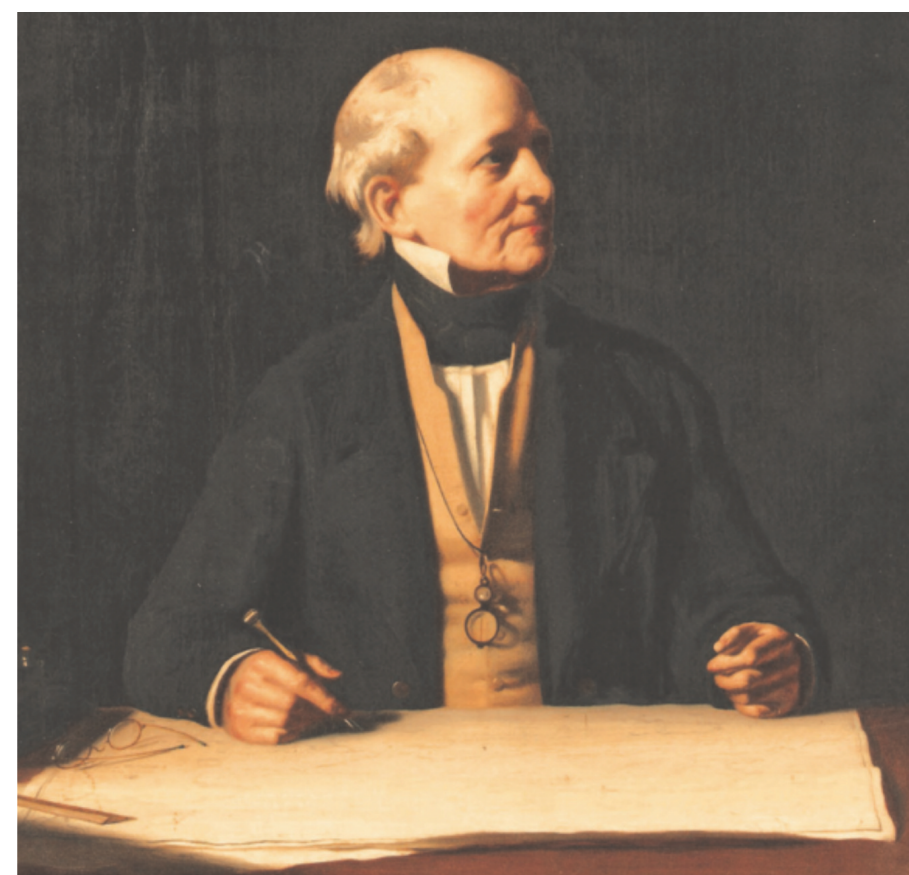


Figure 7
*Admiral Sir Francis Beaufort, famous for his wind scale, struggled with psoriasis,
with only a partial response to tar, ultimately to clear with enforced prolonged
rest in sunny Gibraltar when wounded.*



Figure 6
*Napoleonic War
recruitment poster for
"Royal Tars". Sailors
wore clothing made
from Tarpaulin and
coated their hair with
Tar to fix it into a pony
tail that would not
catch in the rigging.*

Use and Hazards of Coal Tar

Patents for the preparation of coal tar were lodged in the 18th century but were only fully exploited in the 19th and 20th centuries. Goeckerman described coal tar preparations with sub-erythematous ultra-violet irradiation for psoriasis in 1929. Carcinoma of the scrotum after crude coal tar use was still reported in the 20th century two hundred years after Percivall Pott's 1775 first description⁹ of this industrial disease in chimney sweeps (fig 8). The safety of coal tar remains controversial. This most useful and ancient group of skin treatments retain many of their mysteries concerning mechanism and toxicity.

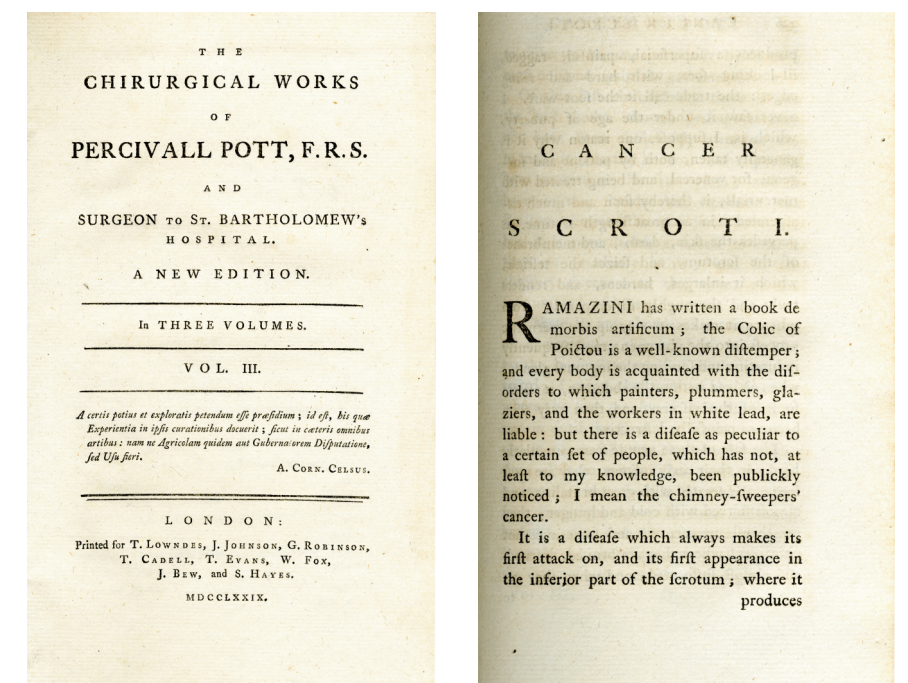


Figure 8
*Percivall Pott wrote this chapter
in 1759 describing the first
account of an industrial disease;
scrotal cancer in chimney
sweeps.*

References

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