transfusion or injections, and there was no history of venereal infection or genital ulceration. The other antibody positive heterosexual man was an intravenous drug user.

When the beginning of October was compared with mid-November there was an increase of over 300% in people attending the clinic who required counselling for the HIV antibody test. By the end of December this had fallen slightly, but with the surge in publicity at the end of February we are expecting a further dramatic increase in requests for testing. Our clinic staff, in particular the health advisers, are working under enormous pressure at present. We do not foresee our workload decreasing, rather the opposite. The recent increase in public awareness and anxiety about AIDS,

which will probably continue with further public health education, surely indicates that it is time for an urgent reappraisal of staffing levels in clinics for sexually transmitted diseases.

References

- 1 Mills S, Campbell MJ, Waters WE. Public knowledge of AIDS and the DHSS advertisement campaign. *Br Med J* 1986;293:1089-90.
- 2 Quinn TC, Mann JM, Curran JW, Piot P. AIDS in Africa: an epidemiologic paradigm. *Science* 1986;234:955-63.

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Medical History

Jeremy Bentham's self image: an exemplary bequest for dissection

RUTH RICHARDSON, BRIAN HURWITZ

The eighteenth century philosopher and law reformer Jeremy Bentham still sits above ground, in his Sunday best. He died in 1832 and, in keeping with his doctrine of Utility, left his body for dissection. He expected to gain deathbed comfort from the thought that: "How little service soever it may have been in my power to render to mankind during my lifetime, I shall at least be not altogether useless after my death."¹

But this was to be no ordinary bequest for dissection. Bentham conceived that a corpse had twofold use-value—transitory: "anatomical, or dissectional"; and more permanent: "conservative, or statuary."² The "savage ingenuity" of the indigenous New Zealanders had inspired Bentham to direct that his head be dried and preserved.² During his lifetime experiments were made using the oven at Bentham's own house.³ His skeleton was to be reassembled, fully clothed, and exhibited in a glass case. This reconstructed entity he termed his auto-icon, or self image. For the previous 20 years the grand old man had carried in his pocket the glass eyeballs which would adorn his dehydrated head.⁴

Bodies for anatomical inquiry

To ensure that his plan would be adopted Bentham arranged to bequeath his body to his "dear friend" Dr Thomas Southwood Smith, author of an influential article "Use of the dead to the living," which had appeared in the *Westminster Review* in 1824.⁵ At the time anatomy was in bad repute as a result of widespread grave robbery. There existed no legal source of bodies for dissection other than those of hanged murderers. In all but the most

enlightened circles dissection was deeply feared, regarded by law since Tudor times as a fate worse than death.⁶

Southwood Smith's theme had been the immeasurable utility of anatomical knowledge. He highlighted its value in diagnosis and treatment. An anatomical understanding of referred pain would ensure, for example, that irrelevant operations would not be attempted in cases of right shoulder tip or referred knee pain. Only by close study of "this curious and complicated machine," the human body, could commonly performed surgery, such as amputation and hernia repair, be safely undertaken. His argument remains unanswerable:

Disease, which it is the object of these arts to prevent and to cure, is denoted by disordered function: disordered function cannot be understood without a knowledge of healthy function; healthy function cannot be understood without a knowledge of structure; structure cannot be understood unless it be examined.⁷

Who, then, would provide subjects for anatomical inquiry: the living or the dead, the rich or the poor? A public choice must be made: allow the dissection of the dead or accept that surgeons would otherwise be driven to obtain knowledge by practising on the bodies of the living. The social implications of adopting the latter course were stark. The rich, Southwood Smith pointed out, would always have it in their power to select experienced surgeons. Such a choice was not available to the poor. Public hospitals and poorhouses would therefore be converted "into so many schools where the surgeon by practising on the poor would learn to operate on the rich with safety and dexterity."⁸ In 1824 the resolution to this problem was clear to Southwood Smith: the unclaimed dead from poorhouses and hospitals must be requisitioned for dissection. "If the dead bodies of the poor are not appropriated to this use, their living bodies will and must be."⁸

Bentham's decision

Jeremy Bentham had decided to bequeath his body for dissection in 1769 when he was 21, over half a century before Southwood Smith's article. Undoubtedly, Bentham intended by his example to promote bequests for anatomy. Yet he was certainly influenced by Southwood Smith. Within two years of the publication of "Use of the dead to the living," Bentham drafted legislation—which was to provide a basis for the 1832 Anatomy Act—along the very lines suggested.⁹

In the eight years between 1824 and 1832 the climate of opinion changed.

Institute of Historical Research, University of London, London WC1E 7HU
RUTH RICHARDSON, MA, DPHIL, historian

London N1
BRIAN HURWITZ, MRCP, MRCGP, general practitioner

Correspondence to: Dr Richardson.

Parliament became increasingly receptive to the idea of legislation on the subject. Doctors had been convicted of receiving stolen bodies, and the proprietors of anatomy schools, all of which were then privately run, were increasingly fearful of riots. A horrifying escalation had occurred in the lengths to which illicit suppliers of anatomy schools were prepared to go to obtain their merchandise. Hitherto demand had been met, and lucrative income secured, by body snatching from graves. But in Edinburgh Burke and Hare, and later the London "Burkers" Bishop and Williams, were shown to have resorted to murder. Thomas Wakley of the *Lancet* referred to them as "trading assassins" and declared it "disgusting to talk of anatomy as a science, whilst it is cultivated by means . . . which would disgrace a nation of cannibals."¹⁰

The 1832 Anatomy Act permitted those having lawful custody of dead bodies to donate them for dissection. The masters of poorhouses and hospitals could cut expenditure on pauper funerals by donating the bodies of patients too poor to provide for their own burial. By creating a cheap, legal, and institutionalised source of bodies, the Act led to the collapse of the body snatching trade.⁶ The Anatomy Act and the inspectorate it established are still in effect.

Although it seemed to offer a welcome end to grave robbery, the prospect of such legislation provoked strong popular opposition. Dissection had hitherto been a punishment administered by law only upon executed murderers. Now it was to be visited solely upon the destitute. Feelings were running high. In 1831-2 Great Britain was in the grip of its first ever epidemic of Asiatic cholera, which in its first year claimed over 30 000 lives.^{11,12} Moreover, agitation to gain franchise and parliamentary reform had generated national political ferment, which reached a climax in the Great Reform Bill of 1832. Although a huge mobilisation of popular opinion had succeeded in propelling an unwilling parliament towards reform, the line for voting rights was drawn at a £10 property qualification, which effectively defined and excluded the working classes.¹³ The Reform Bill received its royal assent the day after Bentham died; the Anatomy Act followed within two months. Legislation in 1752 which had made dissection available as a punishment in all cases of murder had described dissection as a "Terror and peculiar Mark of Infamy." The 1832 Anatomy Act transferred this "terror" to the voteless and destitute poor.¹⁴

Oration over the corpse

Bentham died on 6 June 1832, while the Anatomy Bill was between its first and second readings in the Lords. Invitations were swiftly printed and distributed to a select number of followers and admirers:

Sir,

It was the earnest desire of the late JEREMY BENTHAM that his Body should be appropriated to an illustration of the Structure and Functions of the Human Frame. In compliance with this wish, Dr Southwood Smith will deliver a Lecture, over the Body, on the Usefulness of Knowledge of this kind to the Community. The Lecture will be delivered at the Webb-street School of Anatomy and Medicine, Webb-street, Borough, Tomorrow, at Three o'Clock; at which the honour of your presence, and that of any two friends who may wish to accompany you, is requested.
Friday, 8th June, 1832.¹⁵

Southwood Smith, a physician and non-conformist preacher, began by referring to Bentham as "foremost among the benefactors of the human race," the Newton of social philosophy.¹⁶ He paid respect to the dead man's courage and to his abhorrence of the prejudice against dissection. Smith spoke tenderly of bereavement and of emotional attachment to the corpse: "For such feelings there is a foundation in the human heart. They belong to that class of feelings which require control, and sometimes, even, sacrifice." While he was speaking a thunderstorm broke, which shook the building. With a face "as white as that of the dead philosopher before him" he continued in a "clear unflinching voice."¹⁷ Bentham, he said, wished to set an example to others to rise above their prejudice. Between flashes of lightning, Southwood Smith turned full on his audience, among whom were leading political and intellectual figures, some of whom had steered the Anatomy Bill through parliament, and asked:

How is it to be expected that the uninstructed and ignorant . . . will sacrifice their own feelings for the public good, when the best regulated shrink from the obligation? . . . It is our duty, not by legislative enactments to force others to submit to that which we are unwilling should be done to ourselves, but to set the example of making a voluntary sacrifice for the sake of a good which we profess to understand and appreciate.

The Southwood Smith of 1832 who criticised so passionately the hypocrisy of his peers seems a different man from the one who had argued eight years earlier for a wholesale appropriation of the poorhouse dead.

During this period Southwood Smith had been incubating a growing awareness of the grounds for popular opposition. The poor, he had said in 1829, "suppose that they must still serve their masters even after death has set them free from toil, and that when the early dawn can no longer rouse them from the pallet of straw to work, they must be dragged from what should be their last bed, to show in common with the murderer, how the knife of the surgeon may best avoid the rich man's artery, and least afflict the rich man's nerve."¹⁸

Between writing "Use of the dead to the living" and giving the oration over Bentham's corpse, Southwood Smith had evidently come to appreciate—and dislike—the political implications of his original suggestion. He foresaw that the coercive nature of the Anatomy Act would do nothing to lessen popular hostility to dissection. The only way to achieve this was to encourage bequests. The oration over Bentham's body was therefore the perfect occasion for Southwood Smith to expound his views. Notwithstanding the dramatic power of his oratory, few, if any, of those present would prove willing to bequeath their own bodies to science.

Terms of the will

Under the terms of Bentham's will Southwood Smith was to receive the body. He was to "take the requisite and appropriate measures" to dissect and preserve it. The skeleton was to be reassembled, dressed in Bentham's clothes, and surmounted by his desiccated head. In the event, in Southwood Smith's words: "I endeavoured to preserve the head untouched, merely drawing away the fluids by placing it under an air pump over sulphuric acid. By this means the head was rendered as hard as the skulls of the New Zealanders; but all expression was of course gone. Seeing this would not do for exhibition, I had a model made in wax by a distinguished artist . . . one of the most admirable likenesses ever seen."¹⁹ The wax head was sculpted by a French doctor, Jacques Talrich, who was a successful anatomical modeller (fig 1). The real head was preserved and initially placed in the auto-icon's ribcage. Later it was transferred to a separate box,²⁰ and it is now kept securely in the University College vaults.

Southwood Smith was aware that Bentham's arrangements for his corpse were regarded by some with ridicule.²¹ Yet he spent considerable care in cleaning the bones and articulating the skeleton, wiring its joints skilfully with copper. The skeleton was padded out with a variety of stuffing materials, including straw, hay, tow, cotton wool, wood wool, and paper ribbon. A bunch of lavender and a bag of naphthalene were added for protection against pests. The care and attention Southwood Smith devoted to the project indicates the great seriousness with which he viewed it. He was upset by the embarrassed reception his creation received from University College when 20 years later he moved to a smaller house and donated the auto-icon to college care. He noted that it had been housed "in some back room" and that the authorities seemed "afraid or ashamed to own their possession."¹⁹

In more recent times University College has rehabilitated the auto-icon. As a founder of the university and a great philosopher Bentham is now a celebrity and not the "defunct oddity" he was once considered.²² The auto-icon now sits in a mahogany and glass case at the south junction of the college cloisters, its doors opened daily (fig 1). It was restored by the Department of Egyptology in 1939, when its moth-eaten vest was replaced—and the coccyx was noted to be artificial.²³ In 1981 a further overhaul was undertaken by the Textile Conservation Centre at Hampton Court, when Bentham's clothes were cleaned, many moth holes in his coat and breeches were carefully patched, and the auto-icon's stuffing repaired (fig 2).²⁴

The perishable nature of the auto-icon was not foreseen by Bentham himself. In a paper written shortly before his death entitled "Auto-icon; or, farther uses of the dead to the living" he had envisaged that auto-icons would "supersede the necessity of sculpture."²² This extraordinary document has never been published, and has evoked puzzlement among scholars. Was it written tongue in cheek, or as a private manifesto? The paper is an extended consideration of the ways in which the creation of statues from the bodies of the dead—"auto-iconism"—could substitute for conventional burial on a large scale.

Lacking religious belief, Bentham viewed the human carcass as matter created by death. As an eighteenth century rationalist, he found little difficulty in addressing the problem of how this matter might best be disposed of with a view to maximising the "Felicity of Mankind." Death was a waste of resources. The body—a source of disease and a cause of unnecessary funerary expenditure—had dual potential: the part liable to putrescence was of value to medicine through dissection. The remainder could have manifold utility in the form of an auto-icon.

Bentham's quirky vision of the uses of human taxidermy included the erection of temples of fame and infamy in which auto-icons would take the place of carved statuary or waxwork: "so now may every man be his own statue."²² Avenues of trees on ancestral estates could be interspersed with

FIG 1—Bentham's auto-icon as it sits today in the cloisters of University College London.

auto-icons weatherproofed with varnish and gum. Bentham visualised the growth of a property market in auto-icons and speculated on the legal implications of leasing and mortgaging this new form of property. He conjured up the possibility of historical theatre in which characters would be represented by their own auto-icons: "Is not identity preferable to similitude?" he asked.²⁵ (Walter Savage Landor's *Imaginary Conversations* between illustrious non-contemporaries were published between 1824 and 1829. His work may have prompted Bentham's theatrical speculations.)

The moral utility of such artefacts could most usefully be realised through the new science of phrenology: "In every repository for the Auto-Iconised dead, a phrenologist would behold a lecture-room, replete with subjects for the anatomico-moral instruction."²⁶ The College of Heralds, he thought, would soon become redundant, as coats of arms would be replaced by preserved arms in coats.²⁷

Wish fulfilled

A powerful narcissistic impulse reverberates through this last manuscript. Bentham's preoccupation was less with dissection than with the preservation of his own corpse. For less illustrious corpses he recommended: "Let a hole in the ground be dug for them, and lime applied as the cheapest material by which they may be made . . . no injury to the public health."²⁸ For Bentham, on the other hand, dissection was to be no ordinary dismemberment but a secular resurrection. His fantasy of immortality was corporeal rather than

spiritual. He envisaged himself a self composed relic, the object of pilgrimages. Indeed, his auto-icon is said to have presided, as he had wished, at meetings of his own "votaries." Bentham called his followers "Pilgrims, votaries of the greatest-happiness principle," and asked: "Why not to this receptacle as well as to Mahomet's? Is not Bentham as good as Mahomet was?"^{29 30}

Although Bentham's self willed dissection and reassembly was a bizarre and unconventional fate, his wishes bear the mark of eighteenth and early nineteenth century funerary aspiration. Deceased gentfolk of this period would customarily distribute mourning rings and other jewellery containing portraiture and locks of hair to those they hoped would mourn them. Bentham did the same. (*The Isis* lists recipients of these rings.³¹) Before the Anatomy Act the paraphernalia of respectable death—triple coffins, patent cast iron coffins, mortsafes, and numerous rows of coffin nails—focused to an important degree on the prevention of body snatching and the achievement of security of tenure in the grave.³² Bentham must have been aware that his body would have been a prize specimen in any anatomical or phrenological museum. Though without the physical endowments of the celebrated Irish Giant, whose skeleton greets one on entering the Hunterian Museum, Royal College of Surgeons of London, and for whose corpse the anatomist John Hunter had paid over £500, Bentham was an intellectual giant, and his craniological dimensions would have been of great interest. Even had he been buried in multiple coffins his corpse may not have remained underground for long. Bentham would surely have known of Sir Astley Cooper's chilling remark to the Commons Select Committee on Anatomy in 1828: "There is no person, let his situation in life be what it may, whom, if I were disposed to dissect, I could not obtain."³³

While Bentham's directions for his body were surely consonant with all that his utilitarian philosophy suggested, and were therefore calculated to benefit mankind, they also provided him with the certitude of escaping a worse fate. By bequeathing his body to Southwood Smith, Bentham avoided becoming the anatomical victim of his own fame; at the same time he escaped the anonymity of anatomical obliteration.

Bentham's will was carried out to the letter, but its spirit was not observed by others in the way that he and Southwood Smith had hoped. Ironically, the Anatomy Act—which both men had promoted—rendered Bentham's example redundant. After the Act

FIG 2—Two photographs of the auto-icon undergoing conservation at Hampton Court in 1980-1. Reproduced by permission of the Textile Conservation Centre.

gained its royal assent on 1 August 1832 bodies from workhouses took the place of those from gallows and graves. The time had already passed when the conscience of the intelligentsia could be appealed to on this issue with any hope of success. More than a century was to pass before bequests could again become a feasible source for dissection.³⁴

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References

- University College London Bentham Archive. Mss 11b:180-3.
- Bentham J. Auto-icon; or, farther uses of the dead to the living. A fragment. Unpublished, c 1842:2.
- Marmoy CFA. The auto-icon of Jeremy Bentham at University College, London. *Med Hist* 1958;2:78.
- Marmoy CFA. The auto-icon of Jeremy Bentham at University College, London. *Med Hist* 1958;2:84(note).
- Smith TS. Use of the dead to the living. *Westminster Review* 1824;2:59-97.
- Richardson R. *Death, dissection and the destitute*. London: Routledge, 1987.
- Smith TS. Use of the dead to the living. *Westminster Review* 1824;2:4.
- Smith TS. Use of the dead to the living. *Westminster Review* 1824;2:37.
- Richardson R. Bentham and bodies for dissection. *Bentham Newsletter* 1986;22-33.
- Anonymous. [Editorial.] *Lancet* 1832;ii:243-5.
- Morris RJ. *Cholera 1832*. London: Croom Helm, 1976.

- Pelling M. *Cholera, fever and English medicine*. Oxford: Oxford University Press, 1978.
- Thompson EP. *The making of the English working class*. Harmondsworth: Pelican, 1963:902-3.
- 25 Geo II c 37.
- British Museum. Add Mss 34661.
- Smith TS. A lecture given over the remains of Jeremy Bentham Esq. London: Effingham Wilson, 1832:7-9.
- Dictionary of national biography*. Vol 18. Oxford: Oxford University Press, 1921-2:543-5. (Reprinted 1973.)
- Smith TS. Anatomy. *Westminster Review* 1829;10:128-48.
- Smith TS. Letter to William Munk. Quoted in Marmoy CFA. The auto-icon of Jeremy Bentham at University College, London. *Med Hist* 1958;2:82.
- Marmoy CFA. The auto-icon of Jeremy Bentham at University College, London. *Med Hist* 1958;2:82,84.
- Smith TS. A lecture given over the remains of Jeremy Bentham Esq. London: Effingham Wilson, 1832:73.
- Turnbull WB. Letter dated 1842. Quoted in Marmoy CFA. The auto-icon of Jeremy Bentham at University College, London. *Med Hist* 1958;2:79.
- Marmoy CFA. The auto-icon of Jeremy Bentham at University College, London. *Med Hist* 1958;2:84-5.
- Finch K, comp. Report 0384. Hampton Court, Surrey: Textile Conservation Centre. Unpublished, c 1981.
- Bentham J. Auto-icon; or, farther uses of the dead to the living. A fragment. Unpublished, c 1842:3.
- Bentham J. Auto-icon; or, farther uses of the dead to the living. A fragment. Unpublished, c 1842:7.
- Bentham J. Auto-icon; or, farther uses of the dead to the living. A fragment. Unpublished, c 1842:4-5.
- Bentham J. Auto-icon; or, farther uses of the dead to the living. A fragment. Unpublished, c 1842:10.
- Bentham J. Auto-icon; or, farther uses of the dead to the living. A fragment. Unpublished, c 1842:15.
- Arnold M. *Essays in criticism*. London: Macmillan, 1865:xvii-iii.
- The Isis* 1832:303-4.
- Richardson R. The sanctity of the grave asserted. Chapter 4. In: *Death, dissection and the destitute*. London: Routledge, 1987.
- Evidence of Sir Astley Cooper to the House of Commons Select Committee on Anatomy. *Report*. 1828;July 22:18.
- Richardson R. The unpardonable offence. Chapter 11. In: *Death, dissection and the destitute*. London: Routledge, 1987.

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Conference Report

Seconds may count

TESSA RICHARDS

Thrombolytic treatment is being hailed as the second major advance in the management of patients with acute coronary thrombosis (the first was defibrillation). Its potential to reduce the mortality from a disease that kills 160 000 people a year in Britain is well recognised by the pharmaceutical industry.¹

It thus came as something of a surprise to hear, at a meeting organised by the British Heart Foundation, the British Cardiac Society, and The Royal Society of Medicine, that a recent survey of 1000 doctors who look after patients with myocardial infarction found that only 3% routinely gave thrombolytic treatment. Part of the problem is that streptokinase, the preparation used most widely, does not yet have a licence for general use, although it will have within a few months. But there is also a suggestion that some doctors are yet to be convinced of the value of thrombolytic treatment.

This lack of conviction is not from lack of evidence on its efficacy. Several controlled studies carried out in the 1970s and three large

recent studies show that thrombolytic treatment can reduce the early (21 day) mortality from myocardial infarction by about 18%²⁻⁴—provided that it is given within six hours of the onset of chest pain. The importance of early treatment is well shown in the GISSI (Gruppo Italiano per lo Studio della Streptochinasi nell'Infarto Miocardico) study, in which the mortality of those treated within an hour was reduced by almost half.

Patients who seem to benefit most from thrombolytic treatment are those presenting with their first infarct, those under 65, and those with electrocardiographic evidence of anterior infarction. The enthusiasts, however, believe that treatment should be given to anyone with clinical signs of infarction irrespective of the electrocardiographic changes as about a third of patients have equivocal changes in early electrocardiographs.

Costs unclear

Intravenous streptokinase (more practicable if slightly less effective than intracoronary streptokinase) has to be given as an intravenous infusion of 1.5 million units over one hour, but at about £80 for each treatment it is considerably cheaper than the possibly more effective alternatives: acylated plasminogen activator (which