

## The centrality of the dead human body for teaching and research – social, cultural and ethical issues

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Study of the cadaver is integral to both medical education and research, but how is cadaveric material to be obtained in the 21st-century world? Historical precedents are of little assistance, built as they are on the most unethical of practices, including body snatching and murder. This constitutes a major challenge for modern anatomy: has it been able to cast off all semblance of this unsavoury past?

In this paper it is contended that the continued use of unclaimed bodies has proved problematic, ignoring as it does the fundamental ethical impetus of altruism. The use of bequeathed bodies is regarded as ethically preferable, even though cultural practices vary significantly, with the result that the availability of cadavers is uneven across societies. Recent legislation has brought the role of informed consent to the fore, and this is a welcome development. Nevertheless, immense challenges remain for anatomists, a major one being that posed by the large-scale public exhibitions of plastinated bodies, the prime exponent of which is Body Worlds. In assessing the manner in which the plastinates are displayed, those with Renaissance allusions have most in common with an educational rationale, although lacking a research ethos. The contemporary genre plastinates are the furthest removed from any traditional anatomical approach, and generally lack any teaching focus. They are also the most problematic ethically when assessed in terms of the principles of beneficence and non-maleficence. Additionally, the character of donation is changed within the context of these public exhibitions.

### Lack of ethical strictures in obtaining bodies

For anatomists the use of dead human bodies and preserved human tissue is taken as little less than a professional obligation. The mere suggestion that study of actual human material is anything less than essential for an understanding of human structure is regarded as bordering on heresy. Nevertheless, some do question this, although I doubt whether the questioning stems from what are perceived as pressing ethical obligations.

If we accept then that the study of the cadaver is integral to medical education as well as that of allied health professionals, we have to ask how it can be justified and how cadaveric material is to be obtained in the 21st-century world. An answer to such questions demands an appreciation of ethical thought forms rarely found within the cavernous halls of traditional anatomical establishments. This disconcerting observation is of considerable concern, since it suggests that today's anatomists give the appearance of being ill equipped to face up to the ethical demands presented by multicultural societies.

There must be few disciplines with such an unsavoury history as anatomy. Details from the 18th and early 19th centuries in Britain and North America are well known: using the bodies of executed criminals, body snatching, and even murder.<sup>1</sup> The world of the so-called resurrectionists and the plenitude of macabre stories surrounding the rapid transport of the recently buried from graveyard and poorhouse to anatomy dissecting room make for thrilling, if chilling, bedtime reading. By any standards the unethical nature of these escapades is scandalous.

One does not have to be a professional bioethicist to be appalled at some of the practices, sponsored and even undertaken by senior members of the anatomy establishment, that surrounded

the development of anatomy into a modern discipline. The commissioning of murders in the name of anatomical investigation aggravated the bleak situation even further. Medical historian Ruth Richardson has commented: '... that a vocation which professed "no object but that of conferring benefit on others" in healing the sick and the saving of human life should have been responsible for the commissioning of so many premeditated murders, was seen as an unspeakable paradox'<sup>1</sup> (p. 133).

The 1832 Anatomy Act in England proved ground breaking and of crucial significance for the practice of anatomy for many years to come and in many different countries. It introduced into the anatomical lexicon the concept of *unclaimed bodies*, since these were viewed as the most acceptable source of bodies for dissection. For us today this is so commonplace as to be uninteresting. But a moment's thought should impress upon us its revolutionary character, and in my view its disconcerting character. Surprising as it may seem, it was not the only option available at the time of the formulation of the 1832 Act. For the three years or so prior to the Act, there had been a steady stream of bequests, and yet this was not the direction taken.

Jeremy Bentham, the English political philosopher known for his advocacy of many causes, including utilitarianism, welfarism and animal rights, stipulated in his will that his body was to be dissected as part of a public anatomy lecture. This duly took place after his death in 1832. Thereafter his skeleton and head (originally the actual head, but in more recent years a wax model) were preserved, and formed the central part of an auto-icon, stuffed with hay and dressed in his clothes. From 1850 onwards this has been on display at University College London, the foundation of which owed a great deal to his inspiration.<sup>2</sup>

Despite this very high-profile support of a bequest ethos, together with many lesser known ones, widespread medical opinion

favoured the use of unclaimed bodies. Since the use of dissection as a punishment for murder was being abolished, the only possible source remaining was hospital patients with no relatives to bury them or whose relatives were too poor to do so. Quite simply *poverty* became the sole criterion for dissection.<sup>1</sup> Perhaps it would be unfair from our 21st-century vantage point to condemn this move on the grounds of lack of informed consent. And yet this decision, plus the lack of any incentive to revisit it for many years into the future, is deeply disconcerting since it strongly suggests a willingness to make use of the bodies of the disadvantaged and dispossessed. The lack of serious ethical reflection regarding justification of this paradigm ensured that unclaimed bodies would be viewed by many societies not only as the legitimate source, but even as the normal source, of bodies for anatomical investigations up to the present day.

But why was the bequest route so readily bypassed? In part it was due to the importance to most people of burial in consecrated ground of an intact body – as close to what the person had been like in life as possible. In Christian thinking there was a perceived link between the dead body and the resurrection body, with the latter having more of a physical basis than we generally claim to make today. While the strength of this link would have varied considerably, it provided a cultural underpinning for the dignity of the corpse. After all, the prospect of being dissected *post mortem* was regarded as a notable deterrent for would-be murderers, in that the dissection constituted a form of punishment almost as real as the execution itself. In the light of the ethos created by these attitudes, why would anyone want their body to be dissected? While some did, individuals like Jeremy Bentham were very much the dissenters characterised by a rejection of established Christian beliefs. They were swimming against the cultural tide and were unlikely to sway conventional opinion.

The poor, however, were in no position to protect themselves, whatever thoughts they may have had about an afterlife. They constituted the most vulnerable segment of society and were able to provide ample bodies after death. Legalisation of the use of these unclaimed bodies gave an aura of respectability to the whole process. This, in turn, was further legitimised by the sentiment that those who have been looked after by the state should 'willingly' allow their bodies to be used for good educational purposes after death<sup>3</sup> (p. 89). While all the poor did not fit into this category, some certainly did. Of course, there was nothing willing about the use of these bodies, except in the minds of those seeking a rationale for what must have seemed to all concerned to be a dubious activity.

What emerges from this train of events is that any ethical underpinnings for the use of unclaimed bodies were far from clear. One could say they were non-existent. Regardless of their precise status, anatomists and allied health professionals gave the impression of being willing to use all the bodies they could acquire. They were in desperate need of them to train the medical students in their schools. There was also a connection in some cases between the number of cadavers and the number of medical students, and hence profitability of the medical schools. The legality of the source of the bodies was of great assistance since it quelled the antipathy of the populace to an activity that at best was viewed as questionable, especially in view of the recent history of grave robbing. As one looks ahead, one can begin to appreciate how anatomists came to rely excessively on the legality of a procedure at the expense of subjecting its underpinnings to serious ethical analysis. In the absence of any such analysis, they failed to give

attention to the most basic issues of consent, and perhaps had no intention of doing so.

This is amply demonstrated by the work of Australian medical historian Helen MacDonald, who has looked closely at the manner in which the remains of murderers, impoverished hospital patients, women and Aboriginal people were mistreated by surgeons and anatomists in the 19th and very early 20th centuries.<sup>4,5</sup> In doing this she has exposed the way in which anatomy inspectors both in England and Australia paid lip service to the respective Anatomy Acts but transformed the notion of an 'anatomical examination'.<sup>6,7</sup> A litany of scandalous activities was allowed to take place through official deception and secrecy on the part of some of the anatomy inspectors. Public hospital bodies were harvested for body parts during dissection, and the end result was a trafficking in the dead in a manner never envisaged by those responsible for the original formulation of the 1832 Act. What appeared on the surface to be legal was in reality exceedingly unethical.

The tragedy of this sequence of events is that anatomists were ill-prepared for the various ways in which bodies came to be unclaimed in later years, extending well beyond the impoverished dying in hospitals and poorhouses. In particular, use of the bodies of the mentally incapacitated, indigenous populations, and political prisoners was all too readily accepted as legitimate for teaching and even research. In this way there was excessive dependence upon supplies coming from lunatic asylums, African-American indigent communities and Nazi concentration camps,<sup>8</sup> with China a prolific source of supply in more recent times. The nature of the supplies varies across countries and historical periods, but each is an instance of the misuse of unclaimed bodies.

The incessant driver has been the desire to work on 'high-quality material', which in many of these situations has had to be fresh material and therefore obtained a short time after death. While this may well be justified in narrow scientific terms, it may only be feasible by participating in tragically unethical practices. A balance has to be struck between scientific aspirations and clinical detachment on the one hand, and empathy and human flourishing on the other, a balance that can sometimes be tragically and catastrophically lost. This highlights the moral dilemmas implicit in any use of human material from ethically questionable sources and serves as a salutary reminder that the context within which human-based research is conducted is always crucial.

## From the unclaimed to bequests – the New Zealand example

In order to follow the move from dependence upon the use of unclaimed bodies to bequeathed bodies, consider one particular example, the development of legislation and attitudes in one society, New Zealand.<sup>9</sup> New Zealand's legislation concerning dead human bodies commenced with the Anatomy Act of 1875, which itself followed the pattern of the British Acts of 1832 and 1871.<sup>10</sup> Besides setting up licensed schools of anatomy and providing for licensed anatomists, the 1875 Act stipulated that any party having lawful possession of the body of a deceased person could permit that cadaver to undergo anatomical examination (i.e. dissection), unless it was known that the deceased had objected to this during his or her lifetime, or that a surviving spouse did so. Provision was also made for living persons to bequeath their bodies voluntarily, unless a surviving husband, wife or known relative objected.

It is interesting that this early piece of legislation recognised the place of bequeathing bodies, although this appears not to have been acted on. Another point of interest is that the use of unclaimed bodies in the 1875 Act is a restricted usage, since there is an 'opt out' clause: any objection registered during life by the deceased or after death by the surviving spouse was sufficient to prevent use of the body. However, noble as this sentiment was, and in many respects years ahead of its time, it appears to have been of little more than theoretical significance, since it was not implemented. It was probably not even widely known about. The Act did not appear to make provision for how a person was to opt out, so in effect all the bodies used for dissection were unclaimed.

This Act was amended in 1884 to extend the list of authorised people having lawful possession of a body, by including the keepers of asylums. The latter proved crucial, since in the first half of the 20th century most unclaimed bodies were to come from mental asylums.

Legislation in New Zealand currently revolves around the Human Tissue Act 2008, which replaced the Human Tissue Act 1964. The 1964 Act contains a number of points of interest. The first is that, while the voluntary donation of bodies was paramount, the use of unclaimed bodies was theoretically still a possibility, although in practice it was never used. A second point is that the deceased person's wishes regarding donating his or her body could be overridden by the objections of a surviving spouse or relative. Third, there was no reference to the length of time the remains may be kept before burial or cremation. Emphasis on avoiding unnecessary mutilation of the body is present, as is emphasis on carrying out the examination in 'an orderly, quiet and decent manner'. Even the 1964 Act, therefore, had elements of the macabre British history reflected within it.<sup>10</sup>

The current Human Tissue Act 2008 makes *informed consent* the fundamental principle governing the legal collection and use of human tissue. This replaces the 'lack of objection' required by the Human Tissue Act 1964. The primary consent or objection comes from the deceased person before death or someone nominated by that person to consent on their behalf. In the absence of this, the immediate family or another close relative can consent. There are a number of situations where informed consent is not required, including tissue used for criminal justice purposes, quality assurance, external audits, or research relating to a major public health risk.

In addition, consent to autopsy explicitly includes consent to retain tissue where it is required for the purposes of the autopsy. If tissue is to be retained for any other reason (such as ongoing research or education), separate and specific consent is required. The Act also requires that decision-makers and others involved in collecting tissue take into account the cultural and spiritual needs, values and beliefs of the individual and their immediate family.

An interesting aside is provided by a scandal that occurred in New Zealand in recent years. This came to light in 2002, although it reflected procedures carried out in the 1950s and 1960s. The UK scandals at Alder Hey and Bristol prompted an internal review at Green Lane Hospital in Auckland of its own 'heart library'.<sup>11</sup> Established in 1950, this collection contained more than 1 300 hearts from aborted fetuses, infants, and children with congenital heart defects, and had proved invaluable in enabling New Zealand surgeons to make major advances in cardiac surgery. The internal review discovered that many parents were unaware that organs

had been retained from their deceased children, and in February 2002 the hospital initiated a process of informing parents and returning hearts. Many of the hearts had been obtained without consent from the parents, although a consent procedure had been in place in more recent years. Despite a public outcry from shocked and grieving parents, the hospital had acted entirely within the law. As outlined above, the 1964 Human Tissue Act did not require parental consent for organs to be retained after autopsy.<sup>12</sup> Since detailed pathological examination of organs required to establish the cause of death could require a delay of up to 6 weeks, it was not considered appropriate to return the organs to the family this long after the child's funeral.

However, as one reflects on this episode it becomes all too evident that whenever there is no consent for the use of body parts following an autopsy, the potential exists for a double tragedy – the tragedy of the death itself, plus the tragedy of the (unknown) retention of body parts. To make matters even worse, these two tragedies may be separated by many years. The grief of the initial loss is compounded by the reawakened grief when it is revealed that organs have been retained unbeknown to the relatives. This is a stark reminder of the double penalty experienced in early British anatomy history, where the penalty of execution was exacerbated by the penalty of dissection, thereby preventing burial in sacred ground. While this is far from the intention when body parts are used for research, the end result is unnervingly similar.<sup>13</sup>

In contrast, when consent is obtained, the death may to some extent be redeemed for the relatives by giving them the opportunity to bequeath body parts of the deceased to be used for good ends. This is akin to organ transplantation following a tragic death, on condition that the body parts are freely willed by the next of kin. The driving force in these instances is altruism, which is far preferable ethically to the double tragedy alternative.

Another parallel is between bequeathing bodies for anatomy teaching and research, on the one hand, and using unclaimed bodies on the other. Reliance upon unclaimed bodies becomes problematic on the premises that cadavers have intrinsic and instrumental value, that the manner in which they are treated is of moral interest, and that giving one's body for dissection or donation is preferable to coercion.<sup>14</sup> The lack of consent inherent within it points to the inability of the person concerned to defend their own bodily integrity, and the lack of opportunity to offer their bodies for the good of others.

The Cartwright Inquiry of 1988 had raised greater awareness of consumer rights and consent issues in New Zealand, which was reinforced in the Health and Disability Services Consumers' Rights Code.<sup>15</sup> This Code stated that no body part could be retained for research or education without informed consent. However, this stipulation applies only to health procedures carried out on living persons.<sup>12</sup> It was not until the 2008 Human Tissue Act that informed consent was required for the retention of tissue after autopsy.

Although the law was slow to change, the ethical and social climate was much quicker and normal hospital procedures were generally modified in response to this before the 2008 Human Tissue Act was passed.

These developments point inexorably to what should always be the case, namely, the intimate relationship between legislative changes and ethical reflection. Anatomists, biomedical research-

ers and all involved in the use of human material should be at the forefront of these debates, but this demands an ability to provide ethical as well as scientific input.

## Donation and altruism

A premise underlies all aspects of the previous discussion, namely that informed consent is central to all our dealings with the dead human body and human tissue. It is this that necessitates the use of bequeathed material over against the use of unclaimed bodies. This in turn looks to *altruism* as a fundamental ethical driver.

The crucial problem with the use of unclaimed bodies revolves around the *absence of altruism*. The 'unclaimedness' of these bodies stems from the weakness, vulnerability and frequently dereliction of the people when alive, and it is this unclaimedness that mirrors their 'unwantedness'.<sup>14</sup> The result is that, rather than protecting the interests of such people, their interests have become subservient to other interests. This strongly suggests that the process may be unfair, and may allow the exploitation of one individual by another, or one group by another.

Two arguments are sometimes brought to bear against the emphasis placed here on altruism.<sup>9</sup> The first is that, in reality, altruism may not be an individual's only motive. People realise that by donating their bodies they avert the costs of a funeral, thereby taking financial pressure off their relatives. Hence, rather than seeking the good of others, they are looking after those close to them. While this may not be altruism in a pure sense, neither is donation under these circumstances devoid of goodness. To assist relations is altruistic, even though bequeathing one's body for dissection is a by-product of this. At least this is an autonomous choice of the donor, unlike the use of unclaimed and unwanted bodies.

This raises a second objection: that the use of unclaimed bodies in some countries actually bestows meaning upon an otherwise worthless life. The argument here is that a person considered valueless during life may actually acquire value at death through the use of his or her body for dissection. This argument stands or falls on a living person's status within society, where an elevation in value *after* death is made possible by the very limited value placed on these individuals *before* death.

While one has to take such considerations seriously, the argument here is that it is preferable to err on the side of using bequests. This is not simply of theoretical interest, since if taken seriously it has immediate consequences for those anatomy departments that currently rely upon a supply of unclaimed bodies. If departments made the decision to move away from reliance upon this supply, they would have to accept the educational inconvenience of having fewer bodies available for teaching. This is of particular relevance in societies where the cultural mores mean that few bodies are made available for dissection and research in anatomy and allied departments.

What one has here is a direct clash of cultures. Tempting as it is to resort to the wide-scale use of unclaimed bodies, and use every legal avenue open to a department to do this, this is an ethical short cut that we should resist. While the use of unclaimed bodies may not usually be the gravest of ethical misdemeanours, neither should it be regarded as routine. It should not be the path of choice, and bodies obtained in this manner should only be used for the most pressing educational and research uses. Every effort

should be made to find a preferable way in the long term, such as striving to make contact with community groups by providing them with educational material about the value of dissection. Those in the community also need to be shown how they can donate their bodies, how the bodies are treated, how the body is eventually disposed of, and ways in which close relatives can be assisted to come to terms with their own emotional responses to a loved one's decision to bequeath their body.

Efforts along these lines may not come naturally to anatomists, but they are well worth the effort if the more significant matter of the value of individual free choice (on the part of an individual before death and the family at the time of death) is to be supported. In making these suggestions the ethical bar is being placed high, but this is in recognition of the importance of the issues with which we are dealing. We need constantly to weigh up the legitimacy of dissection and the use of human material against the losses of downgrading the value of human free choice.

## Does the general public have an interest in body displays?

How relevant are these general considerations of informed consent and unclaimed bodies to the far more specific issues raised by the public displays of plastinated dissected humans? The success of the latter poses challenges to anatomists, since the exhibitions appear to bypass many of their deeply held notions, including the centrality of privacy, secrecy and confidentiality. However, by the same token, they also bring into the spotlight anatomists' continuing reliance upon the use of unclaimed bodies.

As far as Body Worlds is concerned, one can argue that these considerations are marginal, since Gunther von Hagens has argued strenuously that only donated bodies are used in their public exhibitions. But the paper trail is not always as clear as observers might wish, and there appears to be evidence that some bodies plastinated at von Hagens's Institute for Plastination and for sale originated as unclaimed bodies from China and Eastern Europe.

However, it is the many spin-off exhibitions that are a cause for far greater concern. BODIES ... The Exhibition, from Premier Exhibitions, has made no secret that the full-body specimens are unclaimed Chinese, although this is said to be in the process of changing.<sup>16</sup> None of the other exhibitions, including Our Body: The Universe Within, Bodies Revealed, Body Exploration, and Mysteries of the Human Body, have a body donor programme, and the bodies in general emanate from China.

Body Worlds and its successor exhibitions do not exist in a moral and scientific vacuum. They have found fertile soil in the ethical and cultural expectations of the anatomical world. Anatomists' openness to using bodies without adequate informed consent has made these exhibitions possible, no matter how much they are at odds with the ethical standards and expectations of many contemporary anatomists.<sup>17</sup>

It is at this point that another factor enters the picture, and this is the focus of anatomists on teaching, all too often at the expense of research. All these public body displays claim to be educating the general public. This is what von Hagens refers to as the 'democratisation of anatomy': anatomy for the masses as opposed to anatomy for the academic elite; anatomy in the public square and

not in the university or medical school; anatomy at a basic educational level rather than at an erudite, advanced level.<sup>18</sup> What then is the public presented with?

The gestalt plastinates are shocking to the modern eye, which has become accustomed to the reduction of the body to its component parts. However, this would not have been the case for audiences living between the 16th and 18th centuries, when anatomy art was in vogue.<sup>9</sup> This was epitomised by the work of Vesalius, with his representations of the whole body, often partly dissected, and given a semblance of life by the apparently active poses of the body. His dissections and sketches that appeared in his landmark *The Fabric of the Human Body* in 1543 were revolutionary, featuring as they did accurately detailed skeletons and muscle-men (*écorchés*) posing partly dissected in a rural landscape.<sup>19</sup>

It is from anatomists and artists of this era that von Hagens frequently claims a historical precedent for his own work. What is so striking about many of the gestalt plastinates is that they have been dissected and shaped to make them resemble artistic forms familiar from Renaissance art. For example, the 'Skin Man' plastinate, with his flayed skin held aloft,<sup>20</sup> is recognisable as St Bartholomew from Michelangelo's work in the Sistine Chapel (1508 - 1512). This motif was used by Juan Valverde de Amusco, the Spanish anatomist, in his 1560 anatomy textbook (*Anatomia del Corpo Humano*).<sup>21</sup> Other examples abound. Von Hagens' 'Praying Skeleton' is immediately recognisable as a plastinated version of the pose used in the 1733 picture by William Cheselden.<sup>22</sup> The 'Thinker' plastinate, an arterial corrosion cast that leans on a pedestal contemplating a head, almost precisely mimics the pose of one of Vesalius's skeletons, the pedestal of which bears the inscription in interpretation: 'Genius lives on, all else is mortal'.<sup>23</sup>

Von Hagens identifies himself with anatomists such as Vesalius and Leonardo da Vinci,<sup>24</sup> although this identification is far from self-evident. The cultural contexts between the 17th and 18th centuries and the 21st century are quite different, as are the educational and entertainment contexts. People like Vesalius were undertaking research, searching for new knowledge and attempting to describe it far more accurately than anyone had previously done. They had embarked on a highly creative enterprise and were investigating the barely charted worlds of human anatomy.

In no way can von Hagens be compared to Vesalius, since he inhabits a totally different world: his plastinates are not research objects. They mimic what has gone before, no matter how technically brilliant many of them are. The strongest sense in which they are educational is, therefore, in a teaching sense. However, he is breaking no new ground in teaching, since all the details of anatomical structure and relationships manifest in Body Worlds are well known.

Von Hagens has eschewed the research tradition within anatomy and has embraced instead the more modern notion that anatomy is solely about teaching. But if this is the case, one has to ask to what extent the use of human material in this manner can be justified ethically. Is educating the general public about the human body a legitimate use of numerous human bodies, even with consent? On what grounds can use of bodies to create a 'post-mortem beauty salon' (to use von Hagens' own description) be justified? This brings us to the very contemporary plastinates.

Many of these are posed as if participating in some sporting activity, the range of the sports catering to all tastes. Outside the

sporting arena there is the 'Caller' with his cell phone, and the 'Poker Playing Trio'. There is no hint here of the Renaissance man. Neither is there a hint of education, even though there is now a welcome emphasis on the educational aims of the exhibitions, with their health education messages for the general public. While these aims are certainly present, they are achieved via the body parts displays rather than the plastinates.

Where then do the contemporary plastinates fit in? Plastinates showing a saxophone player, or someone riding a bike, or a pirate steering a ship, contribute nothing to an educational rationale, while the plastinates having sex appear to satisfy prurience rather than education. Are there – almost by definition – no moral boundaries once informed consent has been satisfied?

While we know from other sources that plastination is an important research tool, there is not a hint of this in any of the public exhibitions. The enormous contribution of plastinated slices to research is the ease with which it is possible to move between the macroscopic and microscopic. But this is unknown territory for von Hagens, who has failed to develop the nexus between teaching and research.

However, once this nexus is broken, anatomy as education is open to being prostituted into anatomy as art, anatomy as entertainment, anatomy as a commercial venture. The extent to which the different exhibitions move down this road undoubtedly varies. When combined with the use of bodies from uncertain sources and in the absence of any consent, the end results can be little less than ethically catastrophic and socially disturbing.

There is no doubt that, in the hands of expert technicians, the beauty of some of the plastinates is memorable, simply because they reflect the beauty and magnificence of the human body. However, the dividing line between beauty and pornography is a fine one, and is all too easily crossed in the absence of well-honed ethical values.

## Some concluding ethical considerations

It has been argued that anatomy as a profession has left the door open to ethical lapses, principally on account of two factors: the long-term acceptance of the legitimacy of accepting unclaimed bodies, and the partial uncoupling of research and teaching. Both factors have contributed, at least in part, to the emergence of the Body Worlds type of phenomenon.

If cadavers are to be publicly displayed, what criteria might guide their display, or more generally the use of human material in teaching and research? One way of addressing this question is to consider two of the guiding principles of modern bioethics: beneficence and non-maleficence.

First, *beneficence*. Who benefits from the displays, and what is the nature of this benefit? The answer that is given is the general public in the guise of the paying customers. While this is true, it is pertinent to ask whether the human community benefits in the form of therapeutic benefit, educational benefit that will in turn benefit others, or research benefit. The current educational experience for some does not appear to be of sufficient magnitude to justify the display of human bodies in a variety of interesting and sometimes contorted stances.

The lack of a research element detracts from the possibilities of a beneficent outcome. This is a result of removing the enterprise from an academic framework, and hence from a research and educational environment. Consequently, it has been exposed to the winds and largesse of commercial enterprises, a comment that applies to many, but not all, of the plastination exhibitions. When the use of unclaimed bodies is added to this mix, as it is in many of the exhibitions, the prospects of using them for substantial beneficial ends decreases markedly.

Second, *non-maleficence*. Is anyone harmed by these exhibitions – the deceased themselves, their relatives, the public, humanity? An answer to this question will in part depend upon whether the bodies were bequeathed or were unclaimed. However, even when the bodies were donated, it has to be asked what donation means when people donate their bodies to fulfil their own desires. The link between donation and altruism has been broken. No longer are people donating their bodies to help others, or to advance the medical profession, or in gratitude for the contributions of the medical profession. They are donating them for their own ends, to achieve their own post-mortal desires, and to contribute towards the success of a large commercial venture. The notion of donation has been irrevocably changed, since it has been emptied of its altruistic content.

The manner in which anatomists (and others) function as professionals is crucial. The emphases have been placed on the central significance of openness and transparency, the importance of engaging with one's communities, and functioning in a trustworthy and honest manner and with the utmost integrity. We are to educate the members of our communities not from the stance of arrogant scientists and academics who always know best, but as people and professionals who have their best interests at heart. This means we are to enter into true dialogue with them, at all levels, learning of their fears and hopes, just as much as letting them know that we depend upon them for body donation, and for permission to carry out research on body parts and human tissue. If we are unable to convince others that we are doing useful work with human material, why should we expect their co-operation?

The social, cultural and ethical issues with which we are dealing are all intertwined, and we have to take all of them very seriously. In the end they are not simply matters of academic ethical debate, but reveal the calibre of our characters as ethical, or possibly unethical, people.

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