Published in final edited form as:

Isis. 2009 December ; 100(4): 798–810.

Bodies, Hearts and Minds: Why Emotions Matter to Historians of Science and Medicine

Dr Fay Bound Alberti [Senior Research Fellow]

Queen Mary University of London

Abstract

The history of emotion addresses many fundamental themes of science and medicine. These include the ways the body and its workings have been historically observed and measured; the rise of the mind sciences; and the anthropological analyses by which “ways of knowing” are culturally situated. Yet studying emotions brings its own challenges, not least in how historians of science and medicine view the relationship between bodies, minds and emotions. This paper explores some of the methodological challenges of emotion history, using the surgeon John Hunter’s sudden death from cardiac disease as a case study. It argues that we need to let go of many of our modern assumptions about the origin of emotions, and “brainhood” that dominate discussions of identity, in order to explore the historical meanings of emotions as products of the body as well as the mind.

Hunter’s Heart ¹

On 16 October 1793, John Hunter attended a board meeting at St George’s hospital in London. At 65 years of age, Hunter had established a reputation as the most famous surgeon in eighteenth-century London, a trade that he conducted alongside his other main interests: collecting morbid and comparative anatomy.² Albeit to a lesser degree than his older, physician brother William, John Hunter’s life and work has been the subject of several biographical studies.³ He has been variously credited as the originator of the modern sciences, the unifier of pathology, physiology and therapeutics and the ‘father of modern surgery’.⁴

This paper will show that such biographical constructions of Hunter contain a series of often implicit beliefs about his psychological life, and about the personal attributes necessary to succeed as an eighteenth-century “man of science”.⁵ Moreover, several of these beliefs were shared by eighteenth-century commentators, albeit (and this is the crucial part) using a very different model of emotions to that with which we are familiar. The case of John Hunter therefore reveals not only the meanings of emotions and the body in eighteenth-century culture, but also the relevance of emotion as a subject for historians of science. As objects of scientific knowledge, emotions were unstable and transient experiences, yet also fundamental to broader ideas about subjectivity, identity and what it was to be human. They were central to contemporary philosophical concerns about the origin of life, the nature of character and the stability of experience.⁶ In life, as in death, Hunter’s heart takes us to the centre of debates about the relationship between mind and body, and about the meanings of emotions as sensory, embodied experiences.

Of course, none of this was apparent at Hunter's Board Meeting, when he took his seat at the table with more than a little trepidation. That very morning, Hunter had expressed his reservations about the St George's meeting to a friend, fearful that "some unpleasant dispute might occur", for if it did, "it would certainly prove fatal".⁷ His concern seems to have been prophetic. When the meeting grew confrontational and the discussion heated, Hunter found his opinions rebuffed. According to onlookers, he "immediately ceased speaking" and left the room. Apparently unable to suppress the "tumult of his passion", he had scarcely reached the privacy of an adjoining room when "with a deep groan" he fell lifeless into the arms of a colleague.⁸ Hunter was pronounced dead at the scene.

An autopsy was performed on Hunter's body by his brother-in-law, Everard Home. Home identified the cause of death as a diseased heart, a result of angina pectoris: the carotid arteries and their branches being "thickened and ossified", the heart "the chief seat of disease". The pericardium was unusually "thick", though "the heart itself was small, appearing too small for the cavity in which it was contained, its diminished size being the result of wasting."⁹ Home's conclusion was that Hunter's heart was "unable to carry out its functions, whenever the actions were disturbed", either in "consequence of bodily exertion" or affections of the mind".¹⁰ The most recent spasm stopped the heart, pressing the nerves against the ossified arteries, and preventing it from resuming its work until it was too late: "Death immediately ensued".¹¹

The sudden collapse of John Hunter, and his death from heart disease, provides a useful, if unexpected, entrance point into the relationship between emotions, bodies and historians. "Affections of the mind" disturbed the functions of the heart – a crucial phrase that will be situated in this paper in the context of contemporary emotion theory and with reference to a wealth of emotion work in recent decades. Since the 1990s, the study of emotion has been a major growth area in social history, as in women's studies, literary theory, anthropology and sociology.¹² Historians of medicine are relative newcomers to the feast.¹³ What they have brought with them is not only a heightened interest in the meanings of the body and subjectivity in history and culture, but also a focus on emotional pathologies, on unhealthy or diseased bodies and minds produced by extreme emotional states. This is arguably part of a broader body history that is more concerned with the practices of measurement and dismemberment, than with subjective experience and embodiment.¹⁴

This is also the case with histories of science, which have seldom engaged with the construction of emotion as an element of embodied experience. And yet historians of science share certain key interests with historians of emotion. These include the ways that the body and its workings have been observed and measured between the seventeenth century and the present; the nineteenth-century rise of the mind sciences and the emergence of disciplines separating the body and the mind into distinct clinical realms (e.g. cardiology and psychology); and the anthropological analyses by which scientific practices and "ways of knowing" are themselves culturally-situated.¹⁵ In recent decades the meanings of specific emotions as linguistic entities have come under scrutiny, along with the entire philosophical, scientific and theological edifice on which theories of "passions" or "emotions" were built.¹⁶ And yet historiographies of science that are explicitly concerned with emotion as physiological phenomena tend to focus on experimentation and the rise of rigorous and

rational experimental physiology in Britain and on the continent. In this account the emotional body became a text that could be measured, compared and laid out for scrutiny.¹⁷ In the process, mind and body became distinct, and it was the secularised mind that was ultimately associated with emotions, although emotions could impact upon the body.¹⁸ This shift in perspective remains with us today.¹⁹

Emotion and the Mind

Most histories of emotions, then, focus on their pathology on the one hand, and on their existence as mental or psychological phenomena on the other (without any real reference to the philosophical or epistemological conundrum of what constituted “mind”). Thus nineteenth- and twentieth-century scholars focus on psychiatric disorders and psychological disturbances that include neuroses and schizophrenia.²⁰ Many traditional maladies are reworked in ways that would be unrecognisable to early modern predecessors preoccupied with emotions in health and disease as both mental and physical disorders. Notable examples include melancholia, hypochondria and hysteria.²¹ This shift of emphasis betrays a modernist perspective in which emotions are taken for granted as psychological phenomena, naturalised in our post-Freudian world as interior, circumscribed activities linked to the operation of individual and secularised minds.²² The precise measurement of emotion as psychical phenomena that impacted upon *soma* (rather than the *soma* producing experiences that might be comprehended by the *psyche*, to use one nineteenth-century definition) is also explicit in analyses of the emergence of laboratory medicine.²³ Here the body as subject came into intense scrutiny as part of the laboratory revolution of nineteenth-century British medical culture, but it was the body as impacted on by mental phenomena.²⁴ Such accounts of scientific process as an aspect of modernity, and the focus on emotion as product of mind, is consistent with philosophical and anthropological accounts of the birth of “brainhood” – a revisiting or revising of Cartesian dualism that equates self to brain (quite simply, we not only live in, but are our heads).²⁵ In this context, mental experiences impact upon the body, perhaps by causing a surge in blood pressure, which is how Hunter’s apoplectic and fatal attack of anger might be seen today.²⁶ We have to let go of, and perhaps even reverse, this process of cause and effect to understand the emotional world and context of Hunter.²⁷ We also need to appreciate the complexities and implicit biases of “brainhood” as a historically-situated analytical category.

The process or value system that constitutes “brainhood” is inherently but invisibly gendered – an implicit and often explicit emphasis being on a rational (male) brain as set against a disorderly (female) body.²⁸ And yet as an aspect of the history of emotion and the self, the historically unstable categories of “mind” and “body” have seldom been problematised.²⁹ Along with the epistemological transition of emotion from the soul to the body and subsequently to the mind that arguably took place between the seventeenth and nineteenth centuries, this is one of the most intriguing, but neglected, aspects of the medico-scientific history of emotion.³⁰ If we accept the emphasis on emotions as product of mind as being part of our post-Cartesian inheritance, then what is missing from the historiographies outlined above is an understanding of emotions as historically-situated products of the body, as well as the mind.³¹ As this paper will highlight through an examination of one particular organ – the heart – emotional processes have not historically been viewed as aspects of the

soma *or* the psyche (pathological or otherwise) but as a product of both. Moreover, emotional experiences were always embodied in and irremovable from the broader assumptions and beliefs of a wider social milieu. Analysing emotions as experiences and representations situated in the practice of everyday life helps us to move away from the construction of emotions as abstract entities (“out there” or “in here”, - it doesn’t much matter), and towards a socially-constituted interpretation. This includes the relationships between physical and psychical practices within specific material circumstances, such as the moderation of what used to be referred to as the “non-naturals”, and the less tangible processes by which social norms become internalised, normalised and reproduced.³²

Emotions and the Body

So if historians of science and medicine place too much emphasis on pathological emotions, why does this article start with the dead body of John Hunter? In many ways it provides a case study that could have been lifted from a standard introduction to the development of pathological anatomy in eighteenth-century Britain. The tracks of disease processes were physically sketched on Hunter’s innards and the comparison of autopsy findings helped to create and formalise new categories of disease concepts. Yet it also tells us much about medical attitudes towards the emotions as normative as well as abnormal physical and psychological processes.³³ For how *could* the “affections of the mind” disturb the processes of the heart? How was “mind” defined in this process? And how can we interpret the relationship between Hunter’s “tumult of passion” and the arteries that “ossified” and “thickened” within his chest? What kinds of assumptions about the mind/body relationship, or about the ability of emotions to provoke structural or simply functional alterations in the human body does this case tell us? And how was Hunter’s age, sex, temperament or lifestyle relevant to these assumptions? By seeking to answer these questions, we can discover much about the ways eighteenth-century men and women understood emotions as both material structures and immaterial processes, understandings that were, moreover, linked to broader metaphysical ideas about mind/body interaction and the role of the soul.

There is more than a little irony in using the body of John Hunter to explore and articulate these themes, not least because his own collection of wet and dry specimens, including diseased hearts, line the shelves of London’s revamped Hunterian museum today. (fig.1)

As the country’s foremost anatomist, a collector of pathological anatomy and the “father of modern surgery”, John Hunter, along with his brother William, is widely understood to have revolutionised attitudes to comparative and morbid anatomy in Britain.³⁴ It has been claimed that his investigations into the material structure of the body helped to develop a transition in medico-scientific thinking about the body, the mind and the emotions. The cause of his death, angina pectoris, was a “new” disease, the first cardiac disease to be identified in eighteenth-century Britain, and historically identified as a formative step in the direction of the “new cardiology”.³⁵ And yet there was much about the diagnosis of Hunter’s heart that was traditional, grounded not in objective accounts of the heart as a physical organ subject to decay, but in subjective, humoral interpretations of cardiac experiences and the relationship between emotions, the mind, the soul and the body. The

study of Hunter's heart, in short, focuses on emotions as products of the body as much as the mind.

Of course emotions remained problematic entities in the eighteenth century as they had since the classical period, for they straddled the immaterial and the material worlds, producing physical effects that included a raised heartbeat, goose-bumps and sweating. They were also traditionally associated with the soul and the divine.³⁶ Their existence, like the apparently spontaneous initiation of the heartbeat, alluded to a world beyond scientific investigation, an autonomous life-force that could not be submitted to the control of the body.³⁷ On a deeper level of analysis, then, the ambiguous status of the heart as both medical object and cultural symbol takes us to the heart of a methodological problem in medical and scientific histories of emotion and the body.

As historians, we cannot, in the manner of pathological anatomists, remove the heart from the breast in order to see how it works. Its contradictions, its ambivalences and its meanings need to be understood *in situ*. In other words, it is only by understanding Hunter's heart and his emotions in contemporary perspective that we can begin to appreciate the significance of his heart disease. And though Hunter's personality divided observers, one thing was clear. It was Hunter's "irascibility", as the surgeon and antiquarian Thomas J. Pettigrew put it, that shortened "the duration of his existence."³⁸ This tendency towards irascibility, part inherited, part a product of his environment and his own tendency towards "genius", was linked with Hunter's mode of living to make him, in terms of eighteenth-century medico-scientific theory, an archetypal heart disease candidate.

In a *Lancet* article entitled "Temper and Personal Appearance," published about Hunter posthumously, Pettigrew reported that his subject "had no command over his Temper"; that "his speech was rude, and he habituated himself to the disgusting practice of swearing".³⁹ A physiognomic link was alluded to between such brutish demeanour and his physical presence; Hunter was described as average size, "vigorous and robust", but with a short neck, a prominent brow and "rather large features". His hair, "reddish" in his youth (perhaps a reminder of the traditional association between red hair and hot-temper that was characteristic of humoralism), became white in later years.

The unflattering turn of Pettigrew's comments was not unusual. Hunter's long-time professional rival and fellow surgeon Jesse Foot accused Hunter of frequently "exciting jealousies and quarrels amongst his colleagues", stating that he was embroiled in "continual war" at St George's. This statement has been accorded little credit given the antagonistic nature of Foot's relationship with Hunter.⁴⁰ Yet there is, elsewhere, ample evidence of Hunter's conflicts with family members, employees and colleagues.⁴¹ His friend Lord Holland for instance, reported that Hunter's judgement was clouded by an "irascible and tenacious temper", and that he tended to be "dogmatic and angry" when crossed.⁴² And in his work on *The Philosophy of Medicine*, the physician Robert John Thornton reported Hunter's visit with John Heaviside, a fellow surgeon and collector, to hear a trial at Westminster Hall:

The stand of coaches in the Palace-yard intercepted his passage, and he bid one of the coachmen to make way for him. The fellow refused, and became insolent, and

John Hunter losing all temper, gave vent to the most terrible execrations, which only produced laughter in the other... When he arrived he sat himself down, saying, the rascals have killed me, and Mr Heaviside supported him in his arms, expecting every moment to see the first anatomist in the world expire in this untoward situation.⁴³

An important aspect of Hunter's tendency to anger was his self-confessed and apparent inability to control it. He famously declared on more than one occasion that his life "was in the hands of any rascal who chose to annoy and tease him".⁴⁴ Once cataloguing a life of endless provocations, Hunter believed that his increasingly prominent chest pains were linked to anxiety over numerous everyday occurrences:

The spasm on my vital parts was very likely to be brought on by a state of mind anxious about any event... I have bees... and I once was anxious about their swarming lest it should not happen before I set off for town; this brought it on... I saw a large cat... and was going into the house for a gun when I became anxious lest she should get away... this likewise brought on the spasm.⁴⁵

The anatomist's ill-health turned him into a case study, as Hunter's acquaintances, friends and colleagues monitored his condition with interest. In 1785, for instance, after Hunter had left London to take the spa waters of Bath, the physician and philanthropist John Coakley Lettsom commented that Hunter was "going from this busy stage" (whether of life itself or of Hunter's involvement in the London medical scene is uncertain); "he can scarcely go up stairs so much is he affected with dyspnoea on the least motion".⁴⁶ Another friend of Hunter's, the physician Edward Jenner, wrote of his fear that "if Mr H. should admit this [chronic heart condition] it may deprive him of the hopes of a recovery".⁴⁷

Jenner's comment is interesting because it alludes to a long tradition of viewing emotion as a cause of disease. Since fear was historically believed to be a causal factor of plague, it was unsurprising that it could cause more localized diseases like angina pectoris.⁴⁸ All the more reason to moderate one's emotions, for under the terms of humoral physiology, disruptions in one's emotional state were profoundly hazardous to health. The heart was traditionally at the centre of a series of humoral economies in which it was an active, rather than a passive agent. It nurtured the "feelings" of love or anger; it encouraged the body to respond in particular (even pathological) ways. It could be damaged by emotions because it could be overheated by the "hot blood" of anger, or frozen by the "chilled blood" of grief.⁴⁹ By the time of Hunter's death, the heart remained susceptible to such extreme emotional changes, though the damage might result from hydraulic failure rather than an excessive temperature.⁵⁰ The condition of the solids of the body was also influential; flabby or weak solids impeded the fluids on their movement and prevented adequate blood flow; extreme emotions could cause calcification of the arteries around the heart, as well as structural blockages.⁵¹ Emotions were therefore embodied in a very real sense in eighteenth-century physiology; locked in the fluids and fibres of the body itself. Little wonder, then, that they could cause organic lesions to the heart and the arteries, or that sudden and extreme emotional experiences – such as Hunter's fury at being overlooked at St George's – could end in death.

The Man of Science

Discussions of the character and temperament of John Hunter must, like Stephen Jacyna's observations of his professional reputation, derive from a particular polemical context.⁵² Part of the historiographical construction of Hunter as a man of science is based on modern assumptions about the psychological attributes required by the role. Most biographers have identified Hunter's obsessive, almost pathological tendency towards hard work: "commencing his labours in the dissecting room generally before six in the morning", and staying there until nine when he breakfasted. He then saw patients before returning to work well into the early hours.⁵³

Hunter's unusual dedication to his craft was apparently matched by his superior intellectual abilities. According to eighteenth-century discussions, it was perfectly understandable that men like Hunter would have difficulty navigating their emotional states. This was a product of their constitutions. For what else could account for "the irritability by which men of genius have so frequently been distinguished?" asked the physician Dr V. Knox. Such men are "in a state of intense thought [and]...every little accident is likely to disturb the repose of him who is constantly engaged in meditation, as the string which is always kept in a state of tension, will vibrate upon the slightest impulse".⁵⁴ Hunter was "highly strung", in today's terms, and here we have the origins of the phrase: the fibres of the nerves being strained between the body and the mind as though the human frame was a finely tuned musical instrument. This was a commonplace trope in discussions of temperament and sensibility from the eighteenth century.⁵⁵

If we re-examine traditional biographical descriptions of John Hunter, in this context, in accounts that record not only his temperamental or tempestuous character, but his long and relentless hours of work, his lack of exercise and the hours that he spent hunched over a workbench breathing in the stench of death, his susceptibility to angina pectoris seems almost inevitable. It was not simply "vehement emotions" that the physician John Fothergill associated with cardiac disease, but the rest of the "non-naturals" – those regimental habits that included sleep, exercise, diet, air, excretions and passions of the mind.⁵⁶ According to Caleb Hillier Parry, author of the influential *Inquiry into the Symptoms and Causes of the Syncope Anginosa, Commonly Called Angina Pectoris* (1799), among the "Accidental, Occasional or Exciting Causes" were numbered:

Certain circumstances of sensation, including the existence, and even the sudden cessation of bodily pain; the emotions of grief, joy, fear, disgust, and sympathy, more especially when suddenly excited; affections of various other parts of the body, particularly the alimentary canal; exposure to great external heat; different degrees of bodily exercise; the action of kneeling; the rising into an erect posture, after long confinement in bed by disease; the sudden removal of the fluid in the ascites [the abdomen] and of the foetus in delivery; want of food; sudden or great evacuations of blood; violent evacuation by stool.⁵⁷

For all his perceived successes as a man of genius and a man of science, or perhaps because of them, Hunter personified the wrong living of the time. He succumbed to angina pectoris because he was middle aged, because he was male, because he experienced tempestuous

emotions, because he was aware of (and perhaps fretted about) the erratic pains and spasms at his chest, and because he was an excessively hard worker who didn't eat properly or get sufficient sleep.⁵⁸ Discussion of all of these extremes, and their accommodation into discourses on hydraulics, blood flow, and blood pressure helped to construct a scientifically-viable, late eighteenth-century explanation of the relationship between emotions and the heart that incorporated but did not overthrow traditional humoral interpretations. Perhaps in the seventeenth century, Hunter would have succumbed to melancholia, another physical and psychological disorder common to scholars in earlier periods who did not moderate their passions and worked too hard.⁵⁹ In the early twentieth century, and with a number of somatic symptoms beginning to fall under the psychological category of neuroses, he might have been diagnosed with some kind of functional disorder, and probably one related to stress.⁶⁰ The existence of such shifting diagnoses tells us less about direct emotional experience across times and cultures, than about the way those experiences have been imagined and theorised as an aspect of medical theory and the mind/body relation.⁶¹

Conclusions

As the case of Hunter shows, emotions in eighteenth-century medical culture were both bodily and psychological events; there was not yet any clear segregation of these two realms of experience. Although they were regarded as material processes, emotions partook of the spiritual realm through the input of the soul as a cognitive agent. Moreover, scientific or objective assessment of disease was reached not only by pathological anatomy but through interaction between physician and patient, and according to the interpretation of a number of sensory signs (visual, aural and haptic) by which the inner body was understood.⁶² This finding has been echoed elsewhere in studies of eighteenth-century medical culture. Moreover, they remained commonplace diagnostic strategies in nineteenth-century treatment, despite the drive towards specialisation and objectification that has been identified as part of the rise of scientific medicine.⁶³

In the century after Hunter's death, medical and scientific understandings of emotion underwent something of an epistemological transition that reflected broader revisions of the mind/body relation, and of the relative statuses of the brain and the heart.⁶⁴ The development of cardiology and the scientific rationalisation of the heart as an organ of the body were paralleled by the development of the mind sciences and the emergence of a secularised mind. The traditional role of the soul as a cognitive agent was subsequently downplayed by accounts of brain as the agent of intellect, emotion and the self and the autonomic nervous system as the mediator between mind and body.⁶⁵ In the process, the emotional import of the heart became theoretically symbolic, the organ no more reflective of an individual's emotional (and now psychic) make up than sweat, goose-bumps and other products of the nervous system.⁶⁶

And yet there remains evidence of the heart's lingering relevance as an interpretative lens, most notably in the culture of Romanticism, and the subsequent preservation of cardiac-centred interpretations of emotion and theories of the self. At the very peak of scientific rationalism, the embodied emotional heart was reinforced as a source of inner experience or intelligence beyond the reach of science. Associations of cardiac sensation with the divine,

and with metaphysical or creative inspiration, shaped intellectual and elite attitudes towards heart disease throughout the Victorian period, as I have argued elsewhere through the problematic case of Harriet Martineau, whose self-positioning as a cardiac patient was compatible with gendered beliefs about emotional sensitivity and creative capacity.⁶⁷ Indeed, the expansion of the heart as poetic symbol during the nineteenth century arguably reinforced the rhetoric of the romantic heart and its links with individualism that remains intact today.⁶⁸ The preservation of this continuity is important, for it is only since the nineteenth century that the emergence of the self as mind has come to dominate medico-scientific theories of emotion, and that craniocentrism has acquired the self-evidence truth once possessed by humours and cardiocentrism.⁶⁹ And it is only with that dominance (and through the arguable secularization of “mind”) that we now have such fractured ideas about the heart’s capacity to “know”, and divisions between medico-scientific and “common sense” understandings of the heart’s emotional capacity.⁷⁰

The case of John Hunter, and the emergence of new and contested theories about the heart since the nineteenth century, is instructive in our attempts to uncover and write about emotions as aspects of the histories of science and medicine. They remind us that emotions are never restricted to one bodily or cognitive site, but products of mind and body that partake of broader discourses about identity, the nature of the self and the relationship between immaterial and material realms. Nor are discourses on emotions ever hegemonic. Throughout the eighteenth and nineteenth centuries, men and women from across the social spectrum used a variety of languages about emotion that drew on humoral, mechanistic, hydraulic, nervous *and* spiritual interpretations, depending on context. Moreover, the language of medical theory, in turn, continued to be shaped by individual experiences of cardiac function, as well as the heightened emotional rhetoric of literary description.⁷¹ Crucially, moreover, the activities of those individuals who interpreted and reinterpreted the body and its workings need to be situated within broader discourses about the emotional characteristics of men of science. Individuals like John Hunter (or Charles Darwin, as Paul White shows in his paper in this section), helped to construct through their presumption of objectivity a capacity of emotional *disembodiment* that would become crucial to the scientific enterprise. It helped to provide what Christopher Lawrence has, in another context termed “incommunicable knowledge”, a strategy of distancing that legitimised the findings of scientific investigation.⁷²

In the early twenty-first century the same plurality of meaning of emotion endures, with the heart occupying an ambivalent status as both object of science and symbol of feeling. Most recently, debates over the philosophical and medical practicalities of heart transplantation has reinforced the emotional significance of the heart as a live issue. Can memories and emotions be transmitted through the material structure of the heart? Many families of transplant patients believe so.⁷³ It is little wonder, perhaps, that scientific versions of the heart are currently shifting in line with the recognition that orthodox interpretations of the heart are not enough. The recent identification of neural patterns or “little brains” in the heart provides a scientific language that makes the organ’s apparent emotional intelligence more palatable at the level of medical theory.⁷⁴ Since the decline of humoralism, and the subsequent inability of medico-scientific explanation to explain the mind/body relationship

and emotional experience as effectively as the humours did, there have been many attempts to fill the gap, most obviously through “alternative” (now “complementary”) therapies.

It is noteworthy that it is only in the orthodox Western medical tradition, where we have comprehensively bifurcated mental and physical health, that this problem of incompatibility exists. In cultures where a holistic model of the mind/body relationship continues to thrive, emotions are not seen as a product of one *or* the other but as symbiotic and mutually interactive. As a result, “the heart” doesn’t have to work quite so hard and “the emotions” are not separated from but integral to constructions of scientific knowledge.⁷⁵ Of course the heart is not the only organ of the body to have an important role in embodied emotions, though its role has been concretised by its physiological status as part of the humoral tradition. An interesting site for comparison might be the evaluation of the spleen and the stomach in Chinese medicine.⁷⁶

In writing the history of emotions as an aspect of the history of science and medicine, then, perhaps it is this reintegration that we should strive for. Even in today’s craniocentric West, the heart occupies an emotional and affective role in everyday life that is incompatible with its status as a pump in orthodox science and medicine and its position in the autonomic nervous system. The task for historians of science and medicine is arguably to explain not only why such cultural theories develop, but also how far they are accommodated into, or challenged by, medico-scientific theories across time and cultures. It is only then that we can make sense of the meanings of emotions, mind and the body in the modern world, and the endurance of emotional belief systems and symbols. After all, *Hallmark* does not make money out of representations of the human brain.

References

1. For helpful comments on an earlier version of this paper, thanks to Sam Alberti, Simon Chaplin, Rhodri Hayward and Bernie Lightman.
2. On Hunter’s museum collection in the present day, see Alberti, Fay Bound; Alberti, Samuel J.M.M. ‘The Hunterian Museum at the Royal College of Surgeons of England, London’ (review). *Bulletin of the History of Medicine*. 2006; 80:571–573.
3. Turk JL. The Pathology Collection of John Hunter: A Spectrum of Disease in the Eighteenth Century. *Journal of Medical Biography*. 1997; 5:33–40. [PubMed: 11618855] Kobler, John. *The Reluctant Surgeon: A Biography of John Hunter*. Heinemann; London: 1960. Gray, Ernest Alfred. *Portrait of a Surgeon: A Biography of John Hunter*. Robert Hale; London: 1952. Willis, Frederick Arthur; Keys, Thomas E. *John Hunter (1728-1793)*. H. Kimpton; London: 1941. Moore, Wendy. *The Knife Man: The Extraordinary Life and Times of John Hunter, Father of Modern Surgery*. Bantam; London: 2005. later reissued with a revised subtitle as *The Knife Man: Blood, Body-Snatching and the Birth of Modern Surgery*. Bantam; London: 2005.
4. Moore, *The Knife Man*.
5. Jacyna, L. Stephen Images of John Hunter in the Nineteenth Century. *History of Science*. 1983; 21:85–108. 87. [PubMed: 11611181]
6. For a series of essays about Darwin, for instance, in which emotions are, in one way or another, central, see Hodge, Jonathan; Radick, Gregory, editors. *The Cambridge Companion to Darwin*. Cambridge University Press; Cambridge; New York: 2003. Darwin and emotions are also discussed in Bound Alberti, *Matters of the Heart*, chapter 5. See also Paul White’s contribution to this section.
7. Palmer, James F. *The Works of John Hunter, F.R.S. Vol. I*. Longman, Rees, Orme, Browne, Green and Longman; London: 1835. p. 1314 vols Palmer was a senior surgeon to St George’s and St James’ Dispensary, and Fellow of the Royal Medical and Chirurgical Society of London.

8. Palmer, *The Works of John Hunter*, p.131.
9. Autopsy report reproduced by Livesley, Brian. The Spasms of John Hunter: A New Interpretation. *Medical History*. 1973; 17:70–75. 70. [PubMed: 4595535]
10. Everard Home, cited in Livesley, 'Spasms', p.70.
11. Everard Home, cited in Livesley, 'Spasms', p.70.
12. Important examples include Febvre, Lucien. La sensibilité et l'histoire: Comment reconstituer la vie affective d'autrefois? *Annales d'histoire sociale*. 1941; 3:5–20. produced in English as Sensibility and History: How to Reconstitute the Emotional Life of the Past. In: Burke, Peter, editor; Folca, K., translator. *A New Kind of History: From the Writings of Febvre*. Routledge and Kegan Paul; London: 1973. p. 12-26. Stearns, Peter N.; Stearns, Carol Z. *Emotionology: Clarifying the History of Emotions and Emotional Standards*. *American Historical Review*. 1985; 90:813–36. Stearns, Peter N.; Stearns, Carol Z. *Anger: The Struggle for Emotional Control in America's History*. Chicago University Press; Chicago; London: 1986. Stearns, Peter N. *Jealousy: The Evolution of an Emotion in American History*. New York University Press; New York; London: 1989. Stearns, Peter N. *Battleground of Desire: The Struggle for Self-Control in Modern America*. New York University Press; New York; London: 1999. For example Briggs, Jean. *Never in Anger*. Harvard University Press; Cambridge, Mass: 1970. London: Distributed by Oxford University Press. Levy, Robert I. *Tahitians. Mind and experience in the Society Islands*. University of Chicago Press; Chicago, London: 1973. Shweder, Richard A.; LeVine, Robert A., editors. *Culture Theory: Essays on Mind, Self and Emotion*. Cambridge University Press; Cambridge: 1984. Heider, Karl Gustav. *Landscapes of Emotion: Three Cultures of Emotion in Indonesia*. Cambridge University Press; Cambridge: 1991. Lutz, Catherine; White, Geoffrey M. *The Anthropology of Emotions*. *Annual Review of Anthropology*. 1986; 15:405–36. Wierzbicka, Anna. *Human Emotions: Universal or Culture-Specific?* *American Anthropologist*. 1986; 88:584–594.
13. For a review of the history of emotions and the context of medical histories of emotion see Alberti, Fay Bound. Introduction: Medical History and Emotion theory. In: Alberti, Fay Bound, editor. *Medicine, Emotion and Disease, 1700-1950*. Palgrave Macmillan; Basingstoke: 2006.
14. For a recent discussion, see Jenner, Mark S. R.; Taithe, Bertrand O. *The Historiographical Body*. In: Cooter, Roger; Pickstone, John V., editors. *Medicine in the Twentieth Century*. Harwood Academic; Amsterdam: 2000. p. 187-200.
15. Pickstone, John V. *Ways of Knowing: A New History of Science, Technology and Medicine*. University of Chicago Press; Chicago: 2001. Manchester: University of Manchester Press
16. See Dixon, Thomas. *Passions to Emotions: The Creation of a Secular Psychological Category*. Cambridge University Press; Cambridge; New York: 2003.
17. Cunningham, Andrew; Williams, Perry, editors. *The Laboratory Revolution in Medicine*. Cambridge University Press; Cambridge; New York: 1992. Dror, Otniel E. *The Affect of Experiment: The Turn to Emotions in Anglo-American Physiology, 1900-1940*. *Isis*. 1999; 90:205–237. [PubMed: 10439560] Dror, Otniel E. *Fear and Loathing in the Laboratory and Clinic*. In: Alberti, Bound, editor. *Medicine, Emotion and Disease*. p. 125-143. Coleman, William; Holmes, Frederic L., editors. *The Investigative Enterprise*. University of California Press; Berkeley and Los Angeles: 1988.
18. There were of course exceptions, as summed up by the William James/Walter Cannon debates over the origin of emotions towards the end of the nineteenth century. See Bound Alberti, *Matters of the Heart*, chapter 5.
19. For a fuller discussion see Bound Alberti, *Matters of the Heart*, chapter 5.
20. Examples include histories of schizophrenia, insanity, neurasthenia and hysteria. See Winokur, George; Tsuang, Ming T. *The Natural History of Mania, Depression and Schizophrenia*. American Psychiatric Press; Washington, D.C.; London: 1996. Read, John, et al., editors. *Models of Madness: Psychological, Social and Biological Approaches to Schizophrenia*. Brunner-Routledge; Hove; New York: 2004. Jones, Edgar; Wessely, Simon. *Shell Shock to PTSD: Military Psychiatry from 1900 to the Gulf War*. New York Psychology Press; Hove: 2005. Micale, Mark S.; Lerner, Paul. *Traumatic Pasts: History, Psychiatry and Trauma in the Modern Age, 1870-1930*. Cambridge University Press; Cambridge: 2001. Bivins, Roberta; Pickstone, John V., editors. *Medicine, Madness and Social History: Essays in Honour of Roy Porter*. Palgrave Macmillan; Basingstoke: 2007.

21. For example, Blazer, Dan G. *The Age of Melancholy: "Major Depression" and its Social Origins*. Routledge; New York; Hove: 2005. Wells, Marion A. *The Secret Wound: Love Melancholy and Early Modern Romance*. Stanford University Press; Stanford, Calif.: 2007. Schmidt, Jeremy. *Melancholy and the Care of the Soul: Religion, Moral Philosophy and Madness in Early Modern England*. Ashgate; Aldershot; Burlington, VT: 2007. Radden, Jennifer, editor. *The Nature of Melancholy: From Aristotle to Kristeva*. Oxford University Press; New York: 2000.
22. For an overview of Freudian theory in context, see Oatley, Keith. *Best Laid Schemes: The Psychology of Emotions*. Cambridge University Press; Cambridge: 1992. *Studies in Emotion and Social Interaction Series* Paris: Editions de la Maison des science de l'homme
23. See for instance, James, William. What is Emotion? *Mind*. 1884; 9:188–205. 189.
24. Cunningham, Andrew; Williams, Perry, editors. *The Laboratory Revolution in Medicine*. Cambridge University Press; Cambridge; New York: 1992. Dror, Otniel E. The Affect of Experiment: The Turn to Emotions in Anglo-American Physiology, 1900-1940. *Isis*. 1999; 90:205–237. [PubMed: 10439560] Dror, Otniel E. Fear and Loathing in the Laboratory and Clinic. In: Alberti, Bound, editor. *Medicine, Emotion and Disease*. p. 125-143. Coleman, William; Holmes, Frederic L., editors. *The Investigative Enterprise*. University of California Press; Berkeley and Los Angeles: 1988.
25. Vidal, 'Brainhood', p.6.
26. For an example of the popularisation of this hydraulic model of psychological emotions and embodied, physiological response, see Braverman, Eric R. *The Amazing Way to Reverse Heart Disease Naturally: Beyond the Hypertension Hype: Why Drugs Are Not The Answer*. Basic Health; Enfield: Airlift; North Bergen, N.J.: 2004.
27. Vidal, Fernando. Brainhood, Anthropological Figure of Modernity. *History of the Human Sciences*. 2009; 22:5–36. [PubMed: 19860032]
28. For an introduction see Nelson, Lynn Hankinson; Nelson, Jack, editors. *Feminism, Science and the Philosophy of Science*. Springer; 1996. Bordo, Susan. *Unbearable Weight: Feminism, Western Culture and the Body*. University of California Press; Berkeley: 1993.
29. For a recent discussion see Harrington, Anne. *The Cure Within: A History of Mind-Body Medicine*. W.W. Norton; New York: 2008. Porter, Roy. *Barely Touching: A Social Perspective on Mind and Body*. In: Rousseau, George Sebastian, editor. *The Language of Psyche: Mind and Body in Enlightenment Thought*. University of California Press; Berkeley: 1992.
30. Unfortunately there is not space here to address this issue in detail here, but it is the subject of my forthcoming book, *Matters of the Heart: History, Medicine, Emotion*. Oxford University Press; Oxford: in press
31. See Shilling, Chris. *Changing Bodies: Habit, Crisis and Creativity*. SAGE; Los Angeles; London: 2008. *Theory, Culture and Society series* introduction
32. On the 'non-naturals' see Alberti, Fay Bound. *The Heart of Emotions: Locating the Soul*. In: Peto, James, editor. *The Heart*. New Haven, CN: 2007. p. 125-142. For examples of social/psychical reproduction see Elias, Norbert. *The Civilizing Process: Sociogenetic and Psychogenetic Investigations*. Jephcott, Edmund, translator. Blackwell Publishing; Oxford: 2000. Bourdieu, Pierre. *Outline of a Theory of Practice*. Nice, Richard, translator. Cambridge University Press; Cambridge: 1977.
33. See Maulitz, Russell C. *Morbid Appearances: The Anatomy of Pathology in the Early Nineteenth Century*. Cambridge University Press; Cambridge; New York: 1987. Introduction, chapter 5
34. Moore. *The Knife Man* and Simon Chaplin, 'Nature Dissected, or Dissection Naturalized? The Case of John Hunter's Museum'. *Museum and Society*. 2008; 6:135–151.
35. Acierno, Louis J. *History of Cardiology*. Parthenon Publishing; London: 1993. Fleming, Peter Robert. *A Short History of Cardiology*. Rodopi; Amsterdam: 1997.
36. For a detailed discussion of these themes, see Bound Alberti, *Matters of the Heart*, introduction and chapter 1.
37. Geison, Gerald L. *Michael Foster and the Cambridge School of Physiology: The Scientific Enterprise in Late Victorian Society*. Princeton University Press; Princeton, NJ: 1978. p. 249-296. Gaskell, Walter H. On the Innervation of the Heart, with Special Reference to the Heart of the Tortoise. *Journal of Physiology*. 1883; 4:43–127.

38. Pettigrew, Thomas Joseph. Biographical memoirs of the most celebrated physicians, surgeons, etc., etc., who have contributed to the advancement of medical science. Vol. 2. Fisher, Son & Co.; London: 1838. p. 119
39. Pettigrew, Thomas J. John Hunter: From the Medical Portrait Gallery. *The Lancet*. 1839; 32:119–120.
40. Foot, Jesse. *The Life of John Hunter*. T.Becket; London: 1794. p. 280
41. Wendy Moore, *The Knife Man*, pp.45, 125, 346, 347.
42. Holland, Lord. *Further Memoirs of the Whig Party 1807-1821*. John Murray; London: 1905. p. 341-2.
43. Thornton, Robert John. *The Philosophy of Medicine: or, Medical Extracts on the Nature of Health and Disease, Including the Laws of the Animal Oeconomy and the Doctrines of Pneumatic Medicine*. C. Whittingham for T.Cox etc; London: 1799-1800. *Life of John Hunter*; p. 402 I am grateful to Simon Chaplin for this reference.
44. Palmer, James F. *The Surgical Works of John Hunter, F.R.S. with Notes*. Vol. 2. Longman; London: p. 1194 vols
45. Hunter in Palmer. *The Works of John Hunter*. I:337.
46. Pettigrew, Thomas Joseph. *Memoirs of the Life and Writings of the Late John Coakley Lettsom: With a Selection from his Correspondence*. Longman, Hurst, Rees, Orme and Brown; London: 1817. p. 295
47. Le Fanu, William. *A Bibliography of Edward Jenner*. St Paul's Bibliographies; London: 1985. p. 25 citing a letter from Edward Jenner to William Heberden, n.d.
48. Koelbing HM, et al. The Effect of Fear and Fright on the Plague and its Control According to Two Eighteenth-Century Papers on Plague. *Gesnerus*. 1979; 36:116–126. [PubMed: 381110]
49. Bound Alberti, 'The Emotional Heart'.
50. Bound Alberti, 'The Emotional Heart'.
51. It is interesting that modern accounts of the relationship between heart disease and anger are increasingly returning to these older theories. See for example Harvard University research that demonstrated 'anger can break your heart', <http://www.news.harvard.edu/gazette/2006/09.21/01-anger.html> and Washington State University's discussion of anger as causing coronary artery calcification. <http://www.wsu.edu/spotlight/artery/index.html>
52. See Jacyna, 'Images of John Hunter', p. 87.
53. For an account, see Palmer, *Works of John Hunter*, pp.52-53.
54. Dr V. Knox, cited in Pettigrew, *Memoir*, p.119.
55. See for instance, Cheyne, George. *The English Malady*. Porter, Roy, editor. Tavistock/Routledge; 1733, London: 1991. p. xxi
56. Lettsom, John Coakley. *The Works of John Fothergill*. Charles Dilly; London: 1873. p. 268
57. Parry, Caleb Hillier. *Inquiry into the Symptoms and Causes of the Syncope Anginosa, Commonly Called Angina Pectoris*. Printed by R. Cruttwell and sold by Cadell and Davies; Bath: 1799. p. 89
58. On angina pectoris and men over 40 years of age, see Parry, *Inquiry*, p.41. For a more comprehensive discussion of John Hunter's cardiac disease, see Bound Alberti, *Matters of the Heart*, chapter 2.
59. Douglas, Trevor. *The Poetics of Melancholy in Early Modern England*. Cambridge University Press; Cambridge; New York: 2004.
60. Bound Alberti, *Matters of the Heart*, chapter 3; Cooper, Cary L. *Stress: A Brief History*. Blackwell; Oxford: 2004. chapter 2
61. See Fay Bound Alberti, 'Introduction: Medical History and Emotion Theory'.
62. For an introduction see Bynum, William F.; Porter, Roy, editors. *Medicine and the Five Senses*. Cambridge University Press; Cambridge; New York: 1993.
63. See the discussion of the cardiac physician 'Heart Latham' in Bound Alberti, *Matters of the Heart*, chapter 5.
64. Bound Alberti, *Matters of the Heart*, chapter 7.
65. Bound Alberti, *Matters of the Heart*, chapter 5.

66. Clarke, Edwin; Jacyna, L. Stephen Nineteenth-Century Origins of Neuroscientific Concepts. University of California Press; Berkeley: 1987. introduction Bound Alberti, *Matters of the Heart*, chapter 7.
67. Bound Alberti, *Matters of the Heart*, chapter 6.
68. Blair, Kirstie. Victorian Poetry and the Culture of the Heart. Clarendon Press; Oxford: 2006. introduction Bound Alberti, *Matters of the Heart*, chapter 6.
69. On the rise of brain, see Vidal, 'Brainhood'.
70. For a detailed discussion, see Bound Alberti, *Matters of the Heart*, introduction and conclusion.
71. On the theme of inter-textuality and a shared culture of between literary and medical texts, see Blair, *Victorian Poetry*, introduction and chapter 1.
72. Lawrence, Christopher. Incommunicable Knowledge: Science, Technology and the Clinical Art in Britain, 1850-1914. *Journal of Contemporary History*. 1985; 20:503–520. [PubMed: 11617289]
73. See the television documentary, MINDSHOCK, shown on Channel 4 television, June 26, 2006.
74. Armour, John Andrew; Ardell, Jeffrey L., editors. Neurocardiology. Oxford University Press; New York; Oxford: 1994.
75. See for example Rossi, Elisa. Psycho-Emotional Aspects of Chinese Medicine. Churchill Livingstone/Elsevier; Edinburgh: 2007.
76. See Kuriyama, Shigehisa. The Expressiveness of the Body and the Divergence of Greek and Chinese Medicine. Zone Books; New York: 1999.

Fig.1. The Crystal Gallery at the Hunterian Museum, London, courtesy of the Royal College of Surgeons of England. The Hunterian Museum contains approximately 3,500 specimens and preparations from John Hunter's original collection, though regrettably not Hunter's own diseased heart.