

## CULTURES OF KNOWLEDGE, CULTURES OF THE INTERIOR

*Gillian Beer, DBE, FBA, LittD, DLitt  
University of Cambridge*

There are many more than two cultures, that we know well. Equally we know that they are not all alike. What is remarkable is that we all daily live in multiple cultures of knowledge without remarking on it. Let's not assume that there can be no communication when people are working in different ways and on different topics. Trades, professions, occupations have each their particular store of expertise: plumbers, microbiologists, mothers, anthropologists, chefs, and astronomers have each particular vocabularies for their jobs but share also a wider set of cultural vocabularies: they are (probably) lovers, (perhaps) parents, certainly shoppers, and workers, and unavoidably citizen subjects whose communal futures are under the stress of national and world events.

And so are scientists: they do not live inside the laboratory alone. They draw on the resources of the society they inhabit and the historical period in which they live—and not for funding only (though funding will express the values and aspirations of the broader society.) Scientists have access to the shared metaphors and arguments of the time and think with them: they too are walkers, parents, film-goers, and so on. That is, ordinary adult life provides—indeed enforces—the need for us all to work with a variety of kinds of knowledge. It teaches us to code-switch between them too. So people have ready experience in marshalling together familiar and unfamiliar materials. This skill is perhaps invisible because so taken for granted.

Scientific work always generates more ideas and raises more questions than can be answered solely within the terms of scientific enquiry. It suggests questions about chance, about the future, about splicing and mixing, about our bodies and minds, about scale in relation to the human: the very large and the very small, the near and the far, the visible and the invisible. Contradictory stories flow forth from major scientific theories such as evolution: the rise or the fall of humankind, competition, altruism, interdependence—and finally, a scale and kind of history that has no need of human presence. In this last absence, evolutionary theory is at one with the idea of the Big Bang, which also registers the extreme novelty of the human in the history of the world's existence.

Two cultural dreads in relation to science have been powerful over several centuries, and particularly the twentieth: the sealed lab and the spilled lab. Both have their terrors: hidden powerful knowledge that cannot be broached except by those who command it (the sealed lab); consequences running out of control into panic outcomes that affect the whole of society willy-nilly (the spilled lab). Many present day scientists, often working at the forefront of their specialisations, are used to communicating with their co-workers in the tightly specific terms that stabilise and speed meaning within a technical group; yet many of these same scientists—Stephen Jay Gould, Richard Dawkins, John Barrow, for example—have been willing to express what they are doing in terms that the rest of us can engage with. They have engaged, too, with those issues that emerge socially, ethically, aesthetically, from the hard practice of laboratory

experiment.

We cannot all know everything. No human life is long enough to function in the culture within which each of us happens to be born without taking advantage of much that is automatically provided by that culture and its history. We may not think much about this capital, but it is essential to our being and currently may include the wheel, drains, the computer, and the tonal systems in language and in music.

We need to think about what we are hoping for in moving away from rigid specialization. Is it competence? appreciation? understanding? In opening up lines of communication between differing fields, do we expect that it will be possible for people to follow the *processes* in other fields of learning (often highly technical) or that they will be able to understand the *outcomes*? Or are we really most concerned with people being able to engage with the *issues* raised by research? That is, are we hoping, through these conversations between fields to produce an informed populace who can appraise the *choices* being made by specialists? Should we, or should we not, be privileging such amateur interests?

In looking for appreciation and interaction between fields, we must not discount the passion with which many commit themselves to a lifetime of knowledge in their particular field: they know more than we amateurs ever can in that domain. And as we all experience when we specialize, what may look from the outside like narrowing, from the inside feels like constant expansion and reaching out. Concentrated learning needs to be valued too: astronomers, carpenters, cell-theorists, cellists, coin-collectors, gardeners, and physicians each carry a freight of special knowledge. Some of those knowledges have direct effects on the life of a wider public; some don't. How to allow special learning its autonomy and yet make it available, at need, is part of a broader discussion: are autonomy and availability consonant?

Ideas cannot continue to thrive when locked away. When ideas get out of the laboratory, they change. This does not mean that they are misused or misunderstood (though they may be). Sometimes these changes are painful to the initiating group of workers who see their technical achievement transformed into disturbing cultural questions that they cannot control. Even misprision may have its power, as we see with the popular fascination with chaos theory which assumes that chaos theory is about chaos—quite against the uncovering of order and pattern that the theory intrinsically explores.

Today I want to take as an example a fundamental topic of enquiry, a human core that is hidden from our eyes: our interior organs, our "innards" or "entrails." This study has moved across disciplines between medicine and poetry, anatomy and magic. The inside of the body is a profound and humdrum place, less distinguished, more anonymous than our outsides. It is a source of jokes as much as of prophecy: indigestion as often (more often) than sacrificial entrails. The term *innards* itself is uneasily intimate, crossing linguistic registers, and in that it is like the uncanny which claims always an intrusive intimacy.

The interior organs and the enclosure of the body have frequently over time been enlisted to provide analogies for the outer world: as house, hierarchy, travel, society, landscape, factory, and as the hidden life of every day.<sup>1</sup> The broad

---

<sup>1</sup>Bridie Andrews in an as yet unpublished paper given at the Art of Medicine conference described how early Chinese medicine represented the body's interior as landscape, even with

historical span of my examples already suggests how persistent and compelling is the struggle to imagine—and to avoid imagining—the interior of our bodies. This is an example where changes in the technology of medicine as well as changes in human inhibition or permission have shifted how it is possible to imagine what we cannot see.

Literature is a particularly apt medium for representing what can't be seen. The innards of the body lie hidden away beneath the surface, constantly at work. The work of literature is in some parallel ways a hidden experience. The reader reads, and imbues the work with his or her own private images, authoritative yet not to be shared with any other reader. The text is received and interpreted in the mind, inside the head one may say. It has no external equivalent. The act of *imagining the interior* draws on communal knowledge, of course, but it is privately imaged. Yet that interiority has provided powerful analogies for social living, all the more powerful, it may be, because not quite easily testable. The hidden interior of the body is, in Freud's etymological analysis, both *heimlich* and *unheimlich*. And as Freud compellingly notes in the essay on "The Uncanny," the two terms often exchange:

In general, we are reminded that the word "*heimlich*" is not unambiguous, but belongs to two sets of ideas, which, without being contradictory, are yet very different: on the one hand it means what is familiar and agreeable, and on the other, what is concealed and kept out of sight. (345)

Imagining your interior organs too vividly indeed may be a sign of ill health. Most people prefer, most of the time, to let them be, in darkness and quiet. Only the stab of pain or the rumble of indigestion draws attention to the curiously *unlocated* presences within. The heart beats: outside medical circles not much more knowledge is ordinarily sought. Until the advent of x-ray (Roentgen rays) near the end of the nineteenth-century, most peoples' visual experience of the interior of the body came from the butcher's array of animal carcasses and from the intense but limited functions of obstetrics, where disquietingly a whole body emerges from the body in childbirth, bloodied, corded, and accompanied by a placenta that may be viewed as holy relic or detritus according to your particular culture. Otherwise the interior of the body seemed autonomous, expressed only in bodily secretions, including feces, spittle, semen, urine, and blood, all of which are at least semi-fluid and unformed. Towards the end of my argument I need to ask what difference x-ray made, and now, more urgently, CAT scans, MRI scans, and PET or positron emission tomography. Indeed, the question must be put whether they *have* changed representations of the body's interior.

Very recently some British artists and sculptors have turned to the body's interior organs for their imagery. Part of the shock value of Mark Quinn's 1991 sculpture "Self," in which his own blood, harvested over five months, was poured<sup>2</sup> into a negative mold of his head and frozen, was the stabilization of

---

water-wheels to drive the chi up the spinal cord and so out through the countryside of the organs.

<sup>2</sup>The artist-photographer Gary Schneider has recently made photographs of his own interior, recently exhibited at Harvard. At a much earlier date William Rush made monumental models of parts of the body, predominantly as an aid for students in large lecture halls, but achieving by magnification an autonomy and sculptural grandeur (Nemerov).

blood into sculpted volume, with the constant provocative threat of deliquescence. Strikingly, his sculpture of the head of his infant son Lucas from the placenta seems to have caused less perturbation, perhaps because of a seeming affinity between medium and product. But the emptied carcass of the artist's body, doubled, split, hung upside down as well as right way up, in Quinn's work "No Visible Means of `Escape'" (also called "Man Struck By Lightning"), swings between menace and redemption: is this a corpse or an abandoned cocoon?

The study of anatomy, with its penetrating of the interior of the dead human body, was—famously—a site of contention over several centuries. The images I was able to show at the meeting were available predominantly to medical audiences and belie the anonymous darkness of the interior that persists for most people. The elegant images on paper in Vesalius's sixteenth-century *De Humani Corporis Fabrica* (1551) mitigate confrontation by being expressed on a flat plain, though they are sometimes shocking enough even now, as in the image of the hanged man, though we may not share the horror of Vesalius's contemporaries at his practice of dissection (Vesalius). Flat images from the fifteenth century are relatively discreet. In old children's Encyclopaedias the body was also flat: paper flaps illustrating the inside of the body could be lifted to take the child past skin, to flesh, to organs and skeleton, but all in the form of paper without depth. A wonderful nineteenth century set of medical volumes called *A Pictorial Manikin or Movable Atlas of the Human Body* by G.J. Witkowski (1880) presents almost life-size but one-dimensional limbs and organs—the hand and the heart, for example—with filigree exactitude (Witkowski). Layer upon layer of delicate paper cut-outs laid upon each other present muscles, bones, nerves, veins, in exquisite detail, yet the whole remains paper-thin, without bulk, blood, or smell. The interior of the body is here de-natured, both expository, and aesthetic, yet far removed from what is represented. Perhaps that is one reason why Witkowski subtitles it *Iconoclastic Anatomy*, though its main signification is that it takes to pieces the anatomy.

In another medical representational tradition, wax models show the flesh rolled back or absent, often to reveal the hazards of childbearing and birth, or as in a staggering model from 1839 produced as part of a competition to become a medical wax model maker, they assert absolute realism.

So the body's interior *has* been illustrated over the centuries, but predominantly for viewers within medical communities. Beyond that profession, the body's darkness has been largely undisturbed. Asking an unscientifically selected number of people "What do you see when you think of the inside of your body?"—almost all said "darkness," a few, "sounds"; one "I trained as a surgeon," and one, a singer, "bellows." Yet despite this apparent avoidance of curiosity, the body's interior has also been a source of naturalization: for government, exploration, citizenship, transcendence, and necessary secrets. A German school poster of the 1920s shows "Der Mensch als Industriepalast": as factory, with blue collar workers down among the innards and white collar management types consulting in the upper library of the brain. The avoidance of the interior continues, alongside these allegorical versions.

The Catholic insistence on trans-substantiation—"This is my body, This is my blood" "Take eat" "Drink ye all of this"—does not plumb the interior, but neither is it concerned with the body's surface: flesh and blood are the

summation of the body's being. Yet there is another aspect of the Passion that was dwelt on by writers and artists alike: the piercing of Christ's side at the Crucifixion. The most famous of all these representations, Caravaggio's "St Thomas," (doubting Thomas)—painted at the end of the sixteenth century—moves the site of the piercing. Instead of a soldier's spear entering the soft flesh of the side and probing the internal organs, we have the image of a serene Christ guiding Thomas's finger into the split of puckered flesh over the right ribcage while the two other disciples look on with riveted concentration. The scene is about *how* we know. It is also tenderly refusing some sorts of knowledge. Neither Thomas's finger nor the spear have entered the interiority of Christ. The ribcage stands as a palisade to protect his body from deeper invasion. On Thomas's robe a split at the shoulder repeats the gash seen in Christ's body. The orifices of the body are evoked, but the entry here is discreet and shallow, while the intense concentration of the disciples draws the viewer into the picture's searing focus. The avoidance of rapacious enquiry (the appetites of the mind) is crucial to the temper of the work, which is profoundly contemplative, even while it accepts the erotic. Thus far; no further: the *Arcana Dei* are preserved, as is the dignity of the human form.

Mary Douglas's argument in *Purity and Danger* that disgust is culturally specific but essentially concerns "matter in the wrong place" gives some insight into the secret presence of the body's interior. The inside changes its nature if it *comes out*. That was the special horror of various forms of torture and execution, such as hanging, drawing, and quartering, with their profound humiliation of the body. The body's interior is degraded as it loses utility, and the organs are elegant only when suspended in relation to each other. Indeed, the delay involved in dissection, moving from the surface in, over time, meant—it was argued by medical commentators such as Francis Sibson in *Medical Anatomy* (1869)—that "the practical teaching of medical anatomy, or the knowledge of the relative position of the internal organs, is neglected" (Sibson). In the dissecting-room the arteries are injected with coloured fluid and, worse, by the time the internal organs are reached, they are "in a state of decay, and their relative position has been altered." He recommends "the dead-house" as a better source of truth about the interior. Vesalius is reputed to have said that he learnt less in the anatomical theatre than he would have done in a butcher's shop.

One of the more eccentric literary imaginings of the body's interior occurs in Samuel Butler's quasi-biography, *The Fair Haven* (1873), where Butler ironically and knowingly attributes to a supposedly excellent but in fact appalling child a peculiar set of assumptions about the body: the boy regards women as imposters, having discovered that "the mass of petticoats and clothes that envelop the female form were not, as he expressed it to me, 'all solid woman,' but that women were not in reality more substantially built than men, and had legs as much as he had....This was the sort of thing which he regarded with stern moral reprobation." (p. 7) Worse, he becomes aware of the sheer wastefulness of the organization of the body's interior: instead of solid meat through and through there is a cavity with only a thin layer of flesh on it. Since he understands everything only in relation to his own requirements, he interprets this as absurdly wasteful. Such fantasies depend on ignorance. But until the technologies of the past hundred years became available, such ignorance, in diverse forms, was common enough. And even now, as I suggested at the

outset, the geography of our interior is terra incognita to most beyond the medical world. That makes it territory that can be possessed and re-possessed to serve different ends.

One of the most famous political moralizations of the body's government is that in Shakespeare's *Coriolanus*. It is an old story (Shakespeare is drawing on Livy in North's translation). And it is one cast in favour of the apparently passive organ, the "cormorant belly."

There was a time when all the body's members  
Rebelled against the belly, thus accused it:  
That only like a gulf it did remain  
I'th'midst o'th'body, idle and unactive,  
Still cupboarding the viand, never bearing  
Like labour with the rest, where th'other instruments  
Did see and hear, devise, instruct, walk, feel,  
And mutually participate, did minister  
Unto the appetite and affection common  
Of the whole body. (I, I; 79-88)

Menenius, ignoring the taunts of his listeners at the stomach's greed and stench, claims that the apparently passive stomach is 'the storehouse and the shop of the whole body on which all depend for their sustenance. So, the stomach is, in his allegorical tale, the lofty senators, while the populace is merely the "great toe." This shifty allegory is only with some difficulty made to resolve in favour of those in power, and Shakespeare brilliantly snubs the listener's doubts by voicing them as interventions from the crowd. There is something comic and laboured in this, paradoxically, because it is so pithy. The analogies don't quite hold, but they are so trenchantly presented that we acquiesce, cowed like the populace.

Two other writers of the same period, working like Shakespeare and Caravaggio at the turn of the sixteenth century into the seventeenth century, explored the allegorical possibilities of the body's interior at great length. The length changes the capacity for meaning, making it branching, sinuous, and the bearer of pleasure beyond moral reference. In Edmund Spenser's *The Faerie Queene* we visit in Book II the "Castle of Alma": a great house which is also the body's interior. The ingenuity and the comeliness of the description works like a set of gentle riddles. We are educated ethically by the measured decorum that avoids claiming too much meaning. No item of the body is named quite directly. All is described architecturally and as part of the life of a great house and its orderly running. We enter through "a faire Portcullis," with its "sixteen warders" (the mouth and its teeth). Alma, as hostess, brings her guests—and us—to a great hall and thence "Into the kitchin rowme, ne spard for nicenesse none" (niceness here close to squeamishness). Again we are in the stomach, now aided by the lungs.

An huge great paire of bellowes, which did styre  
Continually, and cooling breath inspyre.  
About the Caudron many Cookes accoyld,  
With hookes and ladles, as need did require;  
The whiles the vaines in the vessell boyld  
They did about their businesse sweat, and sorely toyld. (30)

Spenser is less concerned with giving an anatomical lesson than with exploring the proper running of the castle: the master cook is called “Concoction” and the kitchen clerk “Digestion” and they organize all the workers. With a certain privy zest he describes how the waste is disposed:

But all the liquour, which was fowle and wast,  
Not good nor serviceable else for ought,  
They in another great round vessell plast,  
Till by a conduit pipe it thence were brought:  
And all the rest, that noyous was, and nought,  
By secret wayes, that none might it espy,  
Was close conuaid, and to the back-gate brought,  
That cleped was *Port Esquiline*, whereby  
It was auoided quite, and throwne out priuily. (31)

Evacuation is doubly secret: occurring within and behind. The tour continues, all the way into the brain with its different areas for fantasy, memory, and prospect. The pleasures that the first readers of Spenser would have derived from this episode are inevitably different from ours: recognition would have functioned differently. The heat of the kitchen, the great ranges, the smoke, could for them directly evoke the inner activity of the digestion. For us, the element of recognition is more like discovery: we must *imagine* such a kitchen back into being through Spenser's description of it. So the equivalences lie differently together. But the pleasure is not entirely discordant. Taking the outside in, imagining the house within our bodily structure, is an enduring satisfaction. As Bachelard remind us in *The Poetics of Space*, the house is a primary metaphor for human self-understanding.

My other example from roughly the same period is an extraordinary work: *The Purple Island: or the Isle of Man* by Phineas Fletcher, probably written before 1611 but not published until 1633. Spenser gives us a tour of a great house. Fletcher takes us inside and out into a great kingdom, our own bodies. Like Freud, he notes the paradoxical relation of secret and familiar, uncanny and manifest, knowing and unaware, in our inhabiting of our own interior. The whole poem is cast as a pastoral:

Heark then, ah heark, you gentle shepheard-cruie;  
An Isle I fain would sing, an Island fair;  
A place too seldome view'd, yet still in view;  
Neare as our selves, yet farthest from our care;  
Which we by leaving finde, by seeking lost;  
A forrain home, a strange, though native coast;  
Most obvious to all, yet most unknown to most: (I, 34; 19)

He muses on the inordinate appetite for far-flung exploration: men, 'who plough the seas, / With dangerous pains another earth to find':  
Yet this fair Isle, sited so nearely neare,  
That from our sides nor place nor time may sever;  
Though to your selves your selves are not more deare,  
Yet with strange carelesnesse you travell never:  
Thus while your selves and native home forgetting,

You search farre distant worlds with needlesse sweating,  
You never finde your selves; so lose ye more by getting. (38; 20)

Unlike other islands, this isle can move:  
Nor made he this like other Isles; but gave it  
Vigour, sense, reason, and a perfect motion,  
To move it self whither it self would have it,  
And know what falls with in the verge of notion (46; 22)

This magical matter-of-fact place can “know what falls within the verge of notion.” Fletcher then takes the reader on an extended journey through the whole organization of the body's inner life. Not only does he offer, like Spenser, images of houses, but he opens out extended descriptions of the island (that is, the body's interior), cast as landscapes, castles, hills, and valleys, and encompassing the government of the place. The liver (Hepar) is both the kingly ruler and the central castle, “the purple island” within the island. (Fletcher is writing a little before the publication of Harvey's work on the circulation of the blood, though the poem is published after it.)

To aid our interpretation, and to communicate the detailed information that he seeks to help us enjoy, Fletcher has a running commentary at the side of the page. Here he engages in controversy, asserts his medical knowledge, mingling old Galenic with new medical views. It is possible, as has been suggested, that Fletcher had seen dissections while he was a student at Cambridge. He was at King's College and a hundred yards along the road Gonville and Caius College had a small anatomical theatre and a licence to dissect three felons' bodies in the course of each year. (After the dissection, the bodies were followed in solemn procession by Master and Fellows to the church opposite the college where they were reverently interred.) But—and this seems crucial—he is assuming that his reader has had no such opportunity.

In this fair town the Isles great Steward dwells;  
His porphyre house glitters in purple die;  
In purple clad himself: from hence he deals  
His store to all the Isles necessitie:  
And though the rent he daily duly pay,  
Yet doth his flowing substance ne'ere decay;  
All day he rent receives, returns it all the day. (II, 8; 38)

Fletcher's reader is taken on a strange extended cruise through the body's interior; what may now read as quaint is in fact presented with robust lack of qualm and impressive intricacy. Again the pleasures of ingenuity are quite as strong as the ethical or moral commentary, but here there is superadded a strong expository urge. The allegory has something of the crossword puzzle: indirection must yield up exact solution. The social order described is taken for granted and used as a measure for elucidating the interior of the body. The side commentary not only presents apt solution but also tests how proper is the poetic description he offers alongside.

Only when he reaches the organs of generation does he falter. Suddenly the side commentary ceases. We have to do the interpretation for ourselves from the poetry. Perhaps he is guarding young or inexperienced readers; more certainly, he does not trust us. He claims that though “some few in these hid parts would

see Their Makers glory"..."most would turn to luxurie" or "would make their game." Certainly, reticence overcomes him:

Flie then these parts, which best are undescrib'd;  
Forbear, my maiden song, to blazon wide  
What th'Isle and Natures self doth ever strive to hide.

Within this hidden Isle, some things must remain hidden lest they become *unheimlich*: Freud quotes Schelling as indicating that "everything is *unheimlich* that ought to have remained secret and hidden but has come to light" (345). Fletcher enjoys trenchant allegory but abhors double-entendre. He seeks to super-pose the outside on the inside in a manner that elucidates both.

There is no doubt that Fletcher in particular wishes to insist on the *naturalness* he is proposing between the outer landscape and the inner. There is a gentle satire on men's exorbitant curiosity for things far off while ignoring the profound mysteries of the native land of the body. Travel, he suggests, is always inadequate and never reaches its goal of perfect interpretation, because it does not start from a fully knowledgeable base at home. Equally, he uses the metaphors of travel and exploration to make an entrance for his reader's curiosity and to excite our desire to understand. The double system—poetry and commentary—stabilizes knowledge and suggests that his poetic method is something other than analogy. Rather, it is homology, a true exposition of the Maker's truth. In that final sense, *The Purple Island* is, throughout, a religious making, and both its flair and its severity are at the service of Fletcher's maker.

My next example of how the interior of the body is explored or avoided is George Eliot's novel, *Middlemarch*, published in 1871-2 but set in 1828-32. This work shows the novelist as anatomist of the social body. For a writer of fiction, such an anatomy can be produced without the need for corpses, and narrative reflection can penetrate interiorities without bodily harm. There is no doubt, however, that George Eliot was working here with some of the new emphasis on experimental medicine (that is, vivisection) as a result of Claude Bernard's work of the 1860s, *Introduction to Experimental Medicine*, just as Zola did in *Le Roman Experimentale*. Unlike Spenser and Fletcher, Eliot examines the failings of the social system she symptomizes through its hidden interior workings.

She responds to a complexity of relations, the web of interactive forces. Instead of allegorizing equivalences between inner and outer, she diffuses the idea of the interior through the study of her chosen small midland town, Middlemarch, and its people. As I earlier remarked, the silence—and lack of external representation—of the literary work allows it to sound the interior of the reader's head. Here, landscape, houses, social hierarchy, are both inside and outside.

One of the principal characters of the novel, Lydgate, is a doctor—a very up-to-date young doctor whose practice irritates the older medics of the place. Lydgate has trained "with a libellous pretension to experience in Edinburgh and Paris, where observation might be abundant indeed, but hardly sound," not (as the narrator remarks with heavy irony) at "either of the English universities" where he could have "enjoyed the absence of anatomical and bedside study there" (II, xviii; 171). He takes Vesalius as a model and dignifies his own struggles in the community by comparing them with those Vesalius experienced.

Lydgate will not prescribe drugs freely. He uses very new technologies, such as

the stethoscope, invented only a dozen years before the time of the novel's setting, to gauge the interior activities of the body. He resists prescribing in ignorance. He performs post-mortems in the interests of investigation, and so offends the sensibilities of the neighbours of Mrs. Goby, his deceased patient. He has studied in the wake of Bichat's medical revolution in Paris and knows Bichat's fundamental work on the bodily tissues. At the start of the novel he even hopes to follow with a further break-through of his own, seeking "the primitive tissue" behind Bichat's twenty-one types:

This great seer did not go beyond the consideration of the tissues as ultimate facts in the living organism, marking the limit of anatomical analysis: but it was open to another mind to say, have not these structures some common basis from which they have all started, as your sarsnet, gauze, net, satin and velvet from the raw cocoon? (II, xv; 139)

Lydgate is familiar with the work of Laennec (1781-1826) on the heart, as well as with his invention of the stethoscope and the practice of auscultation, and so is able to diagnose the disease (pericarditis) from which Mr. Casaubon is suffering. Moreover, he is a concerned physician, simply watching and listening to his patients.

On the face of it, he could be the moral motor of the book, a sympathetic equivalent to the novelist's self. Yet with her extraordinary understanding of complexity, George Eliot also shows that this informed and empathetic professional is ignorant in many of his behaviours, particularly where his personal relations with women are concerned. With microscope and stethoscope and dissection he can explore the body's interior, but not hidden motive. The figure of Bichat lies behind that of Lydgate, not only as his hero but as a severe reminder of Lydgate's lost ideal of full commitment to research. Bichat in his thirty-one years of life undertook over six hundred autopsies at the Hotel-Dieu, wrote three revolutionary books, and died of a fall on a staircase on the way to the morgue, so poor that there was not enough money to pay for his funeral. Lydgate, like most people, instead is drawn into small concerns and emotional commitments that debar such heroic concentration and finds his plans for major research dissipated in the concerns and the tactics of small town living. Yet Lydgate, like Bichat, is a martyr, in Lydgate's case to sustaining an unsatisfactory marriage with few rewards. Lydgate dies early, a successful doctor in a spa town, his intellectual ambitions unrealized, but through all his errors, his humanity sustained.

This is a book that eschews allegory and allegory's uncovering of fixed equivalences. Rather, it tracks the principle of variation. It takes the workings of relationships within this single township and demonstrates how diverse are things that at first sight look similar, how hidden are the motives, connections, and drives within a community, as well as between individuals. The figure of the medical man, who both can and cannot see into the interior, becomes one means of assessing our own performances as readers and moral agents. Yet, although this work has often been read as organicist, the reader is obliged gradually to become aware of how unfixed are the limits of this social body of the town of Middlemarch. As readers with narrative privilege, we *seem* to see unity and connection between diverse groups. But the people within the book are bunched and separated, and when the insurgency of the past declares itself as disease and

disgrace, the whole does not hang together. Rather, despite the universality of human impulses, their performance and outcome produce diversity of life. Because so much of what matters is here always under the surface, experienced in the interior of the reader only, the town does have some likeness to a body. But it is a body that can never be represented entire and whose complexity constantly has potential for re-interpretation as *magnification* or *volume* increases:

That element of tragedy which lies in the very fact of frequency, has not yet wrought itself into the coarse emotion of mankind; and perhaps our frames could hardly bear much of it. If we had a keen vision and feeling of all ordinary human life, it would be like hearing the grass grow and the squirrel's heart beat, and we should die of that roar which lies on the other side of silence. As it is, the quickest of us walk about well wadded with stupidity. (II, xx; 182)

Writing before the coming of x-ray, George Eliot's best image in this famous passage for such penetrative understanding is not sight, but *sound*, the activity of the stethoscope.

After the stethoscope's sound-map, the next major invention to reveal the body's interior was the x-ray, discovered by Roentgen at Wurtzburg in 1895. And that discovery releases new possibilities for description, as well as for therapy. In a novel and bloodless way, the inside now comes out.

Thomas Mann in *The Magic Mountain* (1924) places the inner disease of the body at the centre of his work, and in the chapter called "My God, I see it!" he explores the eerie and erotic potential of x-rays. X-rays allow the external body to become ghostlike and the interior to reveal its intimacies, smudged, beloved, and never fully interpretable to the characters who observe with non-medical eyes.

But Hans Castorp was preoccupied with something that looked like a sack, or maybe a deformed animal, visible behind the middle column, or mostly to the right of it from the viewer's perspective. It expanded and contracted regularly, like some sort of flapping jellyfish.

"Do you see his heart?" the director asked. (214-5)

To see the heart is uncanny, baffling rather than illuminating. Hans Castorp carries with him as keepsake a glass x-ray plate of the chest of the woman he desires. He also confronts his own mortality in the evanishing of the external body, connecting it to an eerie power of prophecy. With the alertness of those who are themselves patients, suffering from tuberculosis, he vividly foresees death in the inversion performed by x-ray. Looking at his own hand:

Under that light, he saw the process of corruption anticipated, saw the flesh in which he moved decomposed, expunged, dissolved to airy nothingness—and inside was the delicately turned skeleton of his right hand. (215)

"Spooky, isn't it?" [says the Director] "Yes, there's no mistaking that whiff of spookiness." The smell of the cadaver becomes etherealized as inside-out image, uncanny. Instead of a positivistic recognition, the interior is figured as a series of evasions, prophecies, metaphors.

Now we have again new resources. People are becoming familiar with images of the interior through scans. Magnetic resonance scanning lays bare the activity of

the body's interior. But it does not drive out the making of imagined equivalences, beyond and perhaps within the medical community. Instead, massive magnification has intervened to allow a new avoidance: producing not houses or societies, as in the past, but landscapes and abstract images, evocative glimpses of sea-creatures and sun-scapes more concerned with aesthetics than with order, pleased with fragments, not totality. The pleasures are those of transformation still, not of direct representation.<sup>3</sup>

These beautiful images are revelations, but also ways of not seeing what is just there. In the immense magnifications now achievable, we see something quite other than will ever be before the naked eye. Avoidance of knowledge (or, perhaps rather, its displacement) is as indefatigable as the quest for knowledge, particularly where it concerns what Phineas Fletcher called "our foreign home, a strange though native coast. Most obvious to all, yet most unknown to most."

---

<sup>3</sup>See for example the images of the stomach in section, magnified 1340 times, and the cilia lining the windpipe magnified 96,000 times (Ewing).

## Works Cited

- Nemerov, Alexander. *Mammoth Scale: The Anatomical Sculptures of William Rush Catalogue of an Exhibition at the Wistar Institute Philadelphia*. Philadelphia: Wistar Institute, 2002.
- Vesalius, Andreas. *De Humani Corporis Fabrica*. Tübingen: Ulricum Morhardum, 1551.
- Witkowski, Gustave Joseph. *A Pictorial Manikin, or, Moveable Atlas of the human Body, showing the position of the...organs, by means of superposed coloured plates*. New York: Joseph Cristadoro, 1880.
- Sibson, Francis. *Medical Anatomy: or, Illustrations of the relative position and movements of the internal organs*. London: John Churchill and Sons 1869.
- Ewing, William A. *Inside Information: Imaging the Human Body*. London: Thames and Hudson, 2003.
- Xavier Bichat, *Recherches physiologiques sur la vie et la mort*. 3<sup>rd</sup> ed. Paris: chez Brosson, Gabon, an XIII ie 1805.
- Butler, Samuel. *The Fair Haven*. (London: Trubner, 1873) London: Jonathan Cape, 1929.
- Freud, Sigmund. *Art and Literature*. Ed. Albert Dickson. Harmondsworth: Penguin, 1985.
- Bachelard, Gaston. *The Poetics of Space*. Tr. Maria Jolas. New York: Orion Press, 1964.
- Douglas, Mary. *Purity and Danger: an analysis of the concepts of pollution and taboo*. London: Routledge and Kegan Paul, 1966.