Comparative Anatomies: Darwin, Eliot, Stevenson and the Lamarckian Legacy of 1820s Edinburgh

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COMPARATIVE ANATOMIES: SCOTT, DARWIN, ELIOT, STEVENSON
AND THE LEGACY OF 1820s EDINBURGH

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This is a paper about a repressed strand in 19th century intellectual history, and about the varying modes and strategies of that repression. The strand is that of the Lamarckian ideas about the unity of organic life and the mutability of species that were canvassed in 1820s Edinburgh, and the repression is the at-best elliptical way in which a variety of Victorian writers referred to the role one or another proponent of Lamarckianism had played in their own intellectual development.

Intellectual history often seems like looking at the wrong side of a tapestry, and 19th century British intellectual history looks quite different when one views it from Edinburgh rather than from London. That geographical recentering is part of this sketch. But it can be even more revealing to change the chronological perspective, to view 19th century culture from its initiatory uncertainties rather than from the tightly-knitted conclusions of the late 19th century consensus, the tales the institutional victors told themselves to exorcize the hauntings of now discredited earlier intellectual selves.

The story begins, trenchantly, with Sir Walter Scott himself. In December 1828, he commented on “a horrid example how men may stumble and fall in the full march of intellect” (Letters, XI, 72). Strange though it seems to call Burke and Hare “the full march of intellect,” Scott was referring of course to the shocking murders recently uncovered in Edinburgh’s West Port. Even at the time, the blame for the West Port murders was spread pretty wide--on poverty,
drink, urban conditions, Irish immigration, police incompetence, the city council, the Westminster government's anatomy acts, and so on--until one sympathizes with James Hogg's reported judgment that he "canna' help blamin', especially, Burke and Hare" (Barzun, 357; cf. Scott). But Scott laid the blame squarely on ideology ("the march of intellect"), and on the radical Edinburgh anatomists such as Dr. Robert Knox for whose dissecting-rooms the murders were committed. Though Knox and his assistants were neither called as witnesses in the trial nor prosecuted for their involvement, Scott was vocal about Knox's moral guilt, persuading the Royal Society's council to block Knox's scheduled scientific lecture (Journal, 504-5), declining a "very polite" invitation to dine with the local Medical Society (Letters, IX, 72), and refusing to serve on Sir John Sinclair's exculpatory committee of investigation (Journal, 509), threatening that the anatomists' legal escape "will be no excuse for them at a different tribunal," and mourning the mob's loss of spirit since Porteous's time, when "they would have taken the Dr under their own special ordering" (Letters, XI, 94).

The West Port murders were indeed horrific, but Scott's response seems somehow overdetermined, like a literary traditionalist reacting to the first rumours of de Man's wartime journalism or a neoconservative historian tut-tutting gleefully over the private life of Michael Foucault. Knox himself was pushy, arrogant, half-German, a free-thinker, a suspected radical, ugly, one-eyed, and infuriatingly popular with the milling hordes of Edinburgh's equally-ambitious teenaged students (Lonsdale; Rae, passim). His lively extramural classes (he packed 500 fee-paying customers into three lecture-sessions a day during the winter of the West Port murders) stood in dismaying contrast to the official offerings of his rival, Alexander Monro, the third, final and least talented generation of a family that monopolized Edinburgh University's
anatomy chair continuously from 1720 to 1846 (Grant, II, 386-391). Knox was the most vulnerable target for Scott's ideological resentment, but certainly not alone in his scientific approach. Much more distinguished among the Edinburgh Lamarckians, though equally politically and religiously astringent, was Dr. Robert Grant, whose researches on Scottish sponges in the mid-1820s undermined the hard distinctions of traditional classification, arguing that species were descended from other species. For many years Grant was credited with a groundbreaking article in the *Edinburgh Philosophical Journal* in 1826, describing Lamarck as "one of the most sagacious naturalists of our day," and following Lamarck in arguing that "the various forms have evolved from a primitive model, and that the species have arisen from an original generic form" (Secord, p. 9). Quite recently James Secord has attributed this astonishing piece, not to Grant, but to a still more establishment figure, Robert Jamieson, Grant's mentor and Regius Professor of Natural History at Edinburgh.

Why was Lamarckianism important and why did it ruffle Scott so much? Lamarck and his colleague Geoffroy St. Hilaire were the leading proponents of the mutability of species, through the working of natural processes. Both the French naturalists had links with revolutionary or at least liberal politics. Lamarck's views were especially congenial to British radicals since he argued that species changed themselves through striving to meet changed needs, while Geoffroy stressed rather an underlying Unity of Composition (i.e. of anatomical components) that underlay the apparent fixed diversity of life forms. Their most formidable opponent in the Academy was George Cuvier, who attributed apparent similarities of anatomical form between species to similarity of function, and who resisted the larger theoretical framework through which Geoffroy explained (indeed discovered) structural homologies. Lamarck and Geoffroy, like their
Edinburgh admirers Grant and Knox, aspired to move beyond the mere description of species, often labelled comparative anatomy, to a new philosophical or transcendental anatomy. Knox himself put it well: “Occupied with facts and details--eschewing principles, that is philosophy--Cuvier's view was limited and confined . . . the transcendental [anatomy] went further; it developed the great plan of the creation of living forms . . . it unfolded the secondary laws by which the transformations are made, the metamorphoses out of which variety springs from unity” (quoted in Rhebock, 38). Lamarckianism threatened the stability of Edinburgh intellectual life as much by their breathtaking disparagement of any less ambitious scientific agenda as by their actual discoveries, and Scott for one rejoiced when a prominent retailer of radical French theory like Knox came a very public cropper.

Recent scholarship has emphasized the ubiquity of Edinburgh-trained anatomists in the diffusion of French influence to the London-based royal colleges and learned societies (Rhebock; Desmond, Politics). Grant, for instance, moved south in 1827 to the new chair of anatomy at the Benthamite University College, London, and became a prominent advocate of Geoffroyan theory through the thirties, after which his radicalism marginalized him professionally. Ultimately the most influential of Grant’s Edinburgh students was, of course, Charles Darwin, who had attended medical classes in Edinburgh from 1825-1827 (Desmond and Moore, 21-44). Darwin had taken Jamieson’s year-long lecture course, heard Grant and Audubon lecture to Jamieson’s Wernerian Society, and was taken out by Grant to hunt sponges on the shores of the Forth beyond Musselburgh. Under these influences, he studied Lamarck’s classification of invertebrates and de Candolle’s botanical classification, both in French. Darwin’s very first scientific discoveries, of mollusc parasites and the swimming larvae of the flustra or sea-mat, were made under Grant’s
tutelage and announced at another of Jamieson's society's, the Plinian, disbanded soon afterwards as a hotbed of radicalism.

Once Darwin left Edinburgh for Cambridge, however, the Edinburgh Lamarckians disappear from his writings. He abandoned Grant's wonderfully subversive sponges to return to his schoolboy hobby of building a beetle collection, and contributing small-print sightings to the mind-numbingly taxonomic *Illustrations of British Entomology*. Humboldt and Lyell, not Lamarck, set the topics for the first twenty years of Darwin's scientific publications. He recruited other scientists, generally conservative ones, to handle the myriad new species he brought back from the *Beagle* voyage, and (as Adrian Desmond has pointed out [Desmond, *Politics*, 401]), Grant was not among Darwin's contributors, even to describe his specialty the zoophytes.

When, following complaints that *On the Origin of Species* had ignored his precursors, Darwin added an historical preface to the third edition, even Lyell protested at Darwin's grudging implication that Lamarck and Geoffroy could not be numbered among "the leading naturalists" of earlier years, and Darwin's mentor Grant gets only the briefest of paragraphs. In his *Beagle* journal (published in 1839), Darwin could still tease that the similarities among series of fossil species would be of interest to the "philosophical naturalist," and a crucial period of his empirical research for the *Origin* was devoted to the dissection of sea-barnacles. In the 1860s, a defensive periodical contribution reveals that Darwin's tacit Geoffroyan assumption about the unity of composition had led him to label the barnacle's reproductive organs as a vestigial "auditory sac" or ear (Darwin, "Cirripedes"). In the 1870s, he returned, with the aid of photography, to a topic he had heard debated at the Plinian in the 1820s, the physical expression of emotion in humans and animals, arguing just the case against orthodoxy that the Plinians had argued fifty years before.
But it was the Cambridge entomologist Henslow, not the Edinburgh anatomist Grant, at whose death Darwin would write a eulogistic tribute. Darwin had essentially erased those who first raised the questions and issues his major work set out to resolve.

But erasure is not the only Victorian strategy for dealing with the Lamarckian radicals. Eliot's reaction to Darwin's *Origin of Species* is well-known: she found it "ill-written" but marking "an epoch," a step "towards brave clearness and honesty" (cited in Paxton, 15). One might expect her, therefore, to see the science of the 1820s as merely the faint foreshadowing of this later revelation. In *Middlemarch*, George Eliot would appear, at least on the face of things, less to erase than to historicize the Edinburgh school, to distance it as quaintly, even quixotically, outdated. Tertius Lydgate, you will remember, had come to medicine because of a youthful fascination with the wonders of an anatomical encyclopaedia, and "had carried to his studies in London, Edinburgh and Paris, the conviction that the medical profession as it might be was the finest in the world; presenting the most perfect interchange between science and art; offering the most direct alliance between intellectual conquest and the social good" (*Middlemarch*, 99; cf. Harvey; Mintz, 73-78). From the very beginning, Eliot makes clear that Lydgate is too interested in "cases," particular human beings, to follow the "abstraction of special study" (99), but she assigns to Lydgate the ambitious research program of analysing the "primary webs or tissues," the "primitive tissue," "the ultimate facts in the living organism," research that would through the microscope move beyond "the limits of anatomical analysis," "show the very grain of things," "demonstrate the more intimate relations of living structure," and "define men's thought more accurately after the true order" (101-102). Not for nothing does Eliot follow her description of this ambitious research with comments on Lydgate's social snobbery and of his liking for French
melodrama (102-103). Even though Eliot links Lydgate's work to the outdated tissue research of the French physiologist Francois Xavier Bichat, the phrasing exaggerates and caricatures that of Geoffroyan transcendentalism.

The extraordinary thing is that there seems to be very little material on this aspect of Lydgate's character in Eliot's well-known *Quarry* notebooks. The *Quarry* is filled with Eliot's detailed researches in contemporary periodicals on the conflicts and controversies about medical licensing and professional behavior in the 1820s and 1830s, but has a mere two passages (25-26-31-32) on the history of biological research, and those drawn from a single recent essay about cell theory by T.H. Huxley, published in 1869. It was from this Huxley essay that Eliot drew her brief *Quarry* note on Bichat (31). The contrast between the thickness of professional background and the thinness of intellectual background is striking, especially given Lewes's interest in biology. W.J. Harvey has even suggested that Eliot deliberately gave Lydgate a research program that was just ahead of its time, ahead of the German cellular discoveries of the 1830s, impossible to accomplish with the microscopes of the 1820s (Harvey, 35-36). His ambition contrasts not only with Casaubon's outdated religious researches, but also with the amiable butterfly collecting of Mr. Farebrother, more reminiscent of Darwin's clerical Cambridge mentors than of contemporary Edinburgh or Paris.

But the gap between Lydgate's ambitious language and the lack of solid historical information about the research that might justify it is not solely a matter of character-painting. Eliot, like Darwin, documentably had detailed personal knowledge of the Lamarckians. The evidence is an extraordinary long essay about Geoffroy that G.H. Lewes contributed to the *Westminster Review* in January 1854, before Huxley took over the science reviewing. Lewes's
essay, along with his Comtean piece from the Leader in 1852, “On the fundamental law of evolution,” and Huxley's dispute with him about it, show how deeply French theory, not just German, was being canvassed in George Eliot's circle in the early 1850s. Though Lewes’s essay is referenced in a footnote to Haight's Letters, it's not discussed in the recent books on George Eliot and Evolution by Shuttleworth and Paxton, while the indexes of other scholarly Eliot books skip directly from God to Goethe (or perhaps now from Genet to gynocracy). Lewes acknowledges that Geoffroy made errors in controversy, recognizes that his reputation had already dimmed, but is unabashedly admiring: “to one who estimates great conceptions at their true value," he began, "Geoffroy will always be considered a Thinker in the science of which Cuvier was little more than an Expositor" (84). He argued that Geoffroy had, by his Theory of analogues and Principle of Connexions, "created Philosophical Anatomy (subsequently styled Transcendental Anatomy)" (93), asserting that, though “there is a danger of Metaphysics being substituted for Science," “science is Science, not in virtue of facts, nor any accumulation of facts, but in virtue of giving to facts their signification” (94). And Lewes’s clinching argument for the rightness of Geoffroy’s Unity of Composition is taken verbatim from a long article on comparative anatomy by Professor Robert Grant (99-100). Of course, Spencer, Lewes, and the Westminster circle, had given Eliot much broader contact with the London radical circles in which philosophical anatomy flourished. But the ideas of Lewes's Geoffroy essay are so clearly apposite to Lydgate's research that Eliot's lack of reference in Middlemarch to the leading French anatomists of the relevant decade itself becomes marked. Why one asks could Lydgate's intellectual ambitions not acknowledge their origin in philosophical anatomy?

My third Victorian example of anatomical repression is both the least scientific and the
most clear cut. Where Darwin repressed, and Eliot (selectively and misleadingly) historicized, Robert Louis Stevenson demonized a transcendental anatomy he could only have known through the oral tradition of the Edinburgh professional elite or the nursery-tales of the New Town. In the mid-1880s, Stevenson wrote two stories bearing directly on the legacy of the 1820s anatomists. The earlier, a bestselling crawler he affected to despise, "The Body-Snatcher," followed the careers of two of the notorious Dr. Knox's anatomy demonstrators, from their murky involvement in the Burke and Hare case to their subsequent contrasted professional success or penitent withdrawal from medicine (cf. Scott, forthcoming); Stevenson's focus is not on the crime itself, but on the psychological effect of involvement even on the fringes of such a crime. His response to Knox might be that of Scott to the "March of Intellect," with the difference that Stevenson sees no higher tribunal bringing to Knox's followers their merited retribution.

His second medical story is much better known, yet its connection to Edinburgh anatomy is seldom recognized. The Strange Tale of Dr. Jekyll and Mr. Hyde (1886) is not only the least explicitly Scottish, the most filmed, and the most taught, but also the most analyzed of Stevenson texts. It purports to be set in London, yet almost all Scottish readers would immediately identify its locale and the strange split entry to the back and front of Jekyll's residence as in Edinburgh, in the New Town or perhaps on the South Side (where Knox himself had kept the more respectable of his two homes). Reeking, too, of Edinburgh's close-knit professional culture is the almost incestuous closeness of the medico-legal circle of friends through whom Jekyll's story is discovered (or perhaps covered up).

But the hidden aspect of the story's Scottishness lies in the theoretical basis Stevenson implies for Dr. Jekyll's experiments. The first clue lies in the physical structure of his house.
Jekyll has moved through the now abandoned anatomy theatre of his deceased predecessor, to the cabinet or study that lies beyond, an architectural hint that he has attempted to transcend mere empirical study, the move advocated by Lamarck and the philosophical anatomists. His old friend and former medical ally "the great Dr. Lanyon" rues the development, telling the lawyer Utterson:

it is more than ten years since Henry Jekyll became too fanciful for me. He began to go wrong, wrong in mind; and though I continue to take an interest in him for old sake's sake as they say, I see and I have seen devilish little of the man. Such unscientific balderdash... would have estranged Damon and Pythias (18).

Utterson gratefully concludes the two men "have only differed on some point of science" (19). Jekyll himself sees the split between the two men differently, dismissing Lanyon to Utterson as "a hide-bound pedant," "an ignorant blatant pedant," who had been outraged "at what he called my scientific heresies" (33). When Hyde/Jekyll has to rely on Lanyon retrieving his precious tincture for him, he offers to demonstrate "a new province of knowledge" (108), even while berating him as "long bound... to the most narrow and material views," for denying "the virtue of transcendental medicine," and deriding his "superiors" (109). In Jekyll's own last confession, he describes "the direction of my scientific studies" as leading "wholly towards the mystic and transcendental" (112), and he sides firmly with the excitement of French theory against mere medical empiricism or a dry life of factual study: "I must speak here by theory alone, saying not that which I know, but that which I suppose to be most probable" (119).

Stevenson's is hardly an informed critique of philosophical anatomy and its legacy, but it
is none the less revealing, both of the strange mangled misunderstood afterlife of outmoded
time theory through subsequent generations and of some specific fissures in the intellectual legacy of
1820s Edinburgh. The story of the Edinburgh Lamarckians and their failure, their virtual erasure
from medical history, can be read in very varied ways. It might be explained by religious
close-mindedness; clearly Knox and Grant's anti-orthodox, even atheistic, scorn severely limited
their effect, even on their students. It might be explained as social or professional defensiveness,
as the closing of ranks by the London scientific and medical elite to outside disruption of the
learned societies and the restrictive privileges of the medical colleges. The most prevalent
explanation among recent historians of science has of course been political--the conservative
establishment discrediting of political radicals through the discrediting of their scholarly
perspective (cf. Appel, Desmond). Several of these themes can be combined in a kind of
intergenerational social psychology, where the mid-Victorian cohorts of English Darwinians
oedipally erased the pioneering work of the previous generation of Scots, least it detract from the
distinctiveness of their own contribution.

But, like Hogg who "canna' help blamin' Burke and Hare," one canna' help thinking that
Grant and Knox themselves had something to do with the Victorian repression of their influence.
Like Geoffroy, Grant and Knox were gifted teenagers, dux of the High School, privileged
darlings of the Edinburgh intelligentsia, and they were surely true to their culture not only in their
intellectual ambition but in the avidity with which they canvassed broad theoretical issues at the
very beginning of their careers. In their early teaching they could exert stunning influence on
their immediate juniors. But the very closeness of the society in which they achieved early
eminence also deflected them from interaction with scientists of differing intellectual persuasion.
Post-Calvinists both, they retained a quasi-Calvinist certainty that scientific unbelievers were beyond redemption. Long into middle age, they remained locked in the sophomoric certainties of the secondhand French theory that had seemed so exciting in youth. Even as the empirical shortcomings of Lamarckian theory accumulated, they could attribute only to malign ideological prejudice their own declining influence, and they campaigned bitterly if with diminishing success for institutional power. Though their very radicalism led to recurrent attempts (both Victorian and modern) to restore their reputations, they had become yesterday's men, impoverished figures of scorn insistently refighting yesterday's intellectual skirmishes in parts of their field from which everyone else had moved on (cf. Richards, "Knox;" Desmond, 387-397). And, *mutatis mutandis*, similar limitations might be described among other once-feted Scottish intellectuals of the same period. Perhaps the democratic intellect's penchant for early theoretical engagement, however intoxicating in the lecture hall, necessarily deferred, inoculated against, the ironic empiricist pluralism by which a whole culture inches onward.

As Lydgate had belatedly to learn, not even scientific history is usefully seen as a French melodrama. Simply to reverse the Darwinian stigmas, to cheer for the Edinburgh Lamarckians, and to hiss at their Victorian repression, makes for an entertaining transformation of perspective, but it is all grayer than that. The Kuhnian scientific narrative originally called for a simple contrast between successive dominant theories or paradigms (major, exciting) and the honest legwork of normal science, empirical research (dull). It had little to say about the process by which new paradigms were generated, or about the teratology of theory, the mutations that history did not adopt, the contesting paradigms of say comparative anatomy in 1820s Paris or Edinburgh. Modern expose-style cultural studies paints, or perhaps smears, with too broad a
brush. Adequately to read the cultural legacy of Edinburgh in the age of Scott requires not ideological deconstruction alone, but a humane alertness to the gaps, repressions and angularities of intergenerational cultural transition.
References


____________, Strange Case of Dr Jekyll and Mr Hyde (originally London: Longmans, Green, 1886, repr. ed. Roderick Watson, Edinburgh: Canongate, 1986)