Darwin's Heresy

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Abstract
Challenged by Lord Kelvin's claims that earth and sun were too young to give evolution sufficient time to do its work, especially in the human case, where care for the weak blunts the edge of natural selection, Darwin leaned on Lamarckian thoughts to accelerate the process. The mental and moral traits crowning human distinctiveness, he urged, arose through sexual selection. But promiscuity, infanticide, early betrothals, and female drudgery undermined these effects in "savage races." In the inevitable decline and ultimate extinction of the "melanin races" Darwin believed he could observe human evolution underway before his eyes.

Years ago I had a colleague who cheerfully described himself as a red diaper baby. That is, he was raised as a Marxist. In those days, the Soviet Union still seemed viable; to some, even invincible. But Stalinism was already widely rued on the left, and my colleague hoped to show how later abuses, in thinking and practice, had undercut Karl Marx's insights. But after following the twists and turns of dialectical materialism through their several generations and gyrations, he reached the painful conclusion that the first to betray those ideas was Marx himself. The discovery had an ironic aptness, since Marx had pressed the thought that a system will bear the seeds of its own destruction. I'm not sure how far that Hegelian aperçu on the logic of tragedy can be generalized. Perhaps it could profit from a Darwinian (or Deweyan?) revision and should read: Any system bears within itself the seeds of its own destruction, unless it can adapt. The liberal democracies once thought to be in their death throes did, in some measure, adapt. They abandoned colonialism and accepted new ideas – from public education, to trade unions, the welfare safety net, racial integration, and cultural diversity. But communism ossified, trapped in its totalitarian claims and the deep contradictions in the idea of the dictatorship of the proletariat. How could the state, through a single party, speak for all the people and faithfully take ownership of the means of production? But hubris undercut the promise of social democrats that alienation would disappear; and experience revealed that liberty and democracy could not survive and thrive when capital and the marketplace, executive, legislative, and judicial authority, the reins of the press, the doors to academe and the arts, the leadership of labour, and the apparatus of intelligence, defense, and security, were all tightly

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gripped in the same few hands. The Party was not the people, and the people, far from being united, was alienated from itself.

In a similar way, the first to betray Darwin's insights was Darwin himself, starting with his reliance on Lamarck. Even in the *Origin* he had used Lamarckian assumptions. But Kelvin's calculations, which seemed to show that the earth and sun could not be more than 100 million years old led Darwin to lean more heavily on the inheritance of acquired characteristics. True to his original conception of natural selection, Darwin disliked the idea of a life force that presses for progress.[1] Gregor Mendel, for one, saw that when he read the *Origin*. He hoped that his findings with sweet peas (published in Brno in 1866) might strengthen Lamarckian thinking, as a counterforce to the seeming godlessness of Darwinism. For if variants respond to need, then an organism and its environment might seem to collaborate in life's emergence. But Darwin saw nature with Malthusian eyes: A dynamic environment is indifferent to the interests of its denizens, and indeed largely hostile, restraining the expansion of living populations. Adaptation, for Darwin then, was not a response to need or an adjustment to environmental demands but a population effect, the result of culling by natural selection. Darwin, in fact, had labeled 'preposterous' the idea that 'mere external conditions' could elicit heritable variations – let alone helpful or *appropriate* ones.[2]

Yet he made room for Lamarck's approach under the rubric of 'use and disuse,' enshrining at the heart of his argument for evolution the idea that repeated exercise of a behavior or extended use of some limb or organ might make the organ bigger or more capable and the behavior not just habitual but heritable. Adaptive variations, responsive to the 'conditions of life,' he hoped, would speed the pace and steady the course of evolutionary change. In the absence of clear genetic understanding, that hope seemed innocent enough. But it stood in tension with Darwin's core assumption of an indifferent environment, and the tension set up cross-pressures that bent and bruised Darwinian theory. The bruises took on lurid colours when Darwin turned to racial variation and sexual dimorphism in his effort to explain human evolution.

Drawn to Lamarckian thinking early on, Darwin wrote in an essay of 1842: 'habits of life develop certain parts. Disuse atrophies.' Then, in the manuscript, he added: 'Most of the slight variations tend to

[1] Darwin, *The Origin of Species* (1876), ed. Paul H. Barrett and R. B. Freeman (London: William Pickering, 1886–1889), 16.182-4, 209, 366.

[2] Op. cit., *Origin* (1876), 16.2.

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become hereditary.' He crossed out the sentence but then added: 'it must I think be admitted that habits, whether congenital or acquired ~~sometimes~~ often become inherited.'[3] The mature Darwin continued to turn to adaptative variation to bolster the credibility of his thesis of modified descent. In the opening pages of the *Origin* he argued: 'Changed habits produce an inherited effect.'[4] He never abandoned the idea. Plants shifted to a new climate were his paradigm case. But he continued to hold that use or disuse of a limb or organ elicits heritable changes, seen in comparisons of the wing and leg bones of wild and domestic ducks and the enlarged udders of frequently milked cows and goats.[5] 'I think there can be no doubt,' he reasoned, 'that use in our domestic animals has strengthened and enlarged certain parts, and disuse diminished them; and that such modifications are inherited.'[6]

Darwin here underrated the impact of selective breeding that he had stressed in the case of pigeons in the opening chapter of the *Origin*. Similarly, he underestimated the *selective* impact of a new environment on naturalized plants.[7] And, of course, just as he knew nothing of genetics he was innocent of epigenetics, the dynamics of gene expression. He ascribed the droopy ears of many domestic animals to their being seldom alarmed.[8] Moles and cave dwelling fish, he reasoned, lost their sight through disuse.[9] Disuse cost the ostrich its ability to fly: 'We may believe that the progenitor of the

[3] H. Graham Cannon, *Lamarck and Modern Genetics* (Manchester: Manchester University Press, 1959), 35–36.

[4] Op. cit., *Origin* (1876), 16.8. Similarly in *The Descent of Man and Selection in Relation to Sex*, ed. Barrett and Freeman (London: Pickering, 1889) 21.57, Darwin asks not whether but to what extent evolution is ruled by 'the inherited effects of the increased use of certain parts'; cf. 21.65.

[5] Op. cit., *Origin* (1876), 16.8–9. For convenience we include in square brackets the corresponding pages in *The Origin of Species* (New York: Random House, 1993) [29].

[6] Op. cit., *Origin* (1876), 16.114 [175].

[7] Op. cit., *Origin* (1876), 16.118–20 [181–83], where Darwin calls it 'an obscure question' how much of the ability of a plant species to acclimatize to a new setting 'is due to mere habit, and how much to the natural selection of varieties having different innate constitutions.'

[8] Op. cit., *Origin* (1876), 16.9 [29]. Darwin, of course, was as innocent of the role of hormones in gene expression as he was of the existence of genes and chromosomes. But the experience of fox breeders in Siberia has shown that selective breeding can yield floppy ears and even docile tempers in a captive population. Use and disuse, however, are not the cause.

[9] Op. cit., *Origin* (1876), 16.116–7 [178–79].

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ostrich genus had habits like those of the bustard, and that as the size and weight of its body were increased during successive generations, its legs were used more, and its wings less, until they became incapable of flight.'[10] Darwin knew that ostriches count on their size and legs for defence but he did not see the loss of flight simply as an evolutionary trade off, flight exchanged for mass, stout legs, and land speed. He was all too ready to blur the line between natural selection and habits so inured as to become heritable.

Measuring longer legs in sailors than in soldiers and seeing larger hands and massier jaws in English labourers than in the gentry, he argued that occupationally induced changes in human proportions – length of limbs, thickness of neck, depth of instep, girth at waist, chest and hips – might well become hereditary over time, 'if the same habits of life were followed during many generations.' He makes the same case for mental aptitudes and skills like 'dexterity in seal catching.'[11] Even as he dismisses the idea that behaviours like pointing in hounds or tumbling in pigeons might stem from training, insisting on an initial instinct that breeders had improved, he turns to the inheritance of acquired characteristics to complement the effect: 'When the first tendency to point was once displayed, methodical selection and the inherited effects of compulsory training in each successive generation would soon complete the work.'[12] The stress here was on the word 'soon' – Lamarckian effects would speed evolution.

Darwin knew that evolution need not appeal to habit. Plants do not 'learn' patterns that then become hereditary; sterile worker bees cannot bequeath the outcomes of *their* experience to their offspring, or feed it back to their fertile progenitors, as Darwin reasoned rightly, contra Lamarck. His core brief was this: 'with animals, as with plants, any amount of modification may be effected by the accumulation of numerous, slight, spontaneous variations, which are in any way profitable, without exercise or habit having been brought into play.'[13] Natural selection *could* do its work alone, shaping a species not by challenging its members but by culling and fostering variants. But in the human case, as with the ostrich, Darwin fudged. He saw the tension between Lamarck's responsive variation and his own insistent denial of any innate tendency toward improvement. But he papered over his concessions by stressing that

[10] Op. cit., *Origin* (1876), 16.114 [175–76].
[11] Op. cit., *Descent*, 21.37.
[12] Op. cit., *Origin* (1876), 16.220.
[13] Op. cit., *Origin* (1876), 16.243.

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environmentally induced variations are adaptations, not improvements in some absolute sense.[14]

Darwin's reliance on Lamarck intensifies as he turns from general evolution to the human case, where he faced the fiercest objections from adversaries unwilling to situate human history (and destiny!) in a simian lineage. Even Wallace balked at the thought. Wilberforce played his trump card here. Anti-Darwinists have played the same card ever since. But even Galton, an avid Darwinian, saw formidable difficulties, worrying that civilization blunts the edge of natural selection. Homologies of structure, vestigial organs, parallels in development and in liabilities to disease, even analogies of gesture, grimace, sensibility and behavior might not clinch human case.[15] Tracing the origins of a single species, Darwin lost the advantage of appealing to the full taxonomic tree and the clusters along its branches. But most formidable among his critics was Kelvin, robed in all the majesty of physics, curtailing the time in which evolution must do its work.

Darwin, as Gould remarks, was haunted by Kelvin's calculations.[16] In a letter to Wallace he called Lord Kelvin an 'odious spectre.'[17] Sexual selection might be the spur that evolution seemed to need. But how would it apply? Racial variation was readily drafted as a surrogate for comparative anatomy and ethology, helping plot the leading and trailing edges of evolutionary change. But sexual selection could prove critical, to single out favoured types where natural selection seemed too slow or indecisive. Projecting stereotypic moral and mental differences onto the human sexes and races, Darwin made

[14] Op. cit., *Origin* (1876), 16.182–4 [272–75].

[15] For Darwin's argument from facial expression, see *The Expression of the Emotions in Man and Animals* (London: Murray, 1872), supplementing the claims of *The Descent of Man*, published the previous year.

[16] Kelvin had thrown all his authority as the master of the physics of heat into showing that neither the earth nor the sun could be old enough to give evolution the time needed for natural selection to do its work. It was not until fusion was understood to be the source of the sun's energy and radioactive decay within the earth's core was understood to be the source of our planet's residual heat that the age parameters of the solar system expanded broadly enough to allow the time span evolution needed. One visible effect of the impact of Kelvin's challenge on Darwin's work was Darwin's omission of a time scale from his graphic representation of the Tree of Life in Chapter 4 of the *Origin*. For Kelvin's challenge and its resolution, see Goodman, *Creation and Evolution* (London and New York: Routledge, 2010), 102–03.

[17] Gould, *Structure*, 69.

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'savages' and women landmarks of the evolutionary past. By blurring the line between habit and instinct, allowing preferences, character traits, cultural and biological differences to slide imperceptibly into one another, he pursued plausibility not for the stereotypes themselves but for his evolutionary thesis.

Clearly, only heritable variants matter for evolution,[18] but Darwin had long assumed that acquired tastes and preferences, attitudes, virtues and vices, could *become* heritable, and having been instinctual could re-emerge as voluntary choices and cultural conventions. With one eye cocked on the range of variations possible in a natural population and the other on the rate of adaptation that would bring all living species to their present state, he urged: 'Changed conditions of life are of the highest importance in causing variability, both by acting directly on the organisation, and indirectly by affecting the reproductive system.'[19]

Darwin saw that mere crosses are insufficient to explain the variation seen among domestic breeds of animals and plants,[20] and he was hardly ready to ascribe variation simply to sexual reproduction.[21] Yet natural variation was critical to evolution. Darwin laughed at naturalists who argued in a circle by declaring that important parts never vary within a species but then labeling clear variants unimportant.[22] He knew that reproduction does not just replicate the parental type. But mere random variations looked puny alongside those he could presume to be induced by 'the conditions of life.' Besides, weren't more 'variations and monstrosities' observed in domestic species than in the wild?[23] Still cautious in *The Descent of Man*, he urged:

> It cannot be denied that changed conditions produce some effect.... But I have failed to obtain clear evidence in favour of this conclusion.... There can, however, be no doubt that changed conditions induce an almost indefinite amount of fluctuating variability, by which the whole organisation is rendered in some degree plastic.[24]

[18] Op. cit., *Origin* (1876), 16.10 [31].
[19] Op. cit., *Origin* (1876), 16.32 [63].
[20] Op. cit., *Origin* (1876), 16.15 [39].
[21] Op. cit., *Origin* (1876), 16.8 [28].
[22] Op. cit., *Origin* (1876), 16.36 [68].
[23] Op. cit., *Origin* (1876), 16.112 [172]; in rounding out his argument, Darwin spoke of variability under conditions of domestication as 'caused, or at least excited, by changed conditions of life, but often in so obscure a manner, that we are tempted to consider the variation as spontaneous' *Origin* (1876), 16.426.
[24] Op. cit., *Descent*, 21.34–5.

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Lack of evidence, then, did not prevent pressing the idea. Darwin cites the atrophy of idle muscles and the compensatory enlargement of one kidney after loss of the other, to show that use and disuse can prompt organ growth or loss. He speculates that such changes would probably become hereditary over time.[25] So would the short-sightedness of watchmakers and engravers and the longsightedness of sailors, 'and especially savages.'[26]

The weakness Darwin was trying to offset by leaning on Lamarck was his admitted ignorance of the mechanisms of heredity. Casting about for a hypothesis that would allow inheritance of acquired traits, he linked his posited genetic entities, the 'gemmules' to the ancient idea of pangenesis: Offspring derive matter from all parts of the parental organism. If so, wouldn't somatic and even behavioural traits be passed on to offspring.[27] As the facts of genetics came to light, it grew ever clearer how far off target that stab in the dark had struck. By the time he prepared the second edition of the *Origin* Darwin knew that August Weismann had shown that 'the nature of the organism' was 'much more important' than 'conditions of life' in determining the nature and extent of variation within domestic species.[28] But enlisting Weismann as a friendly witness, Darwin wrote, 'It seems clear that organic beings must be exposed during several generations to new conditions to cause any great amount of variation and that, when the organisation has once begun to vary, it generally continues for many generations.'[29] It was a year after Darwin's death that Weismann, in 1883, reported that he had cut off the tails of generations of mice, and found the tails of the pups unimpaired. Biological inheritance, as Weismann came to see, depends on the germplasm, specifically, the newly discovered chromosomes, as Weismann first proposed in 1884.

The rediscovery of Mendel's work in 1900, the birth of modern genetics, and the rapid rise of cytogenetics and population biology

[25] Op. cit., *Descent*, 21.36–7; cf. 21.92.
[26] Op. cit., *Descent*, 21.37–8.
[27] Op. cit., *Descent*, 22.237–9. Darwin included a full chapter (27) on what he called 'the provisional hypothesis of pangenesis' in his 1875 work *Variations of Animals and Plants under Domestication*: 'I venture to advance the hypothesis of Pangenesis, which implies that every separate part of the whole organization reproduces itself. So that ovules, spermatozoa, and pollen grains, the fertilized egg or seed, as well as buds include and consist of a multitude of germs thrown off from each separate part or unit.' ed. Barrett and Freeman, 20.303.
[28] Op. cit., *Origin* (1876) 16.6.
[29] Op. cit., *Origin* (1876) 16.5.

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pushed Lamarckian evolution over the edge of credibility. We are now confident that our genetic heritage reaches us through the ova and sperm contributed by our parents, not from all parts of their bodies. The genes that shape our bodies and govern their operations are copied (never perfectly) from the genes that once laid out the corresponding parts and processes in our mothers and fathers. So the build up of muscle mass or memory in a parent, the loss of a limb or gain of a suntan are not heritable traits. Generations of forebears might shave their beards, tattoo their biceps, or circumcise their sons. But those actions have no inherited effect. Heritable effects must be passed on through the gametes. Our scars and cicatrices are our own. Yet, in all good faith, Darwin was able to repeat reports that Muslims of the Celebes are born with shortened foreskins.[30] His reliance on Lamarck was not essential. He might have forged ahead with natural selection as his prime mover. But recognizing human evolution as his most contested case, and zealous to make that case, he leaned more heavily on Lamarck in *The Descent of Man* than he had in the *Origin*.

Darwin never believed that giraffes got long necks by generations of stretching for higher leaves. But the idea that environmental challenges elicit heritable responses became critical in his mind to the case for human evolution. It was in the troubling amalgam he forged of Lamarckian thinking with his own fruitful reflections about sexual selection that Darwin's heresy turned ugly. Compromising his distaste for what he saw as a vulgar confusion of evolution with progress, he painted a picture of 'the lower types of mankind'[31] as surviving remnants of humanity's primate ancestors. 'Savages' were the stark sentinels left behind on the evolutionary path.

Darwin had no love for the heated debates of his time between monogenists, who defended a single human ancestry, and polygenists, who flattered their fancies of racial superiority with notions that the various human races were sprung from different species.[32]

[30] David Joravsky, 'Inheritance of Acquired Characteristics,' *Dictionary of the History of Ideas*, ed., Philip Wiener (New York: Scribners, 1973), 2.617–18. Darwin cited the report in the second (1875) edition of *The Variation of Animals and Plants under Domestication*.

[31] Op. cit., *Descent*, ed. Barrett and Freeman, 21.40.

[32] Isaac La Peyrère introduced polygenism in an effort to reconcile biblical with other chronologies, and to explain the human presence in the New World, by positing human lines not descended from Adam. His bold Prae-Adamite hypothesis was very much the stuff of the early Enlightenment. See Richard Popkin, *Isaac La Peyrère - 1596–1676* (Leiden: Brill, 1987). The idea was seized upon by the racial theorists of the Smithsonian movement

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Such questions, he dismissed as purely semantical. Naturalists who held fast to special creation would have to decide what they meant by a species.[33] Evolutionists would recognize a single source for all races – 'whether or not they may think fit to designate the races as distinct species.'[34] They would see how hard it is to draw fixed lines between species, 'so arbitrary is the term.'[35] For the idea of evolution blurs the edges of species and renders fuzzy the distinction between species and varieties. To Darwin it seemed 'almost a matter of indifference whether the so called races of man are thus designated, or are ranked as species or sub-species.' That last term, meant to split the difference, may have been 'the most appropriate,' Darwin wrote. His attempt to mediate between the warring camps may have been influenced by the fact that Ernst Haeckel, Darwin's earnest follower on the continent, had featured images of the 'species' of men on the frontispiece of his *Natural History of Creation* (1868), aiming to illustrate mankind's stepwise descent.[36] But as evolutionary theory took hold, Darwin predicted, 'the dispute between the monogenists and the polygenists will die a silent and unobserved death.'[37]

Regrettably, the future did not prove so rosy. Words weighed too heavily for those (including scientists) who expected biology to validate their sense of radical racial differences and to warrant their horror at 'miscegenation,' or as the baser demagogues called it, racial pollution. Despite his desire to shift the focus from racial polemics to his preferred theme, divergence along a continuum – and in part

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in the run-up to the American Civil War. It survives among some twentieth century racialist anthropologists: E. A. Hooton, *Up from the Ape* (New York: Macmillan, 1954) and Carleton Coon, *The Living Races of Man* (New York: Knopf, 1965). See M. J. Goodman and L. E. Goodman, ' 'Particularly amongst the Sunburnt Nations…' The Persistence of Stereotypes of Race in Bio-Science,' *International Journal of Group Tensions* **19** (1989), 221–43, 365–84. David L. Browman and Stephen Williams in *Anthropology at Harvard: A Biographical History, 1790–1940* (Cambridge, MA: Peabody Museum Press, 2013) mentions but does not stress the prominence of polygenism in the work of Agassiz, Hooton, and Coon.

[33] Op. cit. *Descent*, 21.182.

[34] Op. cit. *Descent*, 21.182; cf. 21.151.

[35] Op. cit. *Descent*, 21.183 [1.230].

[36] See Robert J. Richards, *The Tragic Sense of Life: Ernst Haeckel and the Struggle over Evolutionary Thought* (Chicago: University of Chicago Press, 2008).

[37] Op. cit. *Descent*, 21.187; cf. 21.181–2 [1.235; cf. 1.227–28].

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because of that desire – Darwin himself contributed to the polygenists' agenda. He made racial differences critical to his evolutionary narrative in *The Descent of Man*,[38] asking at the outset 'whether man, like so many other animals, has given rise to varieties and sub-races, differing but slightly from each other, or to races differing so much that they must be classed as doubtful species.' By the book's end he is ready to answer that question: The human races are 'more appropriately called sub-species,' being, 'so distinct that, if specimens had been brought to a naturalist without any further information, they would undoubtedly have been considered by him as good and true species.'[39]

The key question for Darwin from the outset was not taxonomy but futurity: 'Do the races or species of men, whichever term may be applied, encroach on and replace each other, so that some finally become extinct?' He answers freely in the affirmative,[40] and finds the dreadful process actively at work: 'The partial and complete extinction of many races and sub-races of man are historically known events. Humboldt saw in South America a parrot which was the sole living creature that could speak the language of a lost tribe.' Such losses gain evolutionary significance through their scale: 'At the present day civilised nations are everywhere supplanting barbarous nations, except where climate opposes a deadly barrier.'[41]

Darwin assumes that there are higher and lower races. He judges the sense of smell somewhat rudimentary in humans, since its primal functions in hunting and in sensing danger are now less critical than they once were. Yet the olfactory sense, he opines, 'is generally more highly developed' in 'savages' than in 'the civilised races' – adding, as if to compensate for finding any refined sensibility in 'savages,' that the presumed sensitivity does not prevent 'the Esquimaux from sleeping in the most fetid atmosphere, nor many savages from eating half-putrid meat.'[42] Animals, clearly, use odour to find food and warn of enemies. Savages, being closer to the animals, preserve a keener scent. They are the stepping stone Darwin seeks to the more fully evolved human case.

Similarly, 'It appears as if the posterior molar or wisdom-teeth were tending to become rudimentary in the more civilized races of

[38] Op. cit. *Descent*, 21.4.
[39] Op. cit. *Descent*, 21.9; cf. 22.633.
[40] Op. cit. *Descent*, 21.9–10. He discusses the pros and cons at length at 21.173–87.
[41] Op. cit. *Descent*, 21.133.
[42] Op. cit. *Descent*, 21.21–2.

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man.' Dentists report how liable these teeth are to decay. 'In the Melanin races, on the other hand, the wisdom-teeth are usually furnished with three separate fangs and are generally sound.'[43] Diet might help explain that. But Darwin readily makes non-whites biological primitives. Hence the loaded language: The 'savages' teeth have not cusps or ridges but 'fangs.' The 'ancient races,' he writes, 'more frequently present structures which resemble those of the lower animals than do the modern races.... One chief cause seems to be that ancient races stand somewhat nearer than modern races in the long line of descent to their remote animal-like progenitors.'[44]

As evidence of shared descent, Darwin cites the vulnerability of humans and other mammals to like diseases. But the lice that torment 'savages' die on English sailors' bodies![45] So Darwin finds continuity between animals and humans, but discontinuity among humans: Non-whites become the dross of evolution, primitives in mind and body. Why else are wisdom teeth still strong and sound and well developed in 'the Melanin races'? Are they not a vestige of a crude vegetarian diet long disused by 'civilised men habitually feeding on soft, cooked food'?[46] So do 'barbarians' not cook their food – as if unknowing how to build a fire?

'Disuse,' Darwin argues, reduced the mass and muscle of the human jaw as our ancestors 'gradually became erect,' more reliant on hands and arms, tools and weapons, and less on the large interlocking canines of their forebears. Yet Darwin sees enlarged jaws in workmen still, and the rudiments of larger canines in the smiles of the 'melanin races,' their expressive function as a warning, betrayed even now in the sneers of his detractors.[47]

Seeking a model for the origins of language, Darwin proposes imitation as an intuitive solution: Human speech is rooted in 'the strong tendency in our nearest allies, the monkeys, in microcephalous idiots, and in the barbarous races of mankind, to imitate whatever they

[43] Op. cit. *Descent*, 21.24.
[44] Op. cit. *Descent*, 21.26.
[45] Op. cit. *Descent*, 21.175–6.
[46] Op. cit. *Descent*, 21.24.
[47] Op. cit. *Descent*, 21.76–7; 21.166; 22.585–6. 'He who rejects with scorn the belief that the shape of his own canines, and their occasional great development in other men, are due to our early progenitors having been provided with these formidable weapons will probably reveal by sneering the line of his descent. For though he no longer intends, nor has the power, to use these teeth as weapons, he will unconsciously retract his 'snarling muscles' (thus named by Sir C. Bell) so as to expose them ready for action, like a dog prepared to fight.' *Descent*, 21.45 [1.127].

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hear.'[48] A telling grouping. 'Apes are much given to imitation, as are the lowest savages.'[49] Again with moral traits: 'Even dogs appreciate encouragement, praise and blame. The rudest savages feel the sentiment of glory…'[50] The pairing recurs when Darwin notes that the 'lower types of mankind,' like small boys and microcephalous idiots are 'curiously fond of climbing up furniture or trees.'[51] In 'some savages,' he reports, 'the foot has not altogether lost its prehensile power, as shewn by their manner of climbing trees.'[52] Darwin cites 'the condition of the great toe in the foetus' to confirm that 'our progenitors were no doubt arboreal in their habits.' The foetus would reveal the primitive state, when the organism had not yet faced the challenges of bipedalism on the ground. But the foetal toe points too toward the non-white races: They are anatomically juvenile, primitive, less evolved than whites.[53]

Even beyond boyhood, Darwin would doubtless have climbed trees with the best of them, had his daily food depended on it. But his aim was not to denigrate the 'barbarous races.' Their mental and moral weakness is assumed, not an object of proof.[54] The aim, as with the instincts of ants, and bees, and cuckoos cited in the *Origin*, is to sketch an evolutionary staircase: in the case of language, from mechanical apery and simian signal calls to the babble of the microcephalous, the seeming chatter of mere 'savages,' and the refinement of races that could produce a Wordsworth or Milton – or

[48] Op. cit. *Descent*, 21.91.
[49] Op. cit. *Descent*, 21.134.
[50] Op. cit. *Descent*, 21.136.
[51] Op. cit. *Descent*, 21.40.
[52] Op. cit. *Descent*, 21.56.
[53] Op. cit. *Descent*, 21.165–6.
[54] Having 'no doubt that the various races, when carefully compared and measured, differ much from each other as in the texture of the hair, the relative proportions of all parts of the body, the capacity of the lungs, the form and capacity of the skull, and even in the convolutions of the brain,' Darwin argues: 'The races differ also in constitution, in acclimatization and in liability to certain diseases. Their mental characteristics are likewise very distinct; chiefly as it would appear in their emotional, but partly in their intellectual faculties. Every one who has had the opportunity of comparison, must have been struck with the contrast between the taciturn, even morose, aborigines of S. America and the light-hearted, talkative negroes. There is a nearly similar contrast between the Malays and the Papuans, who live under the same physical conditions, and are separated from each other only by a narrow space of sea.' *Descent*, 21.173–74.

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harbor a Machiavelli or Metternich, we might add, or misunderstand a Socrates or Leonardo.

Given that Darwin's 'savages' are primitives, it becomes a fair question for him to ask how his readers and their kin advanced beyond that state. His instrument in answering that question is a concertina: He anthropomorphizes animals, finding traits like loyalty and devotion, but animalizes 'savages.' Women, children, and 'the melanin races' are incomplete versions of the white male adults of his evolutionary norm.

But that is not enough. In search of a mechanism to speed the pace of evolution, Darwin sexualizes his racial comparisons, projecting climate onto mood and mood into personality, reporting as if it were a scientific finding that 'the races which inhabit tropical countries' mature more rapidly than those of the temperate zones, and espousing the ancient prejudice that deems a cool climate helpful, even necessary to cultural advance.[55]

All Darwin's skills in reasoning and observation are put in service to the protection – and projection – of his theory. Wallace had argued that the emergence of social and mental strengths in our ancestors would blunt the effects of natural selection – as if hunting or farming had rendered disease, say, irrelevant, and the rise of cities had lessened and not heightened the toll of epidemics, or made intelligence less useful. Galton compounded the difficulty with his worry that civilized amenities like capital and vaccination, care for the poor, and provision for the sick and helpless continue to blunt the edge of natural selection.[56]

Darwin acknowledged the cosseting Galton feared. But he found countervailing trends: the rigours of suffered by the poor did aid evolution. So did suicide among the melancholic, and the 'bloody end' so often reserved for 'violent and quarrelsome men.' The effects of civilization, overall, Darwin argued, had not gravely sapped human vitality – as witness the vigour of European travelers, whose intelligence brought with it no loss of strength or health and whose luxuries had not enervated their stock. A few 'useless drones' were tolerable, he reasoned, given the larger contributions of a leisured class to civilizational advance. The profligate, after all, had few children – despite the occasional 'black sheep,' throwbacks, as Darwin saw it, to primitive types. True, the poor must be helped, but judicious policies (like those advanced by Galton) would stem the

[55] Op. cit. *Descent*, 21.2 and 21.138. Cf. op cit. Goodman and Goodman, 'Especially Amongst the Sunburnt Nations…'

[56] Op. cit. *Descent*, 21.133, 138–9.

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breeding of 'the weak in mind or body' and allow higher types to continue to prevail. Yes, the Greeks were 'retrograde' today, but the mind of ancient Greece and the empire of ancient Rome were preludes to history's real story: 'the great stream of Anglo-Saxon emigration to the west.'[57]

To answer Wallace Darwin argued that group selection could explain the emergence of strengths like sagacity, self-sacrifice, and courage.[58] But he found the key to the evolution of such strengths in sexual selection, first in marking the boundaries between groups and then by its effects not just on bodily form but on the mental and moral character of human populations. Darwin had already invoked sexual selection in the *Origin*, to explain the obvious burden of some pronounced sexual dimorphisms and complex courtship behaviors. But when he turned to the human case, he found sexual selection 'indispensable,'[59] to his theory, 'in differentiating the races.'[60] So, as *The Descent of Man and Selection in Relation to Sex*, drives toward its conclusion, it grows clear why he strapped together under that single title what at first blush might look like two separate books.

Having conjured with Lamarck to speed the pace of adaptation and explain how heritable variations track environmental challenges, Darwin now rested his case for human evolution on the familiar fantasy that racial differences set an erotic barrier between populations: 'The taste for the beautiful, at least as far as female beauty is concerned… differs widely in the different races of man.'[61] Human beings bearing diverse racial features might indeed be interfertile and thus classifiable in the same species. Cast together by the conditions of 'domestication,' they might interbreed freely, as in the

[57] Op. cit. *Descent*, 21.138–47.

[58] Op. cit. *Descent*, 21.137.

[59] Op. cit. *Descent*, 21.5. Despite the evidence of homology, embryology, and vestigial organs, Darwin had felt hampered by the relative lack of comparative evidence when discussing the evolution of a single species (*Descent*, 21.3). Richard Prum, *The Evolution of Beauty: How Darwin's Forgotten Theory of Mate Choice Shapes the Animal World – and Us* (New York: Doubleday, 2017) documents the birth of Darwin's theory here. But sexual selection is hardly forgotten by biologists. See Eveleen Richards, *Darwin and the Making of Sexual Selection* (Chicago: University of Chicago Press, 2017) and the serious study by Helena Cronin, *The Ant and the Peacock Altruism and Sexual Selection from Darwin to Today* (Cambridge: Cambridge University Press, 1991).

[60] Op. cit. *Descent*, 21.5.

[61] Op. cit. *Descent*, 21.97.

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'immense mongrel population of Brazil.'[62] But the races are isolated as breeding populations nonetheless, the argument runs, not by sterility but by distaste. As Darwin wrote in an early notebook, even as he was working out his concept of evolution: Isolation might initiate the separation of species, but 'repugnance to intermarriage – settles it.'[63] Darwin's Lamarckian slide allows him to make the putative diffidence not just engrained but hereditary.[64]

The argument: that the diverse colourings and anatomical features of the races promote their genetic segregation. The hypothesis is modestly introduced:

> If it can be shown that the men of different races prefer women having various characteristics, or conversely with the women, we have then to enquire whether such choice, continued during many generations, would produce any sensible effect on the race, either on one sex or both....[65]

Darwin does not leave that an open question. His answer is that sexual selection was the chief cause in carving out the races of mankind and thereby shaping all that is most distinctively human in our species.[66] Hence the centrality he assigns to ornament – cosmetics, body painting, dress and deformation. Mingling and muddling cultural and congenital differences, matters of taste with matters of birth – scarifications, skull flattening, lip piercing, bone bending, tooth filing, 'the frizzled mop' and 'flattened head' of native and exotic peoples[67] – he labors to show that divergent preferences can yield divergent body forms and thus produce divergent races, the raw materials of evolutionary change:

> We have seen that with the lowest savages the people of each tribe admire their own characteristic qualities – the shape of the head and face, the squareness of the cheek-bones, the prominence or

[62] Op. cit. *Descent*, 21.179.

[63] Darwin, Notebook B, p. 24, quoted in Frank J. Sulloway, 'Geographic Isolation in Darwin's Thinking: The Vicissitudes of a Crucial Idea,' *Studies in the History of Biology* **3** (1979), 23. Cf. op. cit. *Origin*, 16.84, where speciation is ascribed to such behavioural processes in incipient species, 'from haunting different stations, from breeding at slightly different seasons, or from the individuals of each variety pairing together.'

[64] Op. cit. *Descent*, 21.71–2.

[65] Op. cit. *Descent*, 22.596.

[66] Op. cit. *Descent*, 22.630; cf. 22.218.

[67] Op. cit. *Descent*, 22.596–600.

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> depression of the nose, the color of the skin, the length of the hair on the head, the absence of hair on the face and body, or the presence of a great beard, and so forth. Hence, these and other such points could hardly fail to have been slowly and gradually exaggerated from the more powerful and able men in each tribe, who would succeed in rearing the largest number of offspring, having selected during many generations as their wives the most strongly characterized and therefor most attractive women.[68]

If so, Darwin is ready to conclude: 'of all the causes which have led to the differences in external appearance between the races of man, and to a certain extent between man and the lower animals, sexual selection has been by far the most efficient.'[69] Natural selection is here displaced by sexual selection, and Wallace's concern is addressed, that the rise of culture has dulled the knife of natural selection, making it ineffectual in explaining the rise of man.[70]

That fads and fashions of dress and ornament may shine and fade far too swiftly to shift the course of evolution is ignored. So is the fact that artificial interventions would not whet but blunt the evolutionary edge of sexual selection. For if tribal women can enlarge their lips or extend their necks and tribal men can lengthen their earlobes or be circumcised, even the putative inheritance of such modifications will have slight evolutionary impact. In a society where beards or heads are shaved, faces tattooed, hair dyed, feet bound – or noses diminished and breasts enlarged – the artificial marks of beauty, the use of clothing, cosmetics, and all the tricks of male and female glamour can heighten the romance of erotic choice *without corresponding impact on the gene pool*. Nor would the allure of the exotic allow sexual tastes to channelize and localize any potentially attractive traits in a genetic isolate. Genetic markers are more likely a product than a cause of inbreeding; and, as with the Hutterites and other relatively consanguineous populations, homozygosity makes inbred traits more likely hazardous than seductive. But Darwin's inference was that races diverge because sexual selection promotes inbreeding: It long ago segregated 'our' forebears from their more savage and simian ancestry.

Darwin ascribes male courage and pugnacity among quadrupeds partly to sexual selection and partly to 'the inherited effects of use.'[71] He asks, 'may we not believe that the frequent use of the

[68] Op. cit. *Descent*, 22.630.
[69] Op. cit. *Descent*, 22.630.
[70] Op. cit. *Descent*, Chapter 5.
[71] Op. cit. *Descent*, 22.537.

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voice, under the strong excitement of love, jealousy, and rage, continued during many generations, may at last have produced an inherited effect on the vocal organs of the stag, as well as other male animals?' This he calls 'the most probable view,' given 'the present state of knowledge.'[72]

How did sexual selection become 'the most efficient' differentiator of the human races?

> Let us suppose the members of a tribe, in which some form of marriage was practiced, to spread over an unoccupied continent; they would soon split up into distinct hordes, which would be separated from each other by various barriers, and still more effectually by the incessant wars between all barbarous nations. The hordes would thus be exposed to slightly different conditions and habits of life, and would sooner or later come to differ in some small degree. As soon as this occurred, each isolated tribe would form for itself a slightly different standard of beauty; and then unconscious selection would come into action through the more powerful and leading savages preferring certain women to others. Thus the differences between the tribes, at first very slight, would gradually and inevitably be increased to a greater and greater degree.[73]

No word here about battles for the women of other tribes. No reminder that valiant warriors might die young. Darwin drops into the background the role of females' choices, so prominent in the mammalian mating systems he knew well. He assumes that first choice among early maturing females would go to dominant males, and that such choosing would be adaptive. But the same effect, he reasons, might not cross the boundaries he posits as set by differential standards of beauty.

Darwin cannot exclude inter-racial crosses or confidently pronounce persons of mixed race unviable or subfertile. But he does cite Broca, 'a cautious and philosophical observer,' on the diminished fertility and 'vitality' of some biracial crosses.[74] And, since humans are surely 'domesticated,' he reasons, 'it may be justly urged that the perfect fertility of the intercrossed races of man, if established, would not absolutely preclude us from ranking them as distinct species'![75] Darwin will not deny the unitary origins of the human

[72] Op. cit. *Descent*, 22.548.
[73] Op. cit. *Descent*, 22.620–1.
[74] Op. cit. *Descent*, 21.176–9.
[75] Op. cit. *Descent*, 21.178–9.

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races. That thought, of course, is central to his larger thesis. But, as with hybrids in the *Origin*, he seeks a continuum of tighter and looser affinities. The races retain their common origin – but not a common destiny. As Darwin reads the record, the races have diverged and are diverging even in his own time of rapid and massive population movements. Interfertility is not the critical issue for him. Extinction is.

Darwin sees racial divergence as evolution's leading edge, and he's convinced that the human races do diverge, most tellingly, in mentality, by a split he labels 'so notorious that not a word need here be said.'[76] What an abyss between this unargued premise and the biblical story that announces mankind's existential worth in its vision of primordial human unity! What a contrast between the blessing/command *be fruitful and multiply*, proclaimed for every living thing (Genesis 1:22, 8:17), and specifically repeated for humankind (Genesis 1:28, 9:1), and the nasty ethnic comparisons of W. R. Greg that Darwin quotes with approval:

> The careless, squalid unaspiring Irishman multiplies like rabbits: the frugal, foreseeing, self-respecting, ambitious Scot, stern in his morality, spiritual in his faith, sagacious and disciplined in his intelligence, passes his best years in struggle and in celibacy, marries late and leaves few behind him.[77]

Blurring the line between learned skills, moral qualities, and inherited traits, Darwin assumes that human reasoning capabilities were 'strengthened by use,' over the long course of evolution: In large part sexual selection made the human mind, not through the romantic avenue of elective affinities but through 'the law of battle':[78] Human moral and mental strengths were forged in much the way that male chests grew broader and arms stouter, as 'the half-human male progenitors of man, and men in a savage state' struggled, over many generations, 'for the possession of females.' The early hominids gained not just in bodily strength but, crucially, in 'courage, perseverance, and determined energy.' The ability 'to avoid enemies, or

[76] Op. cit. *Descent*, 21.31.

[77] W. R. Greg, quoted in op. cit. *Descent*, 21.143. Darwin's prefatory comment to this citation: 'the reckless, degraded, and often vicious members of society, tend to increase at a quicker rate than the provident and generally virtuous members.' Darwin's Lamarckian penchant allows him to make vice an ethnic trait, just as the word squalor allows him to assimilate poverty to mental and moral weakness.

[78] Op. cit. *Descent*, 584–5.

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to attack them with success, to capture wild animals, and to invent and fashion weapons requires the aid of higher mental faculties, namely observation, reason, invention, or imagination' – qualities that grew in response to constant challenge, called for in combat and the hunt, then 'strengthened by use'[79] – and breeding dominance.

Darwin's prehistory here, his just-so story, no longer explains only the birth of a new species. It is meant to trace the roots of a particular type of martial (and marital) triumph to moral and mental victories in an immemorial past. Evidence softens into sentiment as the story unfolds, and dispassion hardens into vainglory. Physical strength, mental prowess, and mating potency merge, and a celebratory air mingles with explanation, as the distinctions dissolve between heritable traits and the landmarks of human moral and intellectual attainments. But savages, like women and children, somehow missed the critical moments of struggle. Spared evolution's gravest trials, they also missed its highest prizes, the skills and virtues that make us fully human.[80]

The mythic turn is not adventitious here but constitutive. Having sped the pace of evolution, reasoning that island birds learn to fear intruders, Darwin can now put into play, the premise that 'some intelligent actions… may become converted into instincts and are inherited.'[81] The ebb and flow of learned and heritable traits will wash over the human case and explain the birth of conscience:

> Looking to future generations there is no cause to fear that the social instincts will grow weaker, and we may expect that virtuous habits will grow stronger, becoming perhaps fixed by inheritance. In this case the struggle between our higher and lower impulses will be less severe, and virtue will be triumphant.[82]

Darwin ignores here the moral vacuity of impulses that have become hereditary and automatic. Nor does he reckon with the inconsistency between appeals to objective standards of moral progress and the relativism implicit in strict ideas of adaptation. He still holds that any value system must reflect its situation. But he needs to wave the

[79] Op. cit. *Descent*, 22.587–8.

[80] Cf. John Haller, *Outcasts from Evolution* (Chicago: University of Chicago Press, 1971).

[81] Op. cit. *Descent*, 21.71; cf. 21.120: 'It is possible, or, as we shall hereafter see, even probable, that the habit of self-command may, like other habits, be inherited.'

[82] Op. cit. *Descent*, 21.129–30.

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banner of progress to keep before his readers' eyes the vista of the long road humanity has traversed, and to keep constantly in their minds how little it is his intention to demean human dignity or deny the heights to which humankind has climbed. The power of his theory rests in its capacity to survey those heights and explain how they were scaled.

In the Victorian anthropology that paints the backdrop to Darwin's diorama, tribesmen do not clearly and crisply differentiate personal identities and interests from those of their group. But the Victorian ideals of conscience and duty demand that moral agents sharply discriminate self-interest from the common good, and then, optimally, rise beyond both, at the call of principle, to a suitably rational, yet selfless choice. Beyond these Victorian premises stands another, later made canonical by Freud: Only the male ever does fully disengage from the familial/social matrix.

These notions are biases, not biological findings. Feminism and better anthropology have done much if not to dislodge them then at least to make them visible and contested – although romantics readily transmute the notion that women lack a fully developed conscience or that tribal peoples cannot differentiate self from other, into friendlier cliches about women's innate selflessness and sociality, or the inherent bonds of tribal persons to one another and to nature.

Darwin balks at reducing all thought processes to instincts. He is wary lest reduction erase what evolution would explain: If intelligence is mere instinct, nothing is gained by showing how reason could emerge from instinct. Darwin agrees with what many of his readers would say: that 'the moral sense perhaps affords the best and highest distinction between man and lower animals.'[83] But for just that reason, he needs to map an evolutionary origin for morality.

Intellect, he reasons, able to assay the remote consequences of our actions, can transform instincts into conscience.[84] Social instincts like those of herd or pack animals, he reasons, were readily sublimated or transmuted in the alembic of language, by the touchstone of intellect, into genuine moral ideas. Lamarck's alchemy licenses the shift: Moral values became a part of our biological heritage. Praise and blame, acceptance and rejection, were not just internalized but made hereditary in the deep evolutionary past. Language and intelligence made them conscious and voluntary. Long usage will make them heritable, even instinctual once again.

[83] Op cit. *Descent*, 21.131.
[84] Op cit. *Descent*, 21.118.

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Where philosophers like Kant had labored to distinguish questions about the origin of a concept from those about what justifies its use,[85] Darwin pursues origins, even quoting Kant's apostrophe to duty: 'Whence thy original?' Kant answers that question in terms of autonomy and the irreducibility of the moral ideal. A finite, rational being must legislate for itself a moral law expressive of the dignity of the person as a moral agent. But Darwin construes Kant's rhetorical question historically and answers it by projecting a temporal progression from social instinct and pack loyalty to shame and sensitivity, to praise and blame, love of honour and fear of infamy, and finally the birth of conscience, remorse, and 'self-regarding virtues' like temperance and chastity and an ever broadening net of sympathies and sensibilities.[86]

Once atop this Victorian summit, Darwin faces two pathways down again: to persist in the view that real progress has been made, or to relativize even the idea of virtue and stand fast with the notion that whatever traits nature has selected were adaptive, even the 'squalid' fecundity of the Irish. Neither choice is welcome. If Darwin surrenders the idea of progress, he undercuts human distinctiveness and gives colour to the charge that the theory of evolution makes animals of us all. But unless he relativizes human values he abandons his thesis that there is no progress beyond adaptiveness. Caught on the horns of this dilemma, Darwin fudges, not abandoning the idea of progress but insisting that progress is not inevitable, and that even the idea is not universally shared.[87] What many of his heirs take up from his legacy is a less nuanced posture, firmly gripping the relativist horn of the dilemma and reducing all moral notions to their putative evolutionary roots, even if that means dissolving personal responsibility just where Darwin thought he had found its source.

Darwin's focus on intelligence, even when he spoke of birds, was altogether purposeful. He cites 'our great philosopher' Herbert Spencer's supposition that moral ideas are the 'organised and consolidated' experiences of utility, gleaned, accumulated, and transmitted by past generations.[88] But even as he cites Spencer's claim that

[85] For the incoherence of the idea of heritable (im)morality, see Immanuel Kant, *Religion Within the Limits of Reason Alone,* trans. T. M. Greene and H. H. Hudson (New York: Harper & Row, 1960), 16–21, cf. 22–49.

[86] Op cit. *Descent*, 21.135–7.

[87] Op cit. *Descent*, 21.138, 145–7.

[88] Op cit. *Descent*, 21.127–8.

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intelligence arose from the need to select amidst a welter of reflexes and instincts, he rehearses Cuvier's thesis 'that instinct and intelligence stand in an inverse ratio to each other.'[89] Reason and instinct are rivals, but also product and precursor. Darwin dodges the paradox latent in that genealogy with a sharply mythic turn. He turns, that is, to narrative strategies of explanation – a predictable move at the boundaries of a change of phase, here between nature and culture, matter and mind. The myth he chooses is, of course, Lamarckian, chosen for its easy glissando from heritable to moral and mental traits and back again, leaving Darwin free to derive the highest moral sentiments from animal instincts, and simultaneously, to posit learned responses that have 'degraded' into instincts. Each race and gender, horde or tribe, nation or ethnicity, acquires a character and mentality, an outlook or code, grasped at once and morally fraught, yet heritable and inherited.

Blurring the line between instinct and intelligence Darwin can plot traits that would take eons to evolve as though they had appeared in a flash of insight – not too different from his treating, say, tools and weapon types as products of momentary flashes of individual invention. But, as paleontologists can attest, the genres of human implements remain relatively unchanged for aeons. They are stabilized not by heredity but by cultural tradition – that is, by teaching. And when invention does occur, and there is a flash of insight, the spread of new ideas and techniques is not genetic but cultural, as can readily be seen when we trace the spread of trade items across tribal, ethnic, and formidable geographical barriers.

Treating populations as though they were personalities, as they so often are in myths of origin, culture hero tales, and racial invective, Darwin turns personal vices, virtues, skills, and temperaments – all moral or mental habits – into racial traits. Yet what we praise or blame in morals, credit as discovery or regret as ignorance, lies not in the genome but in individual hearts and minds, taught in families and communities by precept, and far more effectively by example. For with moral ideas, as with discoveries of any sort, it is the insight and concern, sensitivity or insensitivity of individuals that is at work before a collective enterprise is undertaken or neglected. And the shifts observable in norms, like the technological changes that we *metaphorically* call evolutionary, are in fact cultural. What literally evolves – that is, shifts genetically – is not a person but a population, preserving its continuity but transcending its static imago over time.

[89] Op cit. *Descent*, 21.71.

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Darwin crosses these wires of race and personality and reverses their polarity. His Lamarckian vignettes bolster his assurance that he can trace all human traits to their animal roots. Marking the affinities and the distance between animal and human behavior, he makes racial and cultural differences his milestones en route to the terminus his reader will recognize as the gauge of human evolutionary progress, a crystalline image of the adult, European male, a persona forged in the constant testing that Darwin associates with the emergence manhood.

Here the turn toward myth doubles down its bets: Not only is natural selection displaced by adaptive conditioning but the evolutionary response is gender marked. The making of man becomes a walkabout, traversing not millennia but the mythic space of a personal odyssey: 'Victory,' Darwin writes, depends on intellect and imagination, and beyond these, on 'energy, perseverance, and courage.' Natural selection, he concedes, seems insufficient to the selective task once humanity is cushioned by emerging social and intellectual strengths. So our species must have gained its most distinctive qualities chiefly through sexual selection. After all, when human enmities gave selection its cutting edge, weren't women the choicest prize?

Small wonder that the sexes diverged. Men were the combatants, women the booty. In stature and musculature, Darwin reasons, the 'law of battle,' still leaves its mark. Morally and mentally the same is true: Our most distinctive moral and mental qualities come with maturity. As products of sexual selection, these were naturally 'transmitted more fully to the male than the female offspring.' So 'man has ultimately become superior to woman.'

This again is no inference to a new discovery but Darwin's deduction of a familiar given, that evolution offers to explain. 'It is indeed fortunate,' he remarks, that mammals generally transmit their traits to offspring of both sexes, 'otherwise it is probable that man would have become as superior in mental endowment to woman as the peacock is in ornamental plumage to the peahen.'

Sexual selection among humans is in fact a mutuality. We typically choose as mates counterparts (to echo the biblical phrase) whose mental capabilities match our own, and we love those whose moral tone resonates with ours. Darwin's premise of male superiority in energy, courage, and perseverance is not a fact but a stereotype invoked to sustain his thesis, that our most human traits stem from more elemental, animal tendencies. Women here take their stand with savages as mankind's missing link. Shielded from the rigours of the 'law of battle,' they lag in mental and moral as well as physical stature, keeping their childlike voice, and skin, and ways:

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> Male and female children resemble each other closely, like the young of so many other animals in which the adult sexes differ; they likewise resemble the mature female much more closely, than the mature male. The female, however, ultimately assumes certain distinctive characters, and in the formation of her skull, is said to be intermediate between the child and the man.

No mention of breasts or menarche, the deepening richness of women's voices at puberty, corresponding to the change in male voices. Darwin's women are infanitilized – as witness their soft skin and fine hair, the default condition of the unchallenged:

> With mankind the differences between the sexes are greater than in most species of Quadrumana, but not as great as in some, for instance, the mandrill. Man on an average is considerably taller, heavier, and stronger than woman, with squarer shoulders and more plainly pronounced muscles.... the superciliary ridge is generally more strongly marked in man than in woman. His body, and especially his face, is more hairy, and his voice has a different and more powerful tone....
>
> Man is more courageous, pugnacious, and energetic than woman, and has a more inventive genius. His brain is absolutely larger, but whether relatively to the size of his body, in comparison with that of woman, has not, I believe, been fully ascertained. In woman the face is rounder; the jaws and the base of the skull smaller; the outlines of her body rounder.... She comes to maturity at an earlier age than man.
>
> As with animals of all classes, so with man, the distinctive characters of the male sex are not fully developed until he is nearly mature; and if emasculated they never appear.... male children are beardless, though at an early age they have abundant hair on their heads. It is probably due to the rather late appearance in life of the successive variations, by which man acquired his masculine characters, that they are transmitted to the male sex alone.[90]

Women show what humans might have been, sans severe selection pressures. Darwin may speak of paternal care, but always of maternal instinct – placing women closer to nature and further from culture.[91]

[90] Op cit. *Descent*, 22.579–80.
[91] Op cit. *Descent*, 21.74.

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> Woman seems to differ from man in mental disposition, chiefly in her greater tenderness and less selfishness; and this holds good even with savages.... Woman, owing to her maternal instincts, displays these qualities towards her infants in an eminent degree; therefore it is likely that she should often extend them towards her fellow creatures. Man is the rival of other men; he delights in competition, and this leads to ambition which passes too easily into selfishness. These latter qualities seem to be his natural birthright. It is generally admitted that with woman the powers of intuition, of rapid perception, and perhaps of imitation are more strongly marked than in man; but some, at least, of these faculties are characteristic of the lower races, and therefor of a past and lower state of civilization.
>
> The chief distinction in the intellectual powers of the two sexes is shown by man attaining to a higher eminence, in whatever he takes up, than woman can attain–whether requiring deep thought, reason or imagination, or merely the use of the senses and hands.[92]

Quoting Galton, Darwin cites the paucity of eminent women painters, poets, composers, performers, scientists and philosophers. The cause he cites is not social convention and constraint of access but dearth of talent, clear evidence that women, like the 'lower races,' have not evolved as men have. Mother-instinct may flood its banks and billow into sensitivity and selflessness, but quick perception and mimicry place women closer to 'savages' and children than to the men who share their lives. Women here play the role the 'humble bee' had in Darwin's account of hive building in bees, as way marks to the higher mental capabilities and nobler moral qualities of men.

Modern men do not do battle for their mates, but they still face 'a severe struggle in order to maintain themselves and their families.'[93] So the root causes of differences in talent persist on Darwin's account. He blissfully ignores the fact that even in modern Europe the struggle to survive and rear offspring is borne by both sexes. Bracing his Lamarckian story with a dose of natural selection, Darwin argues that women could not readily gain the energy, perseverance, reasoning skills, or imagination of a man (not even from their fathers!) 'unless during many generations the women who excelled in the above robust virtues were married and produced offspring in larger

[92] Op cit. *Descent*, 22.586–7.
[93] Op cit. *Descent*, 22.588.

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numbers than other women'[94] For what made 'man ultimately become superior to woman' was not just 'the contest of rival males' but 'success in the general struggle for life.' Since that struggle took place in maturity, 'the characters gained will have been transmitted more fully to the male than to the female offspring.'[95] On these premises, it's a wonder that women evolved at all![96]

Darwin's account of sex underwrites his account of race – and thus of hominization. He infantilizes women and then infantilizes *and* feminizes non-whites. Having painted 'woman' as somewhere between child and man, he notes: 'as the young of closely allied though distinct species do not differ nearly so much from each other as do the adults, so it is with the children of the different races of man. Some have even maintained that race-differences cannot be detected in the infantile skull.'[97] Trusting ontogeny to trace the course of phylogeny, Darwin sees in exotic peoples the children of the human race, preserving traits that the rest of humanity has left behind. Of course they are childlike. They are less fully evolved.

Darwin foresaw a great and 'victorious' future for Europeans, defeat and extinction for 'savages.' The genocide and near genocide of native peoples ongoing in his time in North and South America, Australia, and Tasmania, seemed to vindicate his predictions: 'The partial and complete extinction of many races and sub-races of man are historically known events.'[98] *Historically*, not pre-historically. Quoting Herman Schaafhausen, the early paleontologist who first described the Neanderthal remains unearthed in 1856, Darwin agrees that the extinguished races of Europe must have been 'lower in the scale than the rudest living savages' – quite different from modern men.[99] The gaps in the fossil record result not just from incomplete exploration but also from extinctions. And that process continues, inexorably:

> At some future period, not very distant as measured by centuries, the civilised races of man will almost certainly exterminate and replace throughout the world the savage races. At the same time the anthropomorphous apes, as Professor Schaaffhausen has remarked, will no doubt be exterminated. The break will

[94] Op cit. *Descent*, 22.588.
[95] Op cit. *Descent*, 22.588.
[96] Cf. Sarah Blaffer Hrdy's now classic *The Woman that Never Evolved* (Cambridge: Harvard University Press, 1999; first published, 1981).
[97] Op cit. *Descent*, 22.580.
[98] Op cit. *Descent*, 21.187–8.
[99] Op cit. *Descent*, 21.188.

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> then be rendered wider, for it will intervene between man in a more civilised state as we may hope, than the Caucasian, and some ape as low as a baboon, instead of as at present between the negro or Australian and the gorilla.'[100]

The disparate fates of diverse races, in Darwin's view, were set most tellingly by sexual selection. So it is not just the intrinsic interest of sexual dimorphism or courtship behavior but the opportunity to chart the parting of the races that motivates his extended excursion into sexual selection: Races are evolution's raw material. Differences in anatomical detail, he reasons, demarcate a deepening cleavage, channeled by divergences in mate choice. But mental and moral traits are mankind's most distinctive marks, the stumbling blocks set by critics in the path of claims for human evolution. So it is here that Darwin plants his pennant. He finds racial differences not just in anatomy but in character and capability, marking 'savages,' like women and children, as living intermediates between humanity and the rest of nature. Darwin's aim is to explain the putative mental and moral differences by reference to the more visible signs of racial difference, and thereby explain human evolution.

It is here that he plays his erotic preference card: Black races admire black skin; the Chinese and Javanese, 'yellow'; native Americans, 'tawny.' Each group disparages complexions divergent from its ideal. Each has its own tastes in hair length, texture, and placement,[101] limned in the effigies of its gods and deified rulers.[102] Darwin finds here not just convention but a powerful explanatory tool: The old canard that mating preferences are sharply racial,[103] thoroughly belied in the long history of human pairings, anchors his claim that inveterate distaste and an accompanying diminution and distortion of sexual selection in the 'savage' races has beached them on the further shore of human evolution.

The moral and mental inferiority of 'savage' races was once again not a finding but an assumption Darwin shared with his readers, not from ill will on his part[104] but because those whom he placed

[100] Op cit. *Descent*, 21.162; cf. Darwin's letter to Lyell of October 11, 1859, Correspondence 7.345.

[101] Op cit. *Descent*, 22.602–4.

[102] Op cit. *Descent*, 22.605.

[103] I find it in the 10th century *Case of the Animals vs Man*, for example, tr. L. E. Goodman and Richard McGregor (Oxford: Oxford University Press, 2009) 113.

[104] Adrian Desmond and James Moore, in *Darwin's Sacred Cause and the Quest for Human Origins* (Chicago: University of Chicago Press,

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among the evolutionary losers, the putatively lower races, like women, embryos, and children, gave him another point on the graph, answering the demand for a missing link:

> there is a much wider interval in mental power between one of the lowest fishes, as a lamprey or lancelet, and one of the higher apes, than between an ape and man; yet this immense interval is filled up by numberless gradations.
>
> Nor is the difference slight in moral disposition between a barbarian, such as the man described by the old navigator Byron, who dashed his child on the rocks for dropping a basket of sea-urchins, and a Howard or Clarkson; and in intellect between a savage who does not use any abstract terms, and a Newton or Shakespeare. Differences of this kind between the highest men of the highest races and the lowest savages are connected by the finest gradations. Therefore it is possible that they might pass and be developed into each other.[105]

Intermediate types, then, are found not just among the fossils but in the forest, on the beach and savannah. The cruelty of 'savages' mitigates the horror of their demise; their innocence makes it inevitable: The 'savage' races remain human, but not quite as human as the rest. Setting that claim alongside his thesis that animals and humans differ morally and mentally only in degree, Darwin confidently rebuts the

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2009), see a quest for human unity as the humane 'cause' that motivated Darwin's pressing his evolutionary theory to include the human case. But this seems excessive and needlessly apologetic. The human case, as Darwin stressed, was the toughest nut to crack for his evolutionary theory, not only for the resistance roused in regard to human origins but for the special circumstances that seemed to mitigate natural selection. Indeed, it was the perceived insufficiency of natural selection in the human case that turned Darwin toward sexual selection to strengthen the argument and speed the course of evolution. I think it is clear that Darwin's writings are motivated neither by animus nor by benevolence but by his dedication to scientific inquiry and commitment to his powerful explanatory theory (so much so that one can understand the neglect of the Mendelian idea by early Darwinians and perhaps by Darwin himself in terms of his search for continuous rather than discrete vectors and degrees of heritable change). Darwin may worry about or cheer the rate and the constancy of evolutionary change, but he does not see the need to egg on what he takes to be the agents of such change. Nature, as he sees it, assures its outcome.

[105] Op. cit. *Descent*, 21.70.

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claim that humans are *toto caelo* different from the rest of animal nature and could never have sprung from apes.

If sexual selection is to be the engine of hominization, the discontinuities that mark and motivate the change must be both heritable and visible. Skin colour was the obvious choice: 'Of all the differences between the races of man, the colour of the skin is the most conspicuous and one of the best marked.'[106] Here was a difference that natural selection seemed unable to explain. So, despite his doubts that 'any character can be named which is distinctive of a race and is constant,' Darwin turned to skin colour, and other seemingly 'unimportant' traits to reveal the true history of human evolution. For it was a critical postulate of his taxonomic strategy that traits not directly exposed to heavy selection pressures preserve the evolutionary record far more faithfully than those that reflect exigent environmental pressures.[107]

The biological advantage of melanin as a shield against skin cancer in the tropics was unknown to Darwin. Today it is thought that all humans were of African origin, and dark skinned. The light skinned races will have lost much of their melanin as their ancestors spread to northern climates, where the sunlight is less plentiful and less intense. There filtration mattered less; diets were no longer as rich in fresh fruits and vegetables, and sunlight was needed to optimize vitamin D synthesis. But from where Darwin stood things looked different:

> not one of the external differences between the races of man are of any direct or special service to him.... man resembles those forms, called by naturalists polymorphic, which have remained extremely variable, owing, as it seems, to their variations being of an indifferent nature, and consequently to their having escaped the action of natural selection. We have thus far been baffled in all our attempts to account for the differences between the races of man; but there remains one important agency, namely Sexual Selection, which appears to have acted as powerfully on man, as on many other animals.[108]

[106] Op. cit. *Descent*, 21.199.

[107] Op. cit. *Descent*, 21.154–5, where seals and fish are similar in adaptations to their environment but sharply different in less critical respects. At 21.185 [1.233] Darwin applies his axiom to the human case: 'it is improbable that the numerous and unimportant points of resemblance between the several races of man in bodily structure and mental faculties... should all have been independently acquired.'

[108] Op. cit. *Descent* (Princeton: Princeton University Press, 1981; facsimile of London: Murray, 1871) 1.248–49; cf. *Descent*, 21.204–5, where the text varies.

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Sexual selection seemed to give Darwin just what he required. The old stories about preferences in partners became a biological premise: Persons of different races are not attracted to one another. Sexual selection has carved out a divide of evolutionary moment. For races were incipient species, and racial differences were not skin deep.

Darwin's dismissal of much of the human race as 'savage' was a projection based on some unhappy cross-cultural encounters of his own, compounded and confirmed by stories from travelers, soldiers, colonists, and missionaries, and a farago of attitudes and prejudices that Darwin shared with many of his contemporaries.[109] Revulsion for what he saw and heard of tribal customs made him feel ready to pass judgment wholesale on the moral character of the Fuegians – and 'savages' in general. Culture was not a robust independent variable but a mere straw in the wind if it did not restrain that father who dashed his child on the rocks. Darwin did not try the same shoe on the other foot. But it might have helped to ask how European civilization would look to the thoughtful members of tribal societies.

Albert Schweitzer had a moment of epiphany near the beginning of World War I, when an old Pahouin chief, hearing of the first few casualties among the conscripts from the district, remarked that surely the leaders would now sit down and talk. It was inconceivable to the venerable cannibal that responsible leaders would tolerate the loss of ten dead in just a few days' of fighting.[110] But the nations Darwin knew best were inured in the idea of mechanized warfare, although they still spoke of manly virtue in the language of the battlefield – as Darwin did. They accepted the facts of mass starvation among the urban and rural poor, appalling prisons, and a host of Dickensian horrors. Child abuse was hardly unknown. Darwin was born too soon to hear of Gandhi's retort when asked what he thought of Western Civilization: 'I think it would be an excellent idea.' But he was ready to assume that every race has its own distinctive moral character and level of mental advancement. If a discourse

[109] Alfred Russel Wallace, for one, disputed the low appraisal of the moral character of tribal peoples that Darwin shared with Spencer. He found altruism as well as a concern for reputation among those 'savages' he had met, and they respected one another's rights, on the whole without formal laws or courts. See his *The Malay Archipelago: The Land of the Orang-utan and the Bird of Paradise - A Narrative of Travel, with Studies of Man and Nature* (London: Macmillan, 1869; revised, 1890; New York: Dover, 1962).

[110] Albert Schweitzer, *On the Edge of the Primeval Forest* (1922; reprinted, London: Black, 1956), 102.

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seemed impoverished of abstract terms, he readily ascribed the sparsity not to culture or convention but to mentality. The subtleties of mythic discourse did not balance the picture for him. Paul Radin, writing in the 1920s, found speculative thinking in the oral literature of many tribal cultures.[111] And the abstractions Darwin missed are unattested in many an urban pub and sports bar. But Darwin did not document cultural monuments and folkways as he did coral reefs and orchid pollination. His ethnographic premises were reached anecdotally and generalized not by survey or experiment but by image and vignette.

At fault was not just the mode of ascertainment but the logic and ontology of the assumptions. Anecdote, bias, conjecture and speculation had brought Darwin to a thesis about the races that could not possibly be true. Start with moral character and you'll see why. Moral traits – virtues and vices – are those for which we offer praise or blame. They are acquired in the course of personal development, as we model our actions on the examples of role models, typically, parents and peers. We do not praise or blame people for traits beyond their control – like hair color, eye color, or physical disabilities. We may admire fine hair or lovely eyes, or feel sorry for a person's bodily defects or handicaps. But the language of morals is framed to welcome and felicitate worth that can respond to encouragement, and to deplore or condemn weaknesses amenable to mending, or deserving of punishment. Such language presumes agents capable of heeding advice or taking warning from admonitions. So moral traits are located, in the first instance, in individuals who choose their own actions. Moral language is relevant only insofar as we humans chart our own course. Even if our powers of doing that stem, as Darwin saw they must, from our genetic heritage, there is a fatal flaw in assigning moral traits to races. Our capacity to think and choose may have genetic roots, but our propensities for good or evil, sound or unsound choices are our own. The flaw in racializing moral judgments (or moralizing racial ones) lies in the nature of agency: Races do not make choices, and the assignment of moral characters to the diverse races leapfrogs from intellectual laziness to sheer prejudice, ignoring all that matters ultimately in morals: the tenor of individual acts. For even collective actions are the complex resultants of individual choices. The fallacy of assigning a moral character to any race would be obvious were it not for the winds of amity and enmity that fan such prejudice.

[111] Paul Radin, *Primitive Man as Philosopher* (New York: Appleton, 1927, 1955; reprinted, New York: Dover, 1957).

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With mental, as with moral traits, the locus of agency and focus of growth lie in the individual, and our characterizations aim, rightly, at individual distinctiveness. We do not call a person bright for being typical but for being exceptional. Similarly, we do not call someone upright, sincere, or generous for being no more honest, candid, open hearted or open handed than the next person. When mental or moral predicates are applied to an entire race, individual differences are steamrollered, and the language loses its bite. Stereotypes take over, blown out of connection to experience by affection or hostility, guilt, hubris, chauvinism, and the natural tendency *to typify what imagination finds extreme and essentialize what it finds exotic*. When nations or cultures are tagged with moral traits, whether in admiration or disdain, or in service of some invidious agenda, the suggestion is that individual differences don't matter much, can't matter as much among *them* as they do among *us*.

A culture, it is true, may preserve or canonize certain values. But the nexus between a culture's overall tenor (insofar as there is one) and the individual character, values, and actions of its members is always, at most, a matter of trends or tendencies, still subject to striking individual differences.[112] Nor can we equate cultural ideals with the reality of practice – any more than we can infer from the effigies and icons of some vanished civilization that no one unadorned, say, with just these hairstyles will find a mate and bring forth offspring! Each of us appropriates or rejects, modifies or selects among the varied values and customs at large in our societies. We all (to a degree that is again personal, not uniform across a population) overlay or overrule the presumptive or presumed norms of our social milieu with expressions of individual style, perspective, and intentions. We all respond pragmatically and indeed expressively to the exigencies of our situations and the vagaries and contingencies of the moment. So actions that draw upon what seems (when abstractly described) to be a single repertoire of customs, gestures, rituals or rules can become kind or cruel, gracious or graceless in practice of diverse individuals. As Nahmanides writes, one can be a wretch within the strictures of the Law.

A culture is not a rule book or formulary, and a language is not a text, a grammar, or a collection of sentences. Cultures are not axiom systems; nor are they gene pools. And neither culture nor race fixes in any absolute way what is of moment to us morally.

[112] Darwin's readiness to typify the extreme and essentialize the exotic contrasts strikingly with his brilliant recognition of critical role of individual differences in animal morphology.

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Socially, that is, in our relations with one another and the features of our lives that might matter most to a novelist, biographer, or chronicler, the traits in which we humans differ most notably from other animals are those in which we differ most interestingly from one another. It is here, in our individuality, that the Talmud finds human beings precious. For, as the ancient text puts it, no two of us emerge alike from the Maker's mold.[113]

But Darwin has his own agenda. To ease the transition from other primates to humans he has reified practices as customs, blurred the line between customs and habits, then made habits heritable and assigned customs not just to cultures but to races. All this, to make 'savage' races evolutionary way stations – or dead ends – on the road to what his readers cherish and his critics foreground: civilized humanity. The whole argument rests on a category error, since moral qualities belong first to individuals and only secondarily to cultures – but never to races.

Darwin's difficulty is compounded by an inner tension in his reasoning. On the one hand his biology displaces any general idea of progress in favor of the notion of adaptation. He does allow that there are 'rudimentary organs' and 'higher' and 'lower' biological types. He warrants that kind of hierarchical description by singling out anatomical complexity and differentiation as the best definition of 'advancement or progress in the organic scale.'[114] But he offers a different standard of advance when he speaks of moral progress:

> as man gradually progressed in intellectual power and was enabled to trace the more remote consequences of his actions; as he acquired sufficient knowledge to reject baneful customs and superstitions; as he regarded more and more not only the welfare but the happiness of his fellow-men; as from habit, following on beneficial experience, instruction and example, his sympathies became more tender and widely diffused, so as to extend to the men of all races, to the imbecile, the maimed, and other useless members of society, and finally to the lower animals,– so would the standard of his morality rise higher and higher.[115]

The passage tugs hard against the more localized vision of morality urged at the start of the same chapter:

[113] Mishnah Sanhedrin 4.5.
[114] Op. cit. *Descent*, 21.169.
[115] Op. cit. *Descent*, 21.129.

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> In the same manner as various animals have some sense of beauty, though they admire widely different objects, so they might have a sense of right and wrong, though led by it to follow widely different lines of conduct. If, for instance, to take an extreme case, men were reared under precisely the same conditions as hive-bees, there can hardly be a doubt that our unmarried females would, like the worker bees, think it a sacred duty to kill their brothers, and mothers, and mothers would strive to kill their fertile daughters; and no one would think of interfering.[116]

So are moral standards objective or relative? Only in the former case is there moral progress. And Darwin must commit himself to the reality of such progress if he is to claim that evolution can account for the emergence of moral character and of virtues that he and his contemporaries will recognize as authentically moral traits. But in making that claim he gives the lie to his evolutionary situationalism. As Anthony O'Hear puts it, one can detect 'something of a *non sequitur*' when Darwin argues, the final pages of *The Origin*, that 'As natural selection works solely by and for the good of each being, all corporeal and mental endowments will tend to progress towards perfection.' For such 'perfectionist optimism' is hardly in keeping with the relativizing of adaptation to ambient and indeed changeable circumstances.

Darwin has gauged moral progress by the yardstick of the civilization he knows best. But his adaptationism denies that standard any objective purchase. The difficulty deepens when he goes on to prophesy that the social instincts in which he finds the *fons et origo* of our moral standards will weaken as 'virtuous habits grow stronger,' with the further rise of conscious morality. Then comes the further prediction, of our conscious and voluntary virtuous habits 'becoming, perhaps, fixed by inheritance.' At that point moral struggle will be less severe, and 'virtue will be triumphant.'[117] Virtue consummates its evolution when it becomes no longer free but automatic!

The seemingly gratuitous filip, turning human virtues heritable, is, perhaps, not just another Lamarckian slip but a reassertion of the relativism demanded by an evolutionary account of the birth of morals, as if Darwin were trying to reassure himself and his more reductionist readers that all the earnest talk of conscience, regret, moral strength and weakness, broadening sympathies and intellectual

[116] Op. cit. *Descent*, 21.103.

[117] Op. cit. *Descent*, 21.129–30. O'Hear's remark cited above is to be found in his 'Darwinian Tensions', in *Turning Images in Philosophy, Science and Religion*, edited by Charles Taliaferro and Jil Evans (Oxford: Oxford University Press, 2011, 46–66) at 54.

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standards of right and duty remains within the ambit of adaptive or maladaptive behavior and has not somehow catapulted humanity beyond the evolutionary pale.

With mental, as with moral differences, Darwin slides from what individuals have learned and shared to what races have inherited. The races of man differ in average cranial capacity, as Darwin knows. But the interesting differences in intellectual endowment are among individuals, whether in raw intelligence (if that notion can be given some definite meaning) or in more readily gauged qualities like abstract thinking, practical problem solving, mechanical skill, spatial memory, imaginative, social, emotional, or other strengths.[118] The cognitive range and diversity of our species is immense; and our mental strengths and weaknesses, modes of compensation and adjustment, incalculably complex. Cultural and social barriers and resources channel what we learn, rendering any snapshot of human mental capability ever more baroque. Racial characterizations, and group characterizations of any kind, fade to nullity when that intricacy is brought into focus. The group portraits are pinhole projections compared with what we glean from our personal interactions in educational, vocational, military, religious, literary or artistic contexts. The cartoons that imagination substitutes for evidence persist only because they are more manageable and manipulable (often for invidious personal or collective purposes) than the thick detail of life itself. But experience spotlights the concrete. Darwin himself will confess:

> The Fuegians rank among the lowest barbarians; but I was continually struck with surprise how closely the three natives on board H.M.S. *Beagle*, who had lived some years in England and could talk a little English, resembled us in disposition and in most of our mental faculties.[119]

The personal encounter did not match Darwin's expectations. But he did not withdraw his blanket appraisals. He never doubts that 'barbarous' peoples are trapped in an evolutionary backwater. What dams up that backwater is the blockage of sexual selection by savagery itself. For on Darwin's account, the gauntlet of sexual selection that made at least the males of the 'civilised' races so resolute and ingenious was blocked among the 'savages':

[118] Howard Gardner, *Frames of Mind: The Theory of Multiple Intelligences* (New York: Basic Books, 1993; first edition, 1983).
[119] Op. cit. *Descent*, 21.69.

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> The chief causes are, firstly, so-called communal marriages or promiscuous intercourse; secondly, infanticide, especially of female infants; thirdly, early betrothals; and lastly, the low estimation in which women are held, as mere slaves.[120]

The backwardness of 'savages,' is too handy a nostrum not to be pressed into service of the evolutionary argument: 'Savages are known to suffer severely from recurrent famines; they do not increase their food by artificial means; they rarely refrain from marriage and generally marry young.' Improvident, promiscuous, overly sexual, infantilized by sexual access at too young an age,[121] the non-white races have missed the rigors of sexual selection. That is why they lack the robust, resourceful males who might have led them forward.

In primeval times, 'when men had only doubtfully attained the rank of manhood,' they were probably polygamous or only temporarily monogamous but in effect promiscuous.[122] And yet, 'Governed more by their instincts and even less by their reason than are the savages at the present day,' they hunted to support their offspring

[120] Op. cit. *Descent*, 22.611.

[121] Spencer, like Darwin, pictured 'savages' as impulsive, selfish (except when enticed by their childlike avidity for approval), and animal-like in their sexual appetites and parental instincts. Spencer read voluminously in the travel literature and early anthropology of his day. He also employed (and physically exhausted) three research assistants in scanning such literature for him, sharing with them the proceeds of the publications in which he used their work. Volume 1 of *The Principles of Sociology* has 2192 citations from 379 such sources. Yet he was spotty, selective, and often superficial in his use of sources. And most damaging was his subjectivity. For he read into the materials he encountered his own over-arching construction of the meanings of the data they presented, and he overlaid familiar stereotypes and presumptions as well – many of which were already well ensconced in what he read. So the anthropological research on which so much of his 'descriptive sociology' would depend became a kind of fun-house hall of mirrors, revealing little that was new but enlarging and distorting what he had begun with.

[122] As Edward Westermarck (1862–1939), the Finnish sociologist and anthropologist, was the first to show, Darwin's ideas about primitive polygamy and promiscuity, and Engels' related notions of primitive communism (of women), were unsupported by evidence from tribal societies. Such societies were typically monogamous, and no instance of norms of promiscuity could be found among them. Travelers' tales, fantasies, misinterpretations of local norms and behaviors, and of the relations betwen the two account for most of what was once imagined on this score, and for the persistence of such notions even today.

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and fought to secure and safeguard their mates. Powerful instincts barred infanticide, so there was no shortage of females and thus no polyandry, no early betrothal, or debasement of females to mere slaves: 'during these primordial times all the conditions for sexual selection would have been much more favorable than at a later period, when man had advanced in his intellectual powers but had retrograded in his instincts.'

It was at the earlier, edenic stage that sexual selection carved out the races of man,[123] handily allowing Darwin to answer Wallace's doubts that once intelligence had begun its march, natural selection would be hamstrung and incipient evolution would have ground to a halt.[124] But barbarous customs have stymied the work of sexual selection among the 'savages,' and the ebbing tide of evolution has left them stranded. Those groups whose tastes in mates were more refined and whose customs, now morals, gave fairer treatment to their fair captives, escaped the pit of promiscuity, infanticide, polyandry, and enslavement of their gentler, weaker mothers, sisters, and wives, never to return. But the 'savages' did not.

Promiscuity, Darwin argues, leaves pairings to mere chance, 'with no choice exerted by either sex.'[125] Darwin doubts the continued survival of 'communal marriage,' an imagined mating pattern in which 'all the men and women in the tribe are husbands and wives to each other.' But he does not doubt 'the licentiousness of many savages' and assumes 'that communal marriage was the original and universal form throughout the world, including the intermarriage of brothers and sisters.'[126] Promiscuity or marital laxity, he reasons, would have thwarted sexual selection: Random matings cannot be selective. But that seeming truism equivocates on the idea of randomness. A mere lowering of barriers need not make more attractive mates less successful reproductively. Besides, we have plenty of reason to doubt that 'primitive' societies were quite as lax as early anthropologists and travelers imagined.

Female infanticide, Darwin argues, further blunts the edge of sexual selection. The practice, he argues, is widespread in tribal societies, largely for economic reasons.[127] But it leads to shortages of women. Then the men resort to raiding in search of mates, and that

[123] Op. cit. *Descent*, 22.619.
[124] Op. cit. *Descent*, 21.132.
[125] Op. cit. *Descent*, 22.611.
[126] Op. cit. *Descent*, 22.611–2. Cf. Spencer, *Principles of Sociology* (New York: Appleton, 1898; first published, 1876),1.622.
[127] Op. cit. *Descent*, 22.615–6.

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leads to a commerce in women that blocks the effects of sexual selection:

> as long as men habitually procured their wives through violence and craft, it is not probable that they would have selected the more attractive women; they would have been too glad to have seized on any woman. But as soon as the practice of procuring wives from a distinct tribe was effected through barter, as now occurs in many places, the more attractive women would generally have been purchased. The incessant crossing, however, between tribe and tribe, which necessarily follows from any form of this habit would have tended to keep all the people inhabiting the same country nearly uniform in character; and this would have greatly interfered with the power of sexual selection in differentiating the tribes.[128]

Strange reasoning this. Darwin had earlier argued that shortages of females would heighten the effects of sexual selection.[129] And with tribal war parties, one might have thought that the loveliest prizes fell to the boldest warriors, and large harems to the most pugnacious – or that a society organized enough to plan a raid was also structured enough to divide the spoils by plan or rule. But any such effects, Darwin assumes, are undercut (in savage races), as barter displaces capture. Again an odd premise, as if warfare ceases when trade begins – or wealth somehow puts a stop to theft – or seduction.

Even if harems for the wealthy did enhance sexual selection, Darwin reasons, the effect was undermined by the impact of exogamy, keeping a district's population too uniform for purposes of racial differentiation! Here a little genetics might have helped. For inherited traits do not just mix and mingle, as Darwin tended to presume.[130] So exogamy does combine gene pools but does not homogenize them, as if erasing any desirable genetic traits. The real effects of exogamy, as Ernst Mayr showed most tellingly, are in maintaining the unity of a species as a breeding population. (That's why we speak of the human race and not of the human races!) But Darwin thinks of out-marriage as a kind of leveler. He counts on distance, enmity, and divergent tastes to keep the races separate and

[128] Op. cit. *Descent*, 22.617.
[129] Op. cit. *Descent*, 22.223–9.
[130] Op. cit. *Descent*, 21.174.

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prevent the watering down and loss of those presumptive moral and mental traits that he so values in the favored races.[131]

Infant betrothals too will stymie sexual selection, Darwin reasons, since they preempt the choice of a bride at or after puberty. Handsome brides might still be stolen, but that would hardly be the norm. Besides, childhood marriages are just part of women's abasement in primitive societies. 'Man' keeps 'woman,' Darwin argues, fusing the generic usage of biology with the archetypal language of myth, 'in a far more abject state of bondage than does the male of any other animal.' Trading on his readers' progressive moral attitudes and horror of the exotic, Darwin casts the women of alien races as mere slaves, whose subjection will thwart sexual selection. True, men will still 'prefer the handsomest slaves according to their standard of beauty.' But the charms of savage drudges will hardly count for much.

The reasoning is weak. Darwin has not shown that women in tribal societies or subsistence economies are mere chattels, let alone that they are unattractive. Nor has he shown that women are more abased in 'savage' societies than in his own, relative to the common quality of life and standard of living in each locale. It is probably the contrast between the comforts available to many in an industrial (or industrializing) society and the clear hardships faced by most nomads, peasants, or hunter-gatherers that make the exotic women seem so degraded to Darwin. But if women are mere chattels, then sexual selection, it would seem, ought to be intensified, not diminished – unless Darwin means suddenly to reverse fields and say that the qualities he praises as giving men the power to choose are now no longer relevant or effectual.[132]

Darwin's model of sexual selection is invidious. It minimizes the role of selection *by* women and discounts the emergence among women of the sagacity, perseverance and other qualities that Darwin expects to find in men – as if women faced selection pressures from nature or from prospective mates that are wholly unrelated to the factors men encounter, but received traits like courage or inventiveness only by a kind of spillover from the inheritance of males.

Women in his own society, Darwin tells us, are chosen ('won' he says) by the wealthy, for their charm and beauty, characteristics

[131] One can't help wondering what Darwin would have thought of our present realization that the Neanderthals were not wiped out but interbred with their Cro-Magnon contemporaries – and that their genes are traceable in many of us today.

[132] Op. cit. *Descent*, 22.621–2.

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that he sees as markers of good health and (if not intelligence, then, at least) an active mind.[133] Condescending this, and sexist, but not nearly so false as the expectation that the qualities that matter most in men will matter little in women and scarcely at all among the women who are chattels to their 'savage' mates. Darwin's story here is too much the reflex of his biases about gender and ethnicity. But, even on his own assumptions, the sexual selection model is applied inconsistently and invidiously. Women become primitives, and non-whites become the beasts of the human race. A good point at which to recall Adam's awakening to the realization that Eve was bone of his bone and flesh of his flesh, and the premise of Genesis, that all humans share a common ancestry – and dignity.

Darwin's appeals to the diminished impact of sexual selection on 'savage' races are contorted, ill-informed, internally incoherent, and inconsistent with the larger thrust of his account of evolution. They amount to special pleading, leaning on fantasy and jaundiced comparisons, where the requisite knowledge base in anthropology, genetics, cognitive psychology, or moral philosophy have fallen short. We don't lack evidence of our primate roots. But Darwin, lacking the confidence to rest his case on natural selection, has fallen back on myth. A myth is a story sustained by values. So the worth of any myth depends on the quality of the values it enshrines. And here Darwin has stumbled, reaching too hastily for plausibility and lapsing into cliches.

My aim is not to excoriate Darwin for his all too commonplace racialist and sexist attitudes. I understand his falling back on Lamarckian ideas that he saw as his patrimony, a heritage from his grandfather.[134] Nor do I wish to raise a scandal of guilt by association for the uses later racists made of Darwin's thoughts.[135] But we do have the candlepower to see through what was delusory in Darwin's dependence on Lamarck; and, equally, to expose what was mythic in his notions about race and gender. Darwinism moves more smoothly, in the end, without Lamarck. And the notion of

[133] Op. cit. *Descent*, 21.140.

[134] Op. cit. Cannon, note 3, 27–28, citing Darwin's letter to T. H. Huxley, in Francis Darwin and A. C. Seward, eds., *More Letters of Charles Darwin* (1903) 1.125.

[135] Darwin himself pegs the maturation and improvement of the moral sense of humankind to the extension of moral regard to 'the men of all races.' But that view does not lead him to assign moral, mental, or existential equality to those men. The same generalization of benevolence, in his view, extends to 'the imbecile, the maimed, and other useless members of society, and finally to the lower animals.' *Descent*, (Princeton), 1.103.

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backward races, winners and losers in some evolutionary stage battle, is a grain of grit in Darwin's eye. Panmixia, as Ernst Mayr showed, undermines the idea of segregated human gene pools, and the prominence of culture dissolves the fantasy that any part of the human race confronts (or deserves) an evolutionary fate radically different from the rest. Only those whose thoughts about race are suffused with triumphalist appraisals cling to such expectations, tinged with schadenfreude, or crocodile tears, at the passing – or dismissal – of the primitive.[136] But Darwin shares in such dismissals when he sexualizes the idea of race, little concerned that extinction is too crude a scalpel when he speaks in martial terms of cultural conflicts that he construes racially:

> The more civilized so-called Caucasian races have beaten the Turkish hollow in the struggle for existence. Looking at the world at no very distant date, what an endless number of lower races will have been eliminated by the higher civilized races throughout the world.[137]

The 'Turks' here are Muslims of many races, often, in Darwin's day, under the sway of the Ottoman Sultan. Egypt had broken away from the Ottoman Empire early in the century but was falling under British colonial domination when Darwin wrote these lines. The Egyptians, like the 'Turks' a polyglot people, had their own culture, religious traditions, political interests and economic institutions. Cairo had far outshone Paris or London only a few centuries before Darwin's time. But neither its rise nor its decline was a matter of race. It was the debts that Egypt incurred in efforts at reform, and further debts imposed by the European powers, that allowed Britain to claim control. And Egypt's defeat was military,

[136] Thus the photo essays of Leni Riefenstahl on African peoples.

[137] Charles Darwin to W. Graham, July 3, 1881, *Life and Letters*, 1.316, cited in Gertrude Himmelfarb, *Darwin and the Darwinian Revolution* (London: Chatto and Windus, 1959) 343. More fully: 'Lastly, I could show fight [i.e., vigorously argue] on natural selection having done and doing more for the progress of civilisation than you seem inclined to admit. Remember what risk the nations of Europe ran, not so many centuries ago, of being overwhelmed by the Turks, and how ridiculous such an idea now is! The more civilized so-called Caucasian races have beaten the Turkish hollow in the struggle for existence. Looking to the world at no very distant date, what an endless number of the lower races will have been eliminated by the higher civilised races throughout the world.' Charles Darwin, *The Life of Charles Darwin* by Francis Darwin (London: Senate, 1995, reprint of the 1902 John Murray edition), 64.

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not evolutionary. Yet Darwin freely assimilates what he takes to be Oriental decadence to the debilities he describes in racial terms and ascribes, ultimately, to divergent patterns of sexual selection. History in such a case, as Darwin sees it, is simply a matter of succession, like that of taller shrubs on the heath.

> When civilised nations come into contact with barbarians the struggle is short, except where a deadly climate gives its aid to the native race.... cultivation of the land will be fatal in many ways to savages, for they cannot, or will not, change their habits. New diseases and vices are highly destructive; and it appears that in every nation a new disease causes much death, until those who are most susceptible to its destructive influence are gradually weeded out; and so it may be with the effects of spiritous liquours, as well as with the unconquerably strong taste for them shewn by so many savages.... the natives become 'bewildered and dull by the new life around them; they lose their motives for exertion, and get no new ones in their place.'
>
> The grade of civilization seems a most important element in the success of nations which come into competition.... Although the gradual decrease and final extinction of the races of man is an obscure problem, we can see that it depends on many causes.... It is the same difficult problem as that presented by the extinction of one of the higher animals.... The New Zealander seems conscious of this parallelism, for he compares his future fate with that of the native rat almost exterminated by the European rat.[138]

The passing of the 'primitive' makes way for the more truly human. 'Savage' and 'barbarous' races become expendable, too bizarre, too cruel, too feeble to be deeply mourned.

The steel glints in Darwin's account, behind the serge and damask. The clean lint and linen of Victorian dress and dressings cannot mask the ooze of suppurating wounds taken and inflicted. The charge of cruelty, along with febrile decadence, its counterpart, is too soft spoken to muffle the noise of the cavalry and artillery offstage. Behind the niceties of language and subtleties of theory lies a gentle, almost fatalistic acquiescence in nature's plan, counterpart and co-conspirator to civilization's advance.

Familiar as such notions were in Darwin's time, they were hardly universal – or obligatory. Alexander von Humboldt, for one, whose

[138] Darwin, *Descent* (Princeton: Princeton University Press, 1981; facsimile of London: Murray, 1871) 1.239–40.*

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writings had inspired Darwin's travels but who died the year the *Origin* appeared, stirringly affirmed the unity of the human race in his book *Cosmos*. He resolutely rejected 'the depressing assumption of superior and inferior races of men.' Some cultures, he allowed, might have achieved more than others – some nations might indeed be 'more susceptible of cultivation than others.' But none are nobler in themselves than the rest: 'All are in like degree designed for freedom.'[139] None, then, are designed for degradation, or extinction.

Projective thinking lies at the root of Darwin's trouble as he caps his model evolutionary succession with value notions that betray all too vividly the currents he swam in. Darwin's eye is not on the triumphalist premises he shares with his contemporaries. His steady focus is on vindication of his theory. Still he makes his racial case organic to his biological vision, so as to lend the stamp of inevitability to the pattern of succession. That carries his claims far beyond their imperial overtones, infecting his account of human evolution with the most ancient and vicious of racial stereotypes. For it is races, not nations, that sway in the scale here: 'Savage' races are not just subjugated. They die, and not just because they are outgunned – or lack immunity to exotic infections – but because they are savage. They *cannot* organize to defend themselves, let alone develop armaments and deploy armies like those to which they fall. Lacking in the virtues of the civilized races, they do not ultimately deserve to survive. Biology may pass sentence, but racial bias drives the biology.

Darwin knew when he wrote the *Origin* that natural selection is not typically a battle, although it does involve competition. He found the decisive moments far more often in births than in violent deaths, and he stressed that evolutionary change takes many, many generations. It is not the same as instantaneous discovery, or victory. But when he neared the human case it was hard for him to avoid moralizing and dramatizing, comparing what he saw as the inherited strengths and weaknesses of the races. The tug on his attention distorts and distends his thinking. It persists today in unfair inferences and invidious assumptions that cling to the ideas of some anthropologists and biologists, ecologists and eugenicists, who share the view that 'primitive peoples,' are prodigal in reproduction, improvident with resources, over-sexed or under-developed, unattractive to outsiders, unsuitable

[139] Alexander von Humboldt, *Cosmos: A Sketch of a Physical Description of the Universe*, translated by E. C. Otté (London: Bohn, 1849) 1.358.

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as partners, incapable of sustained survival, and thus, in some profoundly biological sense, unfit or even unworthy to survive.

To rescue what is sound in the idea of human evolution, we need to disentangle the biological thesis from the bad anthropology in which it has been wrapped. The fault lies not in evolution but in the pseudo-biological values that cling to it. The most immediate profit in teasing out what evolution says and needs to say from what it has been brought to say or thought to say lies in purifying the biology of such accretions. But there's a further dividend: the opportunity of stripping the scientific pretensions from some of the most virulent strains of racism and allied varieties of sexism that masquerade as scientific findings.

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