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How and Why Darwin Got Emotional About Race

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For Jonathan Hodge

In The Expression of the Emotions in Man and Animals, published in 1872, Charles Darwin purported to show that, around the world, humans of every race express their emotions in the same ways: crying when sad, smiling when happy, and so on. He claimed that this sameness afforded a "new argument" for the common descent of all the human races from a single ancestral stock. What follows is a new account of the origins of the empirical research underpinning this argument as well as the bravura deep-time reconstruction with which Darwin fleshed it out. Understanding how and why Darwin first began to collect evidence on emotional expression across the human races throws new light on the recently controversial question of where, if anywhere, his scientific work reflected his lifelong hatred of black slavery. It also suggests a new solution to an old puzzle: the notoriously "non-Darwinian" character of Darwin's explanations in the Expression.

As I will be emphasizing what is distinctive about the Expression within Darwin's oeuvre, it is well to notice at the outset a resemblance between one of the most startling statements in that book and one that Darwin makes in the Descent of Man (1871), not about emotional expression but about the moral sense. In the Descent, we read:

> I do not wish to maintain that any strictly social animal, if its intellectual faculties were to become as active and as highly developed as in man, would acquire exactly the same moral sense as ours. 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 would strive to kill their fertile daughters; and no one would think of interfering.[1]

Compare the following from the Expression:

> [I]f the structure of our organs of respiration and circulation had differed in only a slight degree from the state in which they now exist, most of our expressions would have been wonderfully different. A very slight change in the course of the arteries and veins which run to the head, would probably have prevented the blood from accumulating in our eyeballs during violent expiration; for this occurs in extremely few quadrupeds. In this case we should not have displayed some of our most characteristic expressions. If man had breathed water by the aid of external branchiae (though the idea is hardly conceivable), instead of air through his mouth and nostrils, his features would not have expressed his feelings much more efficiently than now do his hands or limbs.[2]

If man were raised as bees are, if man had breathed water as fish do… How striking that, when glossing his reconstructed deep-time histories for humankind, when guiding the reader on how and how not to interpret them, Darwin availed himself of imagery that was not just colorful but counterfactual. Just about everything, he insists, could have turned out rather differently. I shall return to this point – and to its bearing on this volume's concern with the historicizing turn in nineteenth-century thought and its socio-political contexts – at the end.

The Expression (I): **"[A] new argument" for the unity of the human races**

The passage just quoted comes from the penultimate paragraph of the Expression. Before that we have, in order: an introduction; three chapters setting out the three "principles of expression" that Darwin will use to explain why particular movements came to be expressive of particular emotions; two chapters doing just that for emotional expressions in non-human animals; eight chapters doing the same for human emotional expressions; and the bulk of the concluding chapter. When Darwin discusses particular emotions and their expression in humans, he typically takes on three main tasks, in varying orders. He describes the psychology of the emotional state, together with the anatomy and physiology of the movements expressing it (sometimes with reference to evidence from, among other sources, babies and the insane). He explains how, on some combination or other of his principles, those movements became linked to the emotional state that they now express. And he surveys responses to his globally circulated Queries about Expression to check how uniformly or otherwise the human races express that emotional state in that way.[3]

To illustrate: in Darwin's pages on anger and indignation, we learn that the moderately angry or indignant man – as distinguished from the enraged man – will experience an increased heartbeat, show heightened color and bright eyes, flare his nostrils, compress his mouth, frown, hold his head erect, expand his chest, plant his feet firmly on the ground, and either square his elbows or hold his arms rigidly by his side. By this point in the book (chapter 10) Darwin has said so much about the role of habit in generating links between emotional states and their expressive movements – "old habits die hard" is a fair summary of his first expression principle – that he evokes it here in explanation with minimal fuss. All a man needs to do today is to imagine he has been insulted, and he will (pointlessly) assume the complex posture of indignation, because he is descended from men who, when

feeling indignant, prepared to attack the offender, and who, on attacking, felt relief from indignation. If that man is from Europe, where they fight with their fists, then an indignant state of mind will likely leads to clench fists well. Everything minus clenched fists, Darwin reports, is how other men, from other races and places, express indignation, including Australians, the Malays, the Abyssinians, the natives of South Africa, Dakota Indians of North America, the Fuegians (about whom more later), the Maori, the Chinese, and low-caste Bengalees.[4]

So it goes, through expression after expression. Only in the book's final chapter, "Concluding Remarks and Summary," does Darwin reveal that the robust uniformity found across the races adds up, in his view, to something important: "a new argument" for belief in the common evolutionary ancestry of the human races. "I have endeavoured," wrote Darwin,

> to show in considerable detail that all the chief expressions exhibited by man are the same throughout the world. This fact is interesting, as it affords a new argument in favour of the several races being descended from a single parent-stock, which must have been almost completely human in structure, and to a large extent in mind, before the period at which the races diverged from each other.[5]

We will shortly look more closely at the reasoning that, for Darwin, links what he considers the now-established fact of cross-racial sameness of expression (the premise of his argument) and the inference to the races' shared ancestry from a "parent-stock" very much like present-day humans in body and in mind (the argument's conclusion). A brief comment is in order first, however, about the argument's newness. In the Descent, Darwin had already argued not only for the common ancestry of the human races from a near-human progenitor but had even indicated how he saw the forthcoming work on emotional expressions as figuring in. Anyone

persuaded on general grounds of the truth of the evolutionary theory, he explained, could not but look at the various human races and conclude that they descend from a single ancestor, for the races show close similarities in many and diverse characters, and shared inheritance from a common ancestor is far more probable as the explanation of such a pattern than that each race somehow acquired all of those similar characters separately. In the case of emotional expression, it was not, he contended, mere closeness that the races showed, but sameness, identity.[6]

Darwin spells out this same reasoning in the Expression, but with a twist: he also considers, and rejects, the theory of natural selection as a possible alternative explanation. On the whole, natural selection is conspicuous by its absence from Darwin's explanations in the Expression, so much so that a small scholarly sub-literature has emerged with the aim of making sense of what is, in this respect, a strikingly "non-Darwinian" element of the book.[7] Not every reader of Darwin, it must be said, feels the force of a mystery here worth addressing. After all, Darwin was explicit in the Descent about his regret at having overdone it previously in ascribing, à la the design theologian William Paley, adaptive value to the characters of organisms, and so having overdone it in attributing the origins of those characters to Darwin's favored explanation for design without a Designer, natural selection.[8] Furthermore, he always accepted roles for other evolutionary agencies, including the one that bulks largest in the Expression, the inherited effects of habitual action (so-called "Lamarckian" inheritance).[9] Even so, the question of what Alan Fridlund called the Expression's "anti-Darwinism" is not a question malposé.[10] For one thing, Darwin's attitude towards the theory of natural selection and its explanatory reach in the Descent of Man was, his apologia notwithstanding, far from chastened or wary. He went to some lengths to document the evidence in the present for humans occasionally showing inherited variation and struggling under Malthusian conditions, the better for Darwin to make his case for his

reconstruction of the emergence of man as a process driven in the first instance by natural selection.[11] For another, Darwinians in our own day find the expression of emotions so obviously well-adapted to the demands of survival and reproduction, and thus so easily explained by natural selection, that Darwin's coming to characterize emotional expression as non-adaptive looks the more surprising, even bizarre.[12] Yet that characterization is fundamental to Darwin's project in the Expression. The movements that express emotions do not assist in the struggle for life and mates, and they never did. They are not adaptations. They are non-adaptive, locked-in legacies from ancestors with bodies liable to form inheritable habits (the first principle), to generate mirror-image versions of those habits (the second principle), and to move in all sorts of odd ways as surges of nervous energy find channels along which to dissipate (the third principle). Natural selection has no purchase.[13]

In the Expression, the longest discussion of natural selection emphasizes its irrelevance. The same passage, by no means coincidentally, also supplies the reasoning by which Darwin builds from the premise of cross-racial similarity-unto-sameness in human emotional expression to the conclusion for common ancestry:

> No doubt similar structures, adapted for the same purpose, have often been independently acquired through variation and natural selection by distinct species; but this view will not explain close similarity between distinct species in a multitude of unimportant details. Now if we bear in mind the numerous points of structure having no relation to expression, in which all the races of man closely agree, and then add to them the numerous points, some of the highest importance and many of the most trifling value, on which the movements of expression directly or indirectly depend, it seems to me improbable in the highest degree that so much similarity, or rather identity of structure, could have been acquired by independent means. Yet this must

> have been the case if the races of man are descended from several aboriginally distinct species. It is far more probable that the many points of close similarity in the various races are due to inheritance from a single parent-form, which had already assumed a human character.[14]

So, to suppose that such numerous and diverse expression-supporting structures were acquired independently, through a process of variation and natural selection in human races descending from "several aboriginally distinct species," is to leave the structural identity unexplained, or at best explained by something "improbable in the highest degree." Common descent from a single, already-almost-human "parent-form" is "far more probable."

We should note an important subtlety in Darwin's reasoning here, and more generally in Darwinian reasoning as such. A biological species viewed from a Darwinian perspective is indeed the product of deep-time evolutionary history, through and though. But for purposes of reconstructing that deep-time history, species characters that are adaptive are problematic. To see why, imagine that you are trying to decide whether two species with a particular adaptive character in common are descended from a common ancestor. The character may be a shared inheritance from a common ancestor for which it was also adaptive. Alternatively, the character may have arisen within two separate lineages that, via variation and natural selection, responded similarly – "converged" is the Darwinian term – to similar environments. Absent further information, you have no way to choose between these possibilities, and so no way to reconstruct the evolutionary past with any confidence.[15]

In the Expression passage above, Darwin aims to dispel any lingering doubt about whether, with emotional expression, we are dealing with non-adaptive characters. According to Darwin, structures adapted for the same purpose and acquired independently in separate lineages, as in cases of natural-selection-driven convergence, will end up being similar, but

not the same. When it comes to emotional expression across the races, however, we are dealing not merely with similarity, but with sameness, identity: the signature not of the convergent evolution of adaptive characters but of the common descent of non-adaptive characters. With the possibility of the reconstruction of the deep-time history of human emotional expression thus secured, Darwin next proceeds to provide it.

The Expression (II): "[a]n idle speculation" on the deep-time history of human emotional expressions

"It is a curious, though perhaps an idle speculation," he continues, "how early in the long line of our progenitors the various expressive movements, now exhibited by man, were successively acquired." The note of self-deprecation notwithstanding, what follows is a masterclass not only in how to reason deep-time historically about humans and other organisms but how to end a complex book well. For what Darwin now reveals is that, reviewed with deep-time historical questions in mind, the conclusions reached in the previous chapters – themselves ordered, Darwin elsewhere explains, for ease of exposition – can be reassembled so as to yield up the evolutionary history of emotional expression in the human lineage.[16]

His point of departure is the question of whether or not an emotional expression can be found among living apes and monkeys. If non-human primates do it too, Darwin reckons, it must go a long way back, since the most recent common ancestor of apes, monkeys and humans lived a long way back. And if non-human primates do not do it too, then it must be a more recent innovation, begun after the lineage that became the human lineage branched off. Accordingly, Darwin distinguishes between two categories of progenitors: those living "long before they deserved to be called human," in "an extremely remote" or "very early period;"

and those who were "eminently human," coming "late in the line of our descent." To the former, earlier category Darwin assigns laughing when feeling pleasure; trembling etc. when feeling fearful; screaming etc. when suffering greatly; the making of threatening gestures, accompanied by reddened skin, glaring eyes and exposed teeth, when feeling rage; protrusion of the lips when feeling sulky or disappointed; arched eyebrows and opened eyes when feeling astonished; and retching movements around the mouth when feeling disgust. To the latter, later category he assigns weeping when suffering; raised eyebrows and downturned mouth when feeling grief and anxiety; frowning; the posture of indignation and its reverse, the posture of impotence (Darwin's second principle of expression, antithesis, can be paraphrased as "reverse habits come for free"); widely opened mouth etc. when feeling astonished; the lowering of eyes and turning away of the head when feeling contempt or disdain; and blushing when feeling self-conscious.[17]

If the speculation is idle, there is nothing lazy about the reasoning behind it. Consider Darwin's discussion of where to insert weeping into the evolutionary-expressive grand chronology. As set out earlier in the book, he takes weeping to have become expressive of human suffering thanks to the interlocking workings of the human respiratory and circulatory systems. When an ape baby suffers, it screams, thereby bringing relief in the form of grown-up aid and so becoming habitual – Darwin's first principle. The same thing happens when a human baby suffers. But the human baby's scream has physiological knock-on effects with no counterpart in the ape baby. The violent outrush of air from the human baby's mouth results in the blood vessels near the baby's eye becoming engorged with blood. (Darwin regarded this seemingly trivial quirk of human physiology, first discovered by his expression nemesis Sir Charles Bell, as so important that he commissioned further experiments to confirm it from a distinguished Dutch physiologist, F. C. Donders.) On Darwin's theory, this sudden blood bulge near the eye in turn triggers protective contractions of the muscles near

the eye, and these contractions in turn puts pressure on the lachrymal glands, from which the tears flow. So, it is not merely that weeping awaited the branching off of the human lineage, but the emergence within that lineage of the near-the-eye blood vessels, the muscles around the eye, and the causal link between abrupt expiration and the surging of blood through the vessels – an undoubtedly late development, Darwin concludes. Unless, he allows, as an improbable but not impossible scenario, man shares a most recent common ancestor with certain monkeys that, though not closely related to man, do weep – in which case weeping will turn out to be as old as anything in the human expressive repertoire.[18]

The shift of our ancestors from the trees to the ground, and the specialization once there, under the influence of natural selection, of feet for upright walking and hands for dextrous manipulating, is a major feature of Darwin's reconstructed evolutionary history for humans in the Descent, and it is the more fascinating to watch him reason through the consequences for human emotional expression. Some inferences were straightforward enough:

> Our early progenitors, when indignant or moderately angry, would not have held their heads erect, opened their chests, squared their shoulders, and clenched their fists, until they had acquired the ordinary carriage and upright attitude of man, and had learnt to fight with their fists or clubs. Until this period had arrived the antithetical gesture of shrugging the shoulders, as a sign of impotence or of patience, would not have been developed. From the same reason astonishment would not then have been expressed by raising the arms with open hands and extended fingers.

Others, however, were less straightforward. In Darwin's view, frowning probably awaited the arrival not just of the face-muscle infrastructure behind weeping but of an upright posture

as well, in line with his singular connecting of the explanatory dots between frowning and sun glare as a bother to upright man:

> [T]he habit of frowning seems to have been acquired chiefly from the corrugators being the first muscles to contract round the eyes, whenever during infancy pain, anger, or distress is felt, and there consequently a near approach to screaming; and partly from a frown serving as a shade in difficult and intent vision. It seems probable that the shading action would not have become habitual until man had assumed a completely upright position, for monkeys do not frown when exposed to a glaring light.[19]

The book's penultimate chapter concerns blushing, and blushing is also where Darwin's evolutionary reconstruction ends. How did shame, shyness, and modesty come to be expressed by the reddening of parts of the upper body, principally the face? In the blushing chapter Darwin pours scorn on those who proposed, in line with the theory of special creation, that blushing is the Designer's means for ensuring moral conduct in His most favored species. Among other defects, according to Darwin, that hypothesis fails utterly to account for a number of the facts about blushing, such as its occurring even in the dark-skinned races (where it can be observed only in scar tissue or in the rare albino individual) and often in morally blameless young people who suffer from intense shyness – their suffering compounded, of course, by the unwelcome extra attention that their blushing attracts. For Darwin, the link with self-consciousness is the clue to a better explanation, along with a curious bit of human physiology whereby attention to a part of one's body can bring about the relaxation of the muscles around the arteries there. We blush when and as we do, he suggests, because of the combination of the inherited effects of habit and association

(his first principle), the tendency of an emotion-generated rush of blood to flow through accustomed channels (a variant on his third principle, roughly "extreme emotion produces excess motion"), and the acute sensitivity that humans have to being judged negatively by others, on our looks and on our conduct. The young are typically more sensitive to such judgments than the old, and women more sensitive than men; blushing is accordingly greater or lesser. But whatever the individual differences, such sensitivity is a species character, and a distinctive one – an upshot of the uniquely human moral sense, itself the upshot of the evolutionarily novel (and relatively recent) conjunction in one primate lineage of high intelligence with high sociality. "Therefore we may conclude," wrote Darwin, bringing his deep-time historical reconstruction to an end, "that blushing originated at a very late period in the long line of our descent."[20]

There follows a sort of coda on how and how not to think about this deep-time history, from which I quoted earlier. Do not suppose, Darwin warns, that the human repertoire of weeping, blushing and the rest is where emotional expression was heading all along. That "long line of our descent" has not been a kind of biological train track, fitted with rails to keep movement firmly progressing in the direction of humankind as we know it. Some of the most characteristically human emotional expressions happen at all only thanks to what are incidental, even accidental, details of the make-up of organ systems that function mainly to keep us alive. Those details could have been different with no consequences for that functioning, yet with huge consequences for emotional expression. Thus Darwin points out that most other quadrupeds manage just fine with a different arrangement of blood vessels in the head than humans have; but without our particular arrangement, there would be no weeping. He also, from the other direction, draws attention to an expressive capacity we might well have had but do not: moveable ears. Somewhere along our line of descent, that

got lost, along with, Darwin reckons, other capacities including the ability to vomit at will. Deep-time history, in Darwin's hands, is deeply contingent history.[21]

Reconstructing Darwin's racial-reconstructive inquiry into emotional expression (I): The notebook period, late 1830s-early 1840s

When, exactly, did Darwin first consider collecting evidence on human emotional expression across the races? In the Expression, as we have seen, that evidence serves as the empirical foundation for Darwin's "new argument" for the human races sharing a common ancestor possessing something near to the complete human emotional-expressive repertoire; and the conclusion of that reconstructive argument in turn enables a further, vastly escalated reconstructive argument, the "idle [but non-lazy] speculation" on the deep-time evolutionary history of emotional expression in the human lineage. To anyone familiar with the outlines of Darwin's life and work, there are two obvious places to look for the beginnings of the cross-racial evidence project. One is the "notebook period," that is, the period of private, London-based theorizing between the opening of Darwin's first private transmutation notebook in the summer of 1837 and his summing of that theorizing in the Sketch of 1842, on the view that so many of the ideas of Darwin's maturity (including his ideas on emotional expression) can be found in his notebooks that the cross-racial evidence project is a good bet to be found there too. The other is in or around 1867, the year in which Darwin's Queries about Expression began to circulate in handwritten and published form.[22]

Let us take the notebooks first. The ones known, after Darwin's labels, as "M" and "N" carry the bulk of his expression theorizing.[23] In the former, opened in mid-July 1838 and filled by early October that same year, we find perhaps the most famous entry from Darwin's notes on man, scribbled on August the 16th: "Origin of man now proved.—Metaphysics [i.e.

theory of mind] must flourish.—He who understand baboon would do more toward metaphysics than Locke" (M84).[24] The previous month's entries cover very heterogeneous terrain. But everything bears, in one way or another, on the many and varied connections between the mental and the bodily in humans – connections whose existence Darwin took to support what he called "materialism" (e.g. at M19) and whose sometimes very strange nature he delighted in revealing as illuminated by comparisons with what he took to be our animal kin. He wrote in the initial entries, for example, about a man whose odd muscle twitches and manner of holding his hands were remarkably like those of a father dead too long before to have been imitated (M1–2); an ill old woman who, out of nowhere, sang a tune forgotten since her childhood, suggesting to Darwin not merely that song memories "can thus lie dormant, during a whole life time," but that such memories can be likened to the instinctive, unconscious song-knowledge of birds (with Darwin adding that the woman's act of remembering is really better described as "an habitual action of thought-secreting organs. brought into play by morbid action" (M7–8)); the graded scale that separates healthy people from the insane, indeed healthy people from their insane selves – for everyone, Darwin's doctor father told him, is insane sometimes (M13); and so on. For Darwin, evidence from cases of insanity, piled up in entry after entry during that first month, pointed to the existence in humans of trains of thought and action independent of the will and of conscious awareness, and so analogous to instincts in animals. Watching baboons did more for the student of the human mind than reading Locke because, contra Locke, the human mind is not a tabula rasa, but is chock full of inborn, action-influencing ideas, transmitted via inheritance down a primate lineage that includes the common progenitor of humans and baboons.

Emotional expression comes up in the M notebook as yet another class of evidence along these lines – evidence that much of what humans think, feel and do is not under conscious, willed control but is habitual, instinctual and/or inherited, with origins sometimes

to be found in the very distant past. On August 16th, there are two entries before the baboon/Locke entry: the first (M83) on "hereditary mind" in Darwin's own family ("My handwriting same as Grandfather.—"); and the second (M84e) querying Edmund Spenser's description in The Faerie Queene of a rageful character as "pale & trembling & not as flushing & with muscles rigid.—How is this?" Darwin's question here, of what movements do and do not characteristically express a particular emotion, marks the beginning of this line of inquiry for him. In his next entry after the baboon/Locke one, he noted: "Seeing a dog & horse & man yawn, makes me feel how <much> all animals <are> built on one structure" (M85). Five days later, on August 21st, he set out his first extended reflections on emotional expression. It is no longer a wonder, he wrote, that humans find it so difficult to hide their emotions – to look tranquil after being insulted, or humble when feeling smugly self-satisfied; or not to laugh when feeling amused, or yawn when feeling bored, or scream when in pain. They are so hard to disguise, Darwin reckoned, because they are so ancient (M92–96). He went on to write a great deal about a great deal concerning emotional expression, much of it presenting in embryonic form what will appear much more fully developed in the Expression. Near the end of the notebook, in the middle of a long series of entries dated September 23rd, Darwin spells out the mind-body programmatic meaning he gave to all this initial theorizing on expression: "The whole argument of expression more than any other point of structure takes its value from its connexion with mind, (to show hiatus in mind not saltus between man & Brutes) no one can doubt this connexion" (M151).

So, for the Darwin of the M notebook at least, emotional expression mattered for what it could do in tying minds to bodies and, therefore, in tying man to the brutes. There is nothing about what expression could do in tying the human races together, as descendants of a common, nearly-human ancestor. This issue, it appears, was just not an issue for Darwin. Different races of man do make their appearances in the M notebook here and there. We

read, for example, that blacks seem to have one instinctive notion of beauty and whites another (M32); that conscience seems to be stronger in some races than in others, though a moral sense is probably universal in humans (M76); and that "whether in Ancient Greeks, / with their mystical but sublime views, or the wretched fears & strange superstitions of an Australian savage or one of Tierra del Fuego," one sees signs of a universal God sense – of innate knowledge of the Creator, implanted by Him when He created man, as a species separate from all others – Darwin rather doubted (M136–37). If we look to the N notebook, filled from early October 1838 to early August 1839, and we find much the same sort of thing.[25]

Again, the rule, with Darwin's notebook theorizing on expression as with his notebook theorizing on the range of topics that engaged him, is that the big public ideas will be found somewhere in the private notebooks. We find in the M notebook clear statements of what became Darwin's first two explanatory principles of expression, and maybe even his third too – an important point in making sense of the "non-Darwinian" character of these principles, since they thus predate Darwin's famous encounter with Malthus's Essay in late September 1838, and so predate the theory of natural selection which, over the next months, Darwin would come to formulate. When, in an M notebook entry from August 1838, Darwin wrote: "Expression is an hereditary habitual movement consequent on some action, which the progenitor did when excited or disturbed by the same cause, which / now / excites the expression." (M107), he was still recognizably under the influence of the evolutionary thinker whose handwriting Darwin believed he had inherited, his grandfather Erasmus.[26] (Darwin's high regard for the Zoonomia, where Erasmus had depicted animal expressions as arising from associations that became habitual and eventually hereditary, dated from his years in medical school in Edinburgh. So did his introduction to the topic of emotional expression as full of potential for those wishing, contra Bell, to stress continuities across the man/brute

divide.)[27] The useless uncovering of the canine during sneering ("the very essence of an habitual movement is continuing it when useless" (M96)); pouting and sulkiness in an orangutan at the zoo compared with them in man (M129); the antithetical expression of opposite emotions (second principle) (M147); the expressive role of the discharge of excess nervous energy (third principle) (M150): all are present. Not present, however, in the M and N notebooks or other extant documents from the notebook period, is a concern to use common emotional expression across the human races to vindicate the unity of the human races. For the emergence of that concern explicitly, we need to go forward in time – but not as far as circa 1867.

Reconstructing Darwin's racial-reconstructive inquiry into emotional expression (II): The correspondence of January 1860 (and the strength of weak imperial links)

In a letter from Darwin to the geologist Charles Lyell on January 10th 1860, Darwin mentioned sending some questions on expression out to the place where, on the Beagle voyage, he had experienced human racial difference at its most extreme:

> I have thought only vaguely on man. With respect to the Races…. I have one good speculative line, but a man must have entire credence in N. Selection before he will even listen to it. – Psychologically I have done scarcely anything. Unless indeed expression of countenance can be included, & on that subject I have collected a good many facts & speculated: but I do not suppose I shall ever publish; but it is an uncommonly curious subject.—By the way I sent off a lot of questions the day before yesterday to Tierra del Fuego on expression![28]

Anyone encountering this letter in the 1860 volume of the magnificent Correspondence of Charles Darwin is led to suppose that this letter belongs to a sequence of events in 1860 roughly as follows: (1) Darwin wrote up his questionnaire (January 6th); (2) He sent if off to an English missionary in Tierra del Fuego named Thomas Bridges (January 8th); (3) That posting to Bridges got a mention in Darwin's letter to Lyell (January 10th); (4) Darwin received Bridges' letter with his answers (October or after); (5) nothing much else happened from then until circa 1867. But that is not what happened, as I will now show in some detail, before turning in the next section to an analysis of the autumn 1859 Darwin-Lyell correspondence that, I contend, holds the clues we need to explain Darwin's inventiveness on expression and race in early 1860. If what follows seems, for present purposes, something of an interruptive detour, we do well to take it, partly to resolve the minor mystery of the gap between this 1860 activity around Darwin's expression queries and the much better-known activity from circa 1867 (another "Darwin's delay" case), and partly to seize the chance it offers to begin considering the imperial dimension to Darwin's deep-time historical work on emotional expression.

We start with the item at the head of the chronology above and dated 6th January 1860. In fact there are two documents, currently held together in the same folder (DAR 185: 72–73) in the Darwin Papers in Cambridge University Library: a version in Darwin's hand, one page, front and back (item 73); and a "fair copy," in a hired copyist's hand, two pages front and back, signed at the end (in different ink) "Charles Darwin [/] Down Bromley Kent [/] Jan. 6 1860" (item 72). Both documents have, with one exception, the same text: nine questions on emotional expression in, as the first question makes plain, Fuegians and Patagonians; a couple of how-to guidance notes, urging the gathering of information on any aspect of emotional expression in "savages" ("a subject, which has been wholly overlooked") and the taking of notes at the time of observation, not afterwards; and questions about,

respectively, the Fuegian ideal of feminine beauty, whether Fuegians "take any pains in breeding or matching their dogs," and the coloring of wild pigs and wild cattle on the Falkland Islands. Atop the version in Darwin's hand only is the title "Expression of Savages." Neither document is addressed to anybody.

The Correspondence editors, following a scholarly gem of an article on the Queries about Expression from 1972 by Richard Freeman and Peter Gautrey (who later became a Correspondence editor), published this text as a letter to Thomas Bridges dated January 6th 1860, on the entirely reasonable supposition that, since Bridges sent responses to the queries, he must have been their addressee.[29] Although there is no date on Bridges' letter-length reply (nor, for that matter, an addressee or a signature), it too was printed in the 1860 volume, amidst the October 1860 letters, on the view, as the editors explained, that "[t]he date reflects the minimum time required for Bridges to have received and answered CD's letter of 6 January 1860," though they allowed that "Bridges's letter … could have been written later in 1860 or in 1861." They noted finally: "The letter was forwarded to CD by Waite Hockin Stirling, the secretary of the Patagonian Mission Society in London" – and Darwin himself had jotted as much on the bottom of the original, now in DAR 85: 39 ("Answer received through Mr Stirling, from the catechist to the Fuegian Mission, Mr Bridges" / "Information from Mr Bridges, Catechist to Fuegian Mission, through Mr Stirling.")[30]

From the above, it would indeed seem that Darwin wrote to Thomas Bridges in January 1860 and that Bridges used a fellow missionary, Stirling, as a sort of courier to get the answers back to Darwin. One is left to imagine that, say, Bridges finished up his assignment from Darwin and, not wanting the great naturalist to have to wait longer than necessary, asked a colleague passing through to hand-deliver the response, to the British postal system if not to Darwin himself; and likewise that, for anyone curious about the savages, dogs, pigs and cattle of Tierra del Fuego in early 1860, the obvious "go-to"

correspondent was Bridges. But Darwin in 1860 would have had no idea who Bridges was. The "catechist to the Fuegian mission" was then a twenty-year-old nobody, who had only recently taken over the missionary settlement started by his adopted father in the western Falklands. He became Darwin's man on the spot in Tierra del Fuego and Patagonia – and thus a named source not only in the Expression but in the Descent (on Fuegian notions of beauty) and The Variation of Animals and Plants under Domestication (on the animals) – thanks to a network that Darwin accessed through an old friend from his Beagle days, the naval officer and hydrographer Bartholomew James Sulivan.[31]

Sulivan's role as intermediary became clear only with letters published in the 1866 and 1867 Correspondence volumes. Unlike Bridges, Sulivan in January 1860 was not only familiar to Darwin (they had kept in touch) but, thanks to many years spent working and living in the Falklands after the Beagle voyage, someone widely esteemed for unrivalled knowledge of the region. That reputation as an expert had got Sulivan a position in the marine department of the Board of Trade, and was why Waite Stirling, of the Patagonian Missionary Society, had come to see him there a few years previously for advice on setting up a mission in Tierra del Fuego.[32] Now, in January 1860, with Darwin asking a favor from his old shipmate, Sulivan contacted Stirling, who duly passed Darwin's queries on to Bridges. He answered them, and sent the answers back to Stirling, who in turn decided to write a composite letter, combining his own observations with those of Bridges. But the results, he judged, were "so incomplete," as Sulivan explained to Darwin in a letter dated January 11th 1867, "that he did not think them worth sending." Sulivan continued: "On searching his desk he found the questions & answers written by Mr. Bridges which I now send you."[33]

Behind this belated desk-searching lies a tale seemingly sprung from Darwin's M notebook – a lost entry on the weird ways of the associative, amnesia-prone, unconsciously active human mind. On Christmas Day 1866, Sulivan, by now retired and living in

Bournemouth, had sent Darwin a long friendly note, recalling the Christmas they had spent together on the island of Chiloe, and including news about, among other things, the recent doings of the South American Mission Society (as Stirling's Society had been recently renamed) in connection with Tierra del Fuego. Like the Beagle all those years before, the Mission's schooner had recently departed England carrying four Fuegians back to their homeland, where they would soon be joined by Stirling, the man who had brought them over. So deeply involved in this work was Sulivan that he wrote now of "our Mission schooner," "our clergyman there" (meaning Stirling), and the many encouraging signs among the natives "that some good influence is beginning to work."[34] Darwin wrote back to say how fascinated and pleased he was to discover that Fitz-Roy's efforts to civilize the Fuegians had not all been in vain. Then:

> Do you know Mr Stirling well enough to ask him to grant me a great favour? Namely to observe during a few months the expression of countenance under different emotions of any Fuegians but especially of those who have not lived much in contact with Europeans, & to take the trouble to write me a letter on the subject. It is an old hobby-horse of mine on which I am very curious, & on which I have vainly sought for information. I will write a few questions on a separate piece of paper, & if you can oblige me you might send it to Mr S. with the request that he wd hereafter write to me by address on the paper.—[35]

Sulivan did as requested, as he wrote back on January 11th. "I went to Southampton to see Mr. Stirling off," reported Sulivan, "and on giving him your paper he reminded me that I gave him a somewhat similar one from you before – and from his and our catechists [sic] notes he had written some answers for you" – the unsatisfactory composite since lost to

history, though Bridges' original response was found.[36] Darwin wrote back a few days later, registering his gratitude to Sulvian, the interest of Bridges' answers to Darwin's questions, and his having "quite forgotten that I had previously sent nearly the same questions."[37]

The delayed arrival of Bridges' response in January 1867 seems to have re-energized Darwin's inquiry into cross-racial emotional expression. He had just sent the Variation to the printers, so the project on man was now in his sights as never before, and undoubtedly he would have got around to posing again queries that, at some level, he had plainly never quite forgotten.[38] Be that as it may, soon after receiving Sulivan's letter, Darwin drew up a new version of the old questionnaire and began sending out copies, to Brazil (February 22nd), to New Zealand, China, and South Africa (February 27th), and to Australia and the United States (February 28th). It was that version which, whether in handwritten or printed or published form, then made its way around the world, often via chains of correspondence that held fast thanks to the same sorts of personal connections that Darwin exploited through Sulivan, and that the British Empire generated in such abundance.[39] Thus did the acting Rajah of Sarawak – an Englishman named Charles Johnson Brooke – became, via Alfred Russel Wallace, Darwin's eyes and ears on expression there in Borneo; an amateur naturalist with a Foreign Office posting in the Far East, Robert Swinhoe, with whom from the mid-1850s Darwin exchanged the gifts that naturalists bestowed (specimens, publications, etc.), become his expert on Chinese emotional expression; and so on.[40] To read in the introduction to the Expression Darwin's three-plus pages of thanks to his globally distributed correspondents is to appreciate afresh the strength of the weak ties that made Victoria's Empire and the "information order" it made possible so much larger even than the red parts of the map.[41]

Reconstructing Darwin's racial-reconstructive inquiry into emotional expression (III): How the autumn 1859 correspondence with Lyell concentrated Darwin's mind on the need for a "new argument" on the unity of the human races

So what prompted Darwin to compose his queries in the first place, back in January 1860? His introduction to the Expression is quite misleading, suggesting that what really concerned him was whether human emotional expression is innate or conventional:

> [I]t seemed to me highly important to ascertain whether the same expressions and gestures prevail, as has often been asserted without much evidence, with all the races of mankind, especially with those who have associated but little with Europeans. Whenever the same movements of the features or body express the same emotions in several distinct races of man, we may infer with much probability, that such expressions are true ones,— that is, are innate or instinctive. Conventional expressions or gestures, acquired by the individual during early life, would probably have differed in the different races, in the same manner as do their languages. Accordingly I circulated, early in the year 1867, the following printed queries…[42]

On this testimonial, when Darwin started collecting evidence, he had in his sights not the deep-time historical question of the single or multiple origin of those races, but the thoroughly ahistorical question of the innate or conventional nature of emotional expression in humans. Taking him at his word, one expects therefore to find him, in the months before January 1860, vexed by doubts about the veracity of the facts that, in his notebook theorizing on the human mind, he had taken for granted as showing expression's innateness, such as the

difficulty that people have in disguising what they feel, or the appearance in babies of emotional expressions that they are far too young and inexperienced to have acquired on their own (e.g. "Seeing a Baby … smile & frown, who can doubt these are instinctive," M96).

Darwin's surviving correspondence for late 1859, however, reveals another story. These are, famously, the months when Darwin was preparing for and, from November 24th, dealing with the publication of the Origin. Less famously, they were months largely spent not at Down House in Kent but in the Yorkshire village of Ilkley, the northern outpost of the "water cure" of which the perpetually ill Darwin was so fond. Darwin arrived in Ilkley in early October, shortly after sending in his corrections on the final batch of Origin proofs. He reckoned that, after the unremitting labors on the book, his body and mind were ready for a break; and nothing brought him relief like the ice-cold watery treatments on offer at establishments such as Ilkley's Wells House Hydropathic Hotel.[43] But whatever the physical relief from the symptoms that troubled him throughout his post-Beagle adult life– and signs are that the Wells House regimen suited him mightily – there was no mental let-up. For no sooner had Darwin settled in than he began to receive letters about the Origin from its first reader, Charles Lyell. Throughout the summer, as Darwin had finished his proof corrections, Lyell – whom Darwin called his "Lord High Chancellor in Natural Science," since his verdict on the book would count most – had been reading along. Now Lyell delivered his verdict, in a series of extraordinary letters mixing praise and encouragement with, where the stakes were highest, criticism and counter-argument.[44]

The Darwin-Lyell Ilkley correspondence is a rich tapestry, deserving of close study as a whole. But for present purposes we can attend to a single thread, concerning, surprisingly enough, dogs. In a handful of brief and fleeting passages in the Origin, Darwin suggests that domesticated dog breeds probably derive from several wild canine ancestors. The subject comes up initially in the first chapter, on "Variation under Domestication." His overall aim

in the chapter is to impress upon the reader just how variable animals and plants can be under conditions of domestication, and relatedly, just how powerful artificial selection, when wielded by the human breeder, can be as a means for producing new varieties. Darwin dwells at greatest length on domesticated pigeon varieties, and the case for seeing them, in all their amazing diversity, as deriving from a single species, the common rock-pigeon. He also pours scorn on those who would declare each domesticated variety the descendant of its own, aboriginally distinct wild progenitor. But he never says that all domesticated races of a certain kind always trace back to a single shared ancestor; and he adduces dogs as, in his view, a well-attested instance of multiple wild origins (though again, he says, do not exaggerate – anyone who thinks anything like a bull-dog can exist in a state of nature needs to think harder).[45] He returns to the subject again in a later chapter, "Hybridism," noting that the different domesticated-dog lineages must, along the way, have acquired the capacity to interbreed – underscoring the chapter's larger theme of hybrid sterility not as something rigidly imposed by God to keep species tidily ordered, but as something present in different degrees in different times and places, in a manner that Darwin's theory of gradual species change by natural causes made intelligible.[46]

For Darwin, then, dogs were in no way a challenge or a problem for his larger agendas. For Lyell, however, that is exactly what they were. Repeatedly, Lyell warned Darwin that his multiple-origins material on dogs threatened to undermine his general argument for a family tree of life, and with it the case for a family tree of man.[47] In a letter of October 22nd, Lyell put it like this. Those who today contemplate the differences between races as different as "the European, Negro, Hottentot & Australian" will find their perplexity in no way eased on being told that they trace back to several separate parent-stocks. Whereas on being told, in accord with Darwin's "system," that "there was some common ancestor of all these races, as of the greyhound, pug, shepherd's dog &c.," perplexity dissipates. So why

spoil matters by endorsing, as Darwin seemed to do in the Origin, the hoary old multiple-origins-for-dogs account, associated with the eighteenth-century German-Russian naturalist Peter Simon Pallas? In Lyell's view, Darwin really needed to tone down the endorsement, ideally by making it plain that for him all the different dog varieties ultimately descend from a single-but-variable wild canine species, probably a species of wolf. "If this be all," wrote Lyell,

> then it shd be distinctly declared that neither the dog nor Man are any more derived from several aboriginal or wild species than other plants or animals having a wide range of races. Whatever you yield in regard to the dog you will have to concede to every variable species of plant or animal (wild or cultivated) Man included.[48]

Darwin wrote back a few days later. Conceding that there was, in Lyell's phrase, "an uncomfortable indefiniteness" in the hypothesis that separately domesticated lineages of dog had gradually lost their sterility when crossed, Darwin nevertheless reaffirmed his stated view that something like that was probably what happened. He went on to say that, in the bigger picture, provided one was convinced, as he and Lyell both were, that jackals, foxes, wolves and other wild canine species themselves all share a common ancestor, then disagreement about the details of exactly how the domesticated dog breeds came about was neither here nor there. "It is," wrote Darwin, "a curious, but not important subject for us: **we**" – that is to say, we common-ancestry men, who trace all Xs, however diverse, back to a progenitor X, all Ys back to a Y, and so on – "believe that all canine species have descended from one parent; & the only question is whether the whole or only a part of [the] difference between our domestic breeds has arisen since man domesticated them." In other words, taking for granted common ancestry as always the ultimate explanation, can we plausibly account for all the diversity in

domesticated dog breeds by supposing that just one wild canine species was bred from by humans (as with pigeons)? Or do we need to suppose that more than one canine species, and so more than one act of domestication by globally spreading humans, was involved at the start of dog domestication? Whichever way the decision goes, we can, in Darwin's view, consistently continue to believe that all dogs, in all their diversity, belong to a single family tree, tracing back to a common ancestor.[49]

The debate continued on and off for the next month. Neither Darwin nor Lyell budged from his original position. If anything there was extension and entrenchment, with, for example, each man treating the comparative evidence on gestational periods in wolves and domesticated dogs as supporting his own position. There was also more emphatic restatement of their views on whether Darwin's endorsing Pallas on dog origins – albeit Pallas "interpreted by the Darwinian key," as Lyell nicely put it in the 22nd October letter – created trouble for the larger Darwinian theory by supplying those who denied common ancestry with critical ammunition. "I cannot help thinking," wrote Lyell at one point, "that by taking this concession, one which regards a variable species, about which we know most (little tho' it be), an adversary may erect a battery against several of your principal rules."[50] In the final letter of the exchange, on November 23rd, Darwin wrote back, somewhat exasperatedly, that while he would "infinitely prefer" the history of domesticated dogs to mirror exactly the simple divergence-from-a-common-ancestor pattern found elsewhere in the tree of life, at the micro- as well as the macro-scale, alas the facts about dogs suggested a more complicated pattern, and so he had no choice but to acknowledge this local complication.[51]

In sum, throughout October and November 1859, in the run-up to the publication of the Origin, Lyell alerted Darwin to the possibility that by allowing there for the multiple origins for domesticated dogs, he had weakened his case for common ancestry as a general

feature of the history of life, with consequences not least for the history of the human races. "Whatever you yield in regard to the dog," warned Lyell, "you will have to concede to every variable species of plant or animal (wild or cultivated) Man included." We shall come shortly to consider why, in the context of wider developments, this warning was not one that Darwin would have taken lightly. Be that as it may, within the surviving autumn 1859 correspondence, the human races do not figure in a big or even a small way in Darwin's letters to or from anyone else or on any other topic.

What, for Darwin, were the options? On the dog side of the dog-breeds/human-races pairing (which remained with Darwin long afterwards; it appears at the beginning of his defense of humans' common ancestry in the Descent of Man), there was, from Darwin's perspective, no room for concessionary maneuvre.[52] But on the human side, where what was needed was not the bending of the argument but its bolstering, so that it stood solidly on its own evidence base, independent of the complications of the dog case, the situation was very different. And as, in Darwin's final weeks in Ilkley, in late November and early December 1859, he reread the Origin to put together a list of amendments for an immediate reprinting of the sold-out book, he would have been forcibly reminded that in constructing a case for common ancestry, the most useful characters are the most useless.[53] In nature interpreted by the Darwinian key, it is the non-adaptive characters, existing because they persist, inertially, from ancestors, not because they assist with the struggle for life and mates, which point the way into the past. From the Origin's penultimate chapter:

> [A]daptive character[s], although of the utmost importance to the welfare of the being, are almost valueless to the systematist. For animals, belonging to two most distinct lines of descent, may readily become adapted to similar conditions, and thus assume a

> close external resemblance; but such resemblances will not reveal – will rather tend to conceal their blood-relationship to their proper lines of descent.[54]

Not, it must be stressed, that Darwin would have needed any reminding here. His insight into the value of non-adaptive characters as clues to ancestry, and conversely, into ancestry as the best explanation of non-adaptive characters, went back as far as anything in his theorizing about transmutation – all the way back, on Jonathan Hodge's analysis, to pre-notebook-period, Beagle-vintage reflections on the birds of South America, where Darwin's observations of commonalities across similar species in very different environments provoked him into his first, still-tentative dissents from the strongly adaptationist doctrine of the independent creation of species as defended in Lyell's Principles of Geology.[55]

So for Darwin – back at Down House from mid-December 1859 – the search for new evidence to strengthen the common ancestry case for the human races would, more or less automatically, have meant the search for evidence of the commonality of useless, non-adaptive characters across the human races. That search in turn, given Darwin's conservative, even archival, tendencies when it came to his own previous theorizing, would have sent him back to his M and N notebooks, now within easy reach, and in any case reviewed by him only a few years before (as dated annotations to this effect testify).[56] And in their pages, as we have seen, Darwin had not only identified human emotional expression as a useless human character, but had invested heavily and creatively in a body of theorizing that took that uselessness for granted. Thus did this older theorizing – in many respects, and again as we have seen, so "non-Darwinian" – come to have a new significance for Darwin, and to earn afresh its place within his creative scientific life.[57]

In late 1859 and early 1860, Darwin dealt with an increasingly voluminous correspondence on his epoch-making book. Even so, at more or less the first opportunity, he

drew up his first list of expression queries, had a fair copy made, arranged for them to be sent to southern South America, and let Lyell know that he should watch that space.

Reconstructing Darwin's racial-reconstructive inquiry into emotional expression (IV): how, and how not, to connect the new inquiry to the British anti-slavery movement

We might well ask why, exactly, Darwin was sufficiently disturbed by Lyell's allegation to inaugurate a new inquiry in response. Fortunately a good answer lies to hand, in Adrian Desmond and James Moore's 2009 book *Darwin's Sacred Cause: Race, Slavery and* the Quest for Human Origins. Unfortunately the book purports to defend an implausible thesis – namely, that Darwin came up with his evolutionary theory in order to strike a blow against black slavery – and so that good answer risks getting overlooked.[58] No book is a package deal, however; and Desmond and Moore's especially, rich in new ideas and original scholarship, benefits from charitable reading and selective appropriation. On grounds of charity I incline to ignore the balder, programmatic statements of the thesis and concentrate instead on what the body of the book achieves. Putting those achievements to work in interpreting Darwin's 1859-1860 decision to collect new evidence on emotional expression across the human races – and thus to make possible what would become the Expression's "new argument" for the unity of the races, as well as the amazing deep-time historical reconstruction erected on its basis – is a step in the right direction.

To that end, three achievements in particular stand out. First, the book shows how deeply invested Darwin was from early days in the notion that the human races share a common ancestry. One can read a lot of Darwin without picking up on the extent to which he was far from neutral on this question. In the Descent, for example, he represents himself as having written a book about man at all only because he reckoned it was time to apply his

general theory in detail to a particular species, and man seemed as suitable as any. When he comes on later in the book to the races of man, he accordingly follows a pattern of argument familiar from the Origin, bringing on the common ancestry of the races only after first showing that some evidence supports the ranking of the races as mere varieties while other evidence supports their ranking as distinct, different species. We thus meet common ancestry in the human case as functioning no differently than it does elsewhere in the Darwinian oeuvre, as the best explanation for otherwise unresolvable ambiguity in varieties-or-species debates.[59] And again, in the Expression, Darwin springs the common-ancestry upshot of his racial evidence on the reader only at the very end, as a kind of surprise bonus, an interesting afterthought.[60] Behind such artfully displayed dispassion, however, lay a quite different biographical reality, as Desmond and Moore reveal. The common descent of the races – their unity in blood – was an article of faith in the culture of British anti-slavery in which Darwin grew up, thanks to his family's deep and longstanding involvement. In that culture, moreover, the denial of the unity of the races was associated with the slavers, who clung to it as a rationale for treating black men and women abominably.[61] Darwin's absorption of that set of linkages shines through in a letter that he sent to his cousin W. D. Fox in 1850. Commenting on a lecture recently given in Charleston, South Carolina by the Swiss naturalist Louis Aggasiz defending the multiple ancestry of the human races, Darwin wrote: "Agassiz's Lectures in the U.S. [maintain] the doctrine of several species,—much, I daresay, to the comfort of the slave-holding Southerns." Yes, it is a throw-away line in a private letter. But it is all the more telling for just that reason. When his guard was down, and the matter of the unity of the human races came up, Darwin showed himself to be every inch a child of the British anti-slavery movement – a movement whose cognitive as well as emotional consequences Desmond and Moore made vivid as no one before them.[62]

A second achievement of their book is the placing of Darwin within another, related transatlantic debate, over the origins of domesticated animal varieties as bearing on the question of human racial unity. So virtuosic is Darwin's argument in the Origin for the common ancestry of domesticated pigeons – we have seen the impression that it made on its first reader, Lyell – that we easily overlook the fact that Darwin saw himself not as putting forth a boldly controversial view but as siding with consensus ("I am fully convinced that the common opinion of naturalists is correct, namely, that all have descended from the rock-pigeon").[63] Strikingly, one of the books that helped to turn that view into common naturalist opinion was entitled The Doctrine of the Unity of the Human Race Examined on the Principles of Science, and published in, yes, Charleston in 1850, by an American clergyman-naturalist named John Bachman. A friend of Darwin's from time spent together in London in the late 1830s, and of Lyell's after Lyell visited on a trip to the States in the mid-1840s, Bachman made explicit the links he saw between his topic and the defense of slavery. Of course, he wrote, the Christian, so eager for the vindication of the Scriptural teaching of the unity of the human races, must not let that eagerness overcome his willingness to confront the facts as exhibited by scientific men. But others, with interests in the opposite direction, must take equal care:

> The advocates of a plurality of races should especially be on their guard lest the enemies of our domestic institutions should have room to accuse them of prejudice and selfishness, in desiring to degrade their servants below the level of those creatures of God to whom a revelation has been given, and for whose salvation a Saviour died, as an excuse for retaining them in servitude.[64]

Bachman was no abolitionist; indeed, his wife held slaves. But his unity-defending book is all the more representative of a moment when a range of people who disagreed about a great many things nevertheless regarded as connected (1) debates about the common or plural ancestry of the human races; (2) debates about the common or plural ancestry of domesticated animal varieties; and (3) debates about black slavery and what to do about it.[65] No wonder, then, that in the autumn of 1859, Lyell found it so natural to ask Darwin whether passages in the Origin seemingly backing a plural origin for dogs might leave room for his enemies to cast doubt on his larger case for common ancestry – and to associate that larger case in turn with the human races. And no wonder too that Darwin, for all that he found Lyell's persistence exasperating, took him seriously.

Where, in that autumn 1859 concatenation, was slavery? There is not even an index entry for "slavery" in the relevant volume of the Correspondence. Yet on Desmond and Moore's version of events, slavery was, subtly but pervasively, everywhere. Showing us just how profoundly bothered by slavery Darwin was – and, relatedly, how alert he was to its fortunes in the world, and how alarmed he would have been even to be suspected of aiding it – is the third achievement I want to try and bring into focus. We learn from Desmond and Moore, for example, that while writing the Origin, as the news out of America made war over slavery seem ever more inevitable, Darwin turned for downtime reading to a book reporting on life in the American slave states. His son later recalled Darwin saying how the horrors he had encountered in its pages had kept him up at nights (though that did not keep him, once the war had started, from recommending it).[66] Or consider the complex way in which, on Desmond and Moore's recounting, slavery and anti-slavery hovered over the Darwin-Lyell correspondence that autumn. Anti-slavery had been a Whig cause par excellence, and Lyell and Darwin each were the very picture of the Whig man of science. But Lyell on his trips to the States in the 1840s had become rather fond of the slave holders he had met, and had

written about their situation sympathetically. Darwin had rebuked him for it, in a letter to Lyell but also, Desmond and Moore suggest persuasively, in print, in a scorching but naming-no-names passage added to the 1845 edition of Darwin's Journal of Researches, a copy of which Darwin sent to Lyell (the new edition's dedicatee). "Those who look tenderly at the slave-owner," the passage runs, "and with a cold heart at the slave, never seem to put themselves into the position of the latter." At the end: "It makes one's blood boil, yet heart tremble, to think that we Englishmen and our American descendants, with their boastful cry of liberty, have been and are so guilty."[67] Accusatory concern about letting the side down on slavery, then, was part of the dynamic between Darwin and Lyell well before 1859. That autumn, briefly, Lyell reclaimed the moral high ground, in his implacable harping on the Origin's minor remarks on dogs as giving succour to the enemy. His provocation set in motion the thoughts and feelings that led Darwin, in compensatory mode, to inaugurate a new line of investigation into emotional expression across the human races.

Standing back from the details above, we can, thanks to Desmond and Moore, identify three main ways in which Darwin's belonging to the world of British anti-slavery throws light on his response to Lyell's criticisms in 1859-60: in instilling in Darwin a deep commitment, as much cognitive as moral, to the view that the human races share a common ancestry; in familiarizing him with the tradition of origins debates over domesticated animals serving a surrogate role for origins debates over humans (and thus over the legitimacy of black slavery); and in sensitizing him to the ongoing evils of black slavery as an outrage needing to be confronted and combatted. We miss out on a great deal if we fail to take these contexts – distinct but overlapping – into account in understanding why Darwin acted as he did when he did. And again, to acknowledge the explanatory power of these contexts is not therefore to accept that, in Desmond and Moore's words from their preface, "the British anti-slavery movement… is the key to explain why such a gentleman of wealth and standing

should risk all to develop his bestial 'monkey-man' image of our ancestry in the first place."[68] I doubt that there is just one key to Darwin, or that Darwin saw his theorizing about transmutation as especially risky for someone of his class (rather the reverse), or that his anti-slavery background mattered more to his initial theorizing on species than did his reading of Lyell and first-hand observations on bird biogeography in South America. I would not even say that Darwin's anti-slavery background is "the key" to understanding the origins of his cross-racial inquiry into human emotional expression. But I think it helps, as nothing else does, in understanding why Lyell's criticisms spurred Darwin to action.

If *Darwin's Sacred Cause* illuminates the Expression, the Expression returns the favor, as Darwin's racial-reconstructive inquiry can now be seen as bearing the stamp of the British anti-slavery movement more plainly than does anything in the Origin or the Descent. Charitably minded readers should, among other indulgences, supply Desmond and Moore's book, which ends in 1871 and the Descent, with a new final chapter. In doing so, moreover, they can remedy a further shortcoming by giving due prominence to an uncomfortable passage in the Expression where Darwin claims that his theory well explains why "the children of savages should exhibit a stronger tendency to protrude their lips, when sulky, than the children of civilized Europeans." Savage children express a sulky state of mind more strongly, Darwin goes on, because "the essence of savagery seems to consist in the retention of a primordial condition."[69] Even in the Expression, site of Darwin's most original contribution to the case for the unity of the human races, he is unembarrassed about his belief in a racial hierarchy. For Darwin, savages are closest to our animal-like progenitors, and savage children closest of all. Desmond and Moore tend to treat such race-hierarchical moments in Darwin's writings – and there are more than a few – as a sign of Darwin contradicting his better self. But with Darwin, as with that other great anti-slavery man with

whom he shared a birthday, Abraham Lincoln, the challenge is to re-inhabit a conception of racial unity that, unlike our own, took racial hierarchy for granted.[70]

Concluding remarks and summary

I take as my final heading the title that Darwin gave to the final chapter of the Expression. As we have seen, Darwin there discharged the traditional end-of-the-book obligation of reviewing the preceding pages by reorganizing his major findings into a deep-time history of emotional expression. Without any illusions about how my efforts compare with Darwin's, I want also now to summarize chronologically what I have so far presented, for expository purposes, out of chronological order.

While Darwin was a medical student at Edinburgh in the 1820s, he encountered the topic of emotional expression as bearing in a subversive, materialist vein on questions about how mind relates to body and how humans relate to non-human animals. Unsurprisingly, when he began in the late 1830s to work out the subversive, materialist implications of his new species theory for the understanding of the human mind, he seized upon emotional expression in the familiar Edinburgh spirit, as showing how little control our wills have over our bodies, and how much the peculiar connections between our feelings and their expression owe to habits formed either by ourselves or – as comparisons with apes and other animals suggested – by our ancestors. There is scant sign in Darwin's notebooks from this period of an interest in whether the different human races express emotions in the same way, much less in whether the collection of evidence for that sameness might be useful in defending the doctrine that all the races share a common ancestry: a central tenet of the British anti-slavery movement to which Darwin was heir. The idea of gathering evidence on cross-racial emotional expression emerged for Darwin only some twenty years later, between October

1859 and January 1860, in the course of his correspondence on the Origin of Species with Lyell. For Lyell, Darwin's backing of multiple origins for domesticated dog varieties in the Origin contradicted and thus weakened his general argument for common ancestry, including the common ancestry of the human races. Darwin thought that Lyell was making too great a fuss over what was not even an exception to the rule, just a minor and local complication. But even being suspected of giving "comfort to the Southern slavers," as Darwin once accused the multiple-origins Agassiz of doing, was not something the passionately anti-slavery Darwin would have taken lightly. He knew, moreover, as Lyell did, that over the past twenty years, as the campaign for the abolition of black slavery in the United States had gathered momentum, the common-or-multiple origins of the human races had often been argued in tandem with the common-or-multiple origins of domesticated animal varieties. And Darwin also knew that in his recently reviewed notebooks on the human mind, he had treated emotional expression as just the sort of non-adaptive character required for the reconstruction of descent from a common ancestor. Within six weeks of the publication of the Origin, Darwin had a new response to Lyell's accusation: a questionnaire about emotional expression in other races. He sent it in the first instance to Tierra del Fuego, via the same imperial-missionary network that had initially taken him to that place of maximally-different-from-him humans. For reasons both mundane and bizarre, he ended up not receiving the answer until early in 1867. But from that point he mounted an ever escalating attack on the problem, eventually receiving, as he wrote in the Expression's introduction, "thirty-six answers from different observers, several of them missionaries or protectors of the aborigines, …. [and relating] to several of the most distinct and savage races of man." On their basis, and in particular on what he claimed as evidence for the universality of human emotional expression across the world, he erected, in the book's conclusion, "[a] new

argument" for the unity of the human races, and reconstructed the shared deep-time history behind their common emotional expressions.

For anyone curious about the science-empire relationship, what is immediately striking in the above is that empire comes up in two equally important but, as it were, opposite forms. There is, on the one side, empire in those myriad, power-entrenching and power-extending forms so well represented in the Beagle voyage, from the coastal surveying that was its official rationale to the article that Darwin and his captain, Robert Fitzroy, co-authored in praise of the Tahitian missionaries and their civilizing work.[71] But there is also, on the other side, that remarkable renunciation of one widespread imperial practice, slavery, by the British movement for the abolition of this practice. Without this movement, Darwin would never have come to be so deeply committed to defending the common ancestry of the human races, so sensitive to the charge that his pluralism about domesticated dogs might have imperilled the case for racial unity, and so determined to support that case with fresh evidence. Without the empire itself, there would never have existed that network of global observers ready to serve as Darwin's eyes and ears on emotional expression, nor would Darwin have enjoyed the level of access to that network which, in the form of his Beagle mate turned Fuegian mission master Sulivan, functioned as an immediate point of entry. We can, if we like, label Darwin's cross-racial expression inquiry, and the deep-time history that Darwin reconstructed on its basis, "imperial science," provided our conception of empire is capacious enough to include its negation.[72]

But however we choose to label it, the inquiry looks, as a product of history, rather fragile. The idea for it came to Darwin relatively late and relatively suddenly. There were no obvious precedents for it in the work of others, and no reason to think that Darwin would have invented it absent the pressure that came from Lyell as and when it did. (Though that it came from Lyell was, given their shared background and their own history on slavery/anti-

slavery, no accident.) Darwin's answers to his humanly historicizing questions look no less fragile under closer historical inspection. It has, for example, long been noted that in the expression questionnaire published in the Expression, Darwin quietly dropped a question from the version that circulated in the late 1860s, about whether, as "a sign to keep silent, … a gentle hiss [is] uttered." The editor of the third edition of the book, Paul Ekman, suggested that maybe Darwin left out shushing "because unlike the others it does not deal with expression or gesture."[73] More recently, however, Hong-Jin Liu, on the strength of a systematic examination of Darwin's correspondence on expression from China and other parts of Asia, has proposed an alternative explanation: that Darwin scuppered the question because the information he received indicated that shushing when wanting to silence others was far from universal. We might well look again at how Darwin handles the evidence he did publish, adroitly acknowledging all sorts of diversity in his discussions of particular expressions (such as indignation, expressed, as we saw, mostly but not exclusively by clenched fists), yet still declaring at the end a sameness that is inexplicable unless the races share a common, nearly-human ancestor.[74]

Or consider that insistence on the non-adaptive nature of emotional expression: the premise on which Darwin founds not only his explanatory principles of expression but, ultimately, his case for the common descent of the human races. No sooner has Darwin set out that case, including his deep-time historical reconstruction of how and when our lineage acquired its emotional expression, than he casually admits that, in all sorts of ways, our emotional expressions are useful in the struggle:

> The movements of expression in the face and body, whatever their origin may have been, are in themselves of much importance for our welfare. They serve as the first means of communication between the mother and her infant; she smiles approval, and

> this encourages her child on the right path, or frowns disapproval. We readily perceive sympathy in others by their expression; our suffering are thus mitigated and our pleasures increased; and mutual good feeling is thus strengthened….[75]

Little wonder that Darwinians in our time, relaxed about the unity and indeed biological equality of the human races (on Darwinian grounds), have found it wonderfully easy to explain human emotional expression as the upshot of natural selection. Nor, in Darwin's own time too, did his historicizing efforts in the Expression always persuade. The reviewer for the Times, for example, noted waspishly that "whenever Mr. Darwin is in a great difficulty he brings in an early progenitor to cut the knot." "[T]he suppositions of the Ptolemaic system," complained the reviewer, "were a modest contrivance compared with this device," which the reviewer further impugned with words that, in the book, Darwin had aimed at the doctrine of the independent creation of species: "By this doctrine, anything and everything can be equally well explained."[76] That was unfair, but not wildly so. Darwin in the Expression did not solve the problem of how best to use evidence from the present in order to constrain conjectures about the deep-time historical human past. But he made a remarkably good – and, when slavery came to mind, clenched – fist of it.

His most outrageous conjectures, as I noted at the outset, were to do not with what actually happened in the deep-time history of humankind but with what might have happened – with, as we would say now, the counterfactual past. The contingency of the history of life, its profound dependence on chanciness, above all the chanciness of which species end up in which environments, was there for Darwin from the start, in those first Beagle-era questionings of the arch providentialist Lyell.[77] The Times reviewer was onto something, then, in linking Darwin's reconstructive reasoning about human emotional expression with the wider challenge of the whole Darwinian project to the idea of divine micromanagement of

earthly happenings. Working out exactly what impact those linked innovations had on historical thinking more broadly is a job for future historians of historicization. For now, we can do worse than notice how far the chanciness of encounter at the heart of Darwin's historicizing of species was, as Jonathan Hodge has stressed, part and parcel of the colonial expansion at the heart of Beagle-vintage English capitalism.[78] A final return to the autumn 1859 correspondence between Darwin and Lyell over the Origin furnishes an emblematic moment out of this imperial history of historicity. What finally converted a reluctant Lyell to Darwin's side of the argument on species origins was Darwin's observation, in a letter of 11th October, that over and over again, when Europeans brought their animals and plants to the often very different environments of their colonies, the newly introduced species thrived, to the point of going native. That showed, in Darwin's (and eventually Lyell's) view, that species were not all designed specially for the habitats where they originated, fitting tightly in every detail to conditions in their native locales and to nowhere else. Species were the products not of miraculously providential handicraft but of mundanely contingent historical process.[79] Thus did a lesson of empire become one of the first lessons of a new kind of science – and a new kind of history in the bargain.

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[1] Charles Darwin, The Descent of Man, and Selection in Relation to Sex, 2 vols (London: John Murray, 1871), vol. 1, 73. Scans of all books by Darwin cited here can be accessed at the Darwin Online website, http://darwin-online.org.uk/.

[2] Charles Darwin, The Expression of the Emotions in Man and Animals (London: John Murray, 1872), 365.

[3] On the Expression, the best introduction remains Janet Browne, "Darwin and the Expression of the Emotions," in The Darwinian Heritage, ed. David Kohn (Princeton: Princeton University Press). A very stimulating recent collection of papers on the book is Angelique Richardson, ed., After Darwin: Animals, Emotions, and the Mind (New York: Rodopi, 2013).

[4] Darwin, Expression of Emotions, 246–49.

[5] Darwin, Expression of Emotions, 361.

[6] Darwin, Descent of Man, vol. 1, 228–35. See also Stephen Alter, "Race, Language, and Mental Evolution in Darwin's Descent of Man," Journal of the History of the Behavioral Sciences 43 (2007).

[7] Gregory Radick, "Darwin's Puzzling Expression," Comptes Rendus Biologies 333 (2010), offers a critical summary of this sub-literature along with a preliminary sketch of the argument of this essay.

[8] Darwin, Descent of Man, vol. 1, 152–53.

[9] On the Expression and Darwin's Lamarckism, see Gregory Radick, "Darwin on Language and Selection," Selection 3 (2002): 11–14.

[10] Alan Fridlund, "Darwin's Anti-Darwinism in the Expression of the Emotions in Man and Animals." In International Review of Studies on Emotion, vol. 2, ed. K. T. Strongman (Wiley: Chichester, 1992).

[11] Darwin, Descent of Man, vol. 1, 107–36.

[12] See, e.g., Fridlund, "Darwin's Anti-Darwinism," 125, 128–30; Paul Ekman, "Introduction [and Commentaries]," in The Expression of the Emotions in Man and Animals, by Charles Darwin, 3rd edition (London: HarperCollins, 1998), xxxiii–iv, along with many of his subsequent remarks interpolated into Darwin's text; and Steven Pinker, "Still Stimulating After All These Years," review of Ekman's edition of the Expression, Science 281 (24 July 1998).

[13] For further discussion see Radick, "Darwin's Puzzling Expression," 182–83.

[14] Darwin, Expression of Emotions, 361.

[15] Elliott Sober, who calls the inference from similarity to common ancestry "modus Darwin," provides an exhaustive analysis of the difficulties besetting it (there are many more than I touch on here) in Elliott Sober, Evidence and Evolution: The Logic Behind the Science (Cambridge: Cambridge University Press, 2008). For discussion, see Gregory Radick, "Evidence-Based Darwinism," Biological Theory 5 (2010).

[16] Darwin, Expression of Emotions, 361, 147.

[17] Darwin, Expression of Emotions, 361–64.

[18] Darwin, Expression of Emotions, 147–77, 362.

[19] Darwin, Expression of Emotions, 363, drawing on 226–28; Darwin, Descent of Man, vol. 1, 140ff.

[20] Darwin, Expression of Emotions, 337–47, 364.

[21] Darwin, Expression of Emotions, 364–65.

[22] On later-famous Darwinian ideas originating after the notebook period as in the minority, see Jonathan Hodge, "The Notebook Programmes and Projects of Darwin's London Years," in The Cambridge Companion to Darwin, 2nd edition, eds. Jonathan Hodge and Gregory Radick (Cambridge: Cambridge University Press, 2009), 44. On 1866 as the birth year (or near to it) of Darwin's expression questionnaire, see Paul White, "Darwin's Emotions: The Scientific Self and the Sentiment of Objectivity," Isis 100 (2011): 817. The 1867 volume of the Darwin Correspondence has a useful appendix on the questionnaire and associated activity that year: Frederick Burkhardt et al., The Correspondence of Charles Darwin, vol. 15 (Cambridge: Cambridge University Press, 2005), 525–26.

[23] Scans of the M and N notebooks together with transcriptions can be accessed at the Darwin Online website, http://darwin-online.org.uk/ The "industry standard" printed transcriptions with annotations are in Paul Barrett et al., *Charles Darwin's Notebooks 1836–1844* (Cambridge: Cambridge University Press and London: Natural History Museum, 1987), 517–96. But an older volume, well worth seeking out for its thoughtful and informative commentary, and including key excerpts from Darwin's other notebooks, is Paul Barrett, Metaphysics, Materialism and the Evolution of Mind: Early Writings of Charles Darwin (Chicago: University of Chicago Press, 1980), itself an abbreviated edition of Howard Gruber, Darwin on Man: A Psychological Study of Creativity (London:Wildwood House, 1974).

[24] Here I adopt the standard convention of giving the notebook name followed by the page number.

[25] An apparent exception is an entry on blushing at N15 that begins: "Does a negress blush[?]" But it is immediately answered in the affirmative, with Darwin recording his near-certainty that the Fuegians that he travelled with on the Beagle blushed. The entry carries on to consider animal blushing, the physiology of blushing, the blushing of children...

[26] On Darwin's notebook theorizing on expression as looking back to Zoonomia rather than forward to the Origin and the Descent, see William Montgomery, "Charles Darwin's Thought on Expressive Mechanisms in Evolution," in The Development of Expressive Behavior: Biology-Environment Interactions, ed. Gail Zivin (London: Academic Press, 1985), 38–42.

[27] Gregory Radick, *Edinburgh and Darwin's* Expression of the Emotions. Edinburgh: Institute for Advanced Studies in the Humanities, 2009.

[28] Darwin to Lyell, 10 Jan. 1860, in Burkhardt et al, Correspondence of Charles Darwin, vol. 8, 28–30, 28. All letters cited here can also be found online at the Darwin Correspondence Project website, https://www.darwinproject.ac.uk/.

[29] Burkhardt et al., Correspondence of Charles Darwin, vol. 8, 19–21; Richard B. Freeman and Peter J. Gautrey, "Charles Darwin's Queries about Expression," Bulletin of the British Museum (Natural History), Historical Series 4 (1972): 213–14.

[30] Burkhardt et al., Correspondence of Charles Darwin, vol. 8, 400–401, 401.

[31] On Bridges, Sulivan and Darwin, see Gregory Radick, "Did Darwin Change His Mind about the Fuegians?" Endeavour 34 (2010).

[32] On Stirling's visit see Henry Norton Sulivan, ed. Life and Letters of the Late Admiral Sir *Bartholomew James Sulivan, K.C.B., 1810–1890* (London: John Murray, 1896), 387.

[33] Sulivan to Darwin, 11 January 1867, in Burkhardt et al., Correspondence of Charles Darwin, vol. 15, 25–26, 25.

[34] Sulivan to Darwin, 25 Dec. 1866, Darwin Correspondence Project, "Letter no. 5325," accessed on 4 August 2016, http://www.darwinproject.ac.uk/DCP-LETT-5325.

[35] Darwin to Sulivan, 31 Dec. 1866, Darwin Correspondence Project, "Letter no. 5330," accessed on 4 August 2016, http://www.darwinproject.ac.uk/DCP-LETT-5330.

[36] Sulivan to Darwin, 11 January 1867, in Burkhardt et al., Correspondence of Charles Darwin, vol. 15, 25–26, 25.

[37] Darwin to Sulivan, 15 January 1867, in Burkhardt et al., Correspondence of Charles Darwin, vol. 15, 35. An exchange of letters between Sulivan and Darwin in 1881 about Bridges' work on the language of the Fuegians went on to have a remarkable afterlife within Christian-missionary polemics about Darwin's supposed change of mind at the end of his life about the lowliness of the Fuegians; see Radick, "Did Darwin Change?"

[38] Darwin wrote to T. H. Huxley on 7th January about sending "the M.S of my Big book … to the Printers," and of now "thinking of a Chapter on man." Darwin to Huxley, 7 Jan. 1867, in Burkhardt et al., Correspondence of Charles Darwin, vol. 15, 15–16, 15.

[39] See the letters from Darwin to Fritz Müller (22 Feb. 1867), Julius von Haast (27 Feb. 1867), Robert Swinhoe (27 Feb. 1867), J. P. M. Weale (27 Feb. 1867), and Ferdinand von Mueller (28 Feb. 1867) and from Asa Gray to Darwin (26 March 1867), in Burkhardt et al., Correspondence of Charles Darwin, vol. 15, 92–94, 110–116, 175–76. On the Queries about Expression, see, in addition to the dedicated appendix in this volume, 525–26, and Freeman and Gautrey, "Charles Darwin's Queries [1972]," a brief follow-up paper by them, "Charles Darwin's Queries about Expression," Journal of the Society for the Bibliography of Natural History 7 (1975). Both papers, along with five versions of the printed queries, are available at the Darwin Online website, http://darwin-online.org.uk/.

[40] On Brooke, see the letter from Wallace to Darwin, in Burkhardt et al., Correspondence of Charles Darwin, vol. 15, 119–20 and Darwin, Expression of the Emotions, 21. On Swinhoe,

see note 6 on the letter from Darwin to P. L. Slater, 4 May 1861, Darwin Correspondence Project, "Letter no. 3138," accessed on 4 August 2016, http://www.darwinproject.ac.uk/DCP-LETT-3138, and Darwin, Expression, 21.

[41] I take the phrase "information order" from Simon Schaffer, "Newton on the Beach: The Information Order of Principia Mathematica." History of Science 47 (2009). (Schaffer took it from C. A. Bayly.)

[42] Darwin, Expression of the Emotions, 15.

[43] In his M notebook, Darwin not only noted the salutary effect of cold water on him but speculated boldly on its significance. "It is," he wrote, "an argument for materialism that cold water brings on suddenly in head, a frame of mind, analogous to those feelings, which may be considered as truly spiritual" (M19).

[44] See Mike Dixon and Gregory Radick, Darwin in Ilkley (Stroud: History Press, 2009), 26 for the quotation, from Darwin to Lyell, 30 Sept. 1859, in Burkhardt et al., Correspondence of Charles Darwin, vol. 7, 338–39, 338.

[45] Darwin, Origin of Species, ch. 1, 19–20 on dogs.

[46] Darwin, Origin of Species, ch. 8, 253–54 on dogs.

[47] On this correspondence in context, see Adrian Desmond and James Moore, *Darwin's* Sacred Cause: Race, Slavery and the Quest for Human Origins (London: Penguin, 2009), 311–13, and Dixon and Radick, Darwin in Ilkley, 79–83. Darwin returned to dogs at much greater length in The Variation of Animals and Plants Under Domestication, 2 vols. (London: John Murray, 1868), where he explained that "[t]he main argument in favour of the several breeds of the dog being the descendants of distinct wild stocks, is their resemblance in various countries to distinct species still existing there" (1, 19–20). The most extensive discussion of Darwin's views on the origins of dogs can be found in Clare O'Reilly, "Darwin, Dogs and the Tree of Life: A Revisionist Account of the Role of Cross-Breeding and

Hybridism in Darwin's Evolutionary Theorising" (MA diss., University of Leeds, 2014). Scientific debate on the evolutionary origins of dogs remains lively, though there is consensus that they derive, as Lyell thought, from ancestral wolves. See Gemma Tarlach, "The Origins of Dogs," Discover (December 2016), 32–39.

[48] Lyell to Darwin, 22 Oct. 1859, in Burkhardt et al., Correspondence of Charles Darwin, vol. 13, 418–20, 418–19, emphasis added.

[49] Darwin to Lyell, 25 Oct. 1859, in Burkhardt et al., Correspondence of Charles Darwin, vol. 7, 357–59, 357, emphasis in original.

[50] Lyell to Darwin, 28 Oct. 1859, in Burkhardt et al., Correspondence of Charles Darwin, vol. 7, 362–63, 363. See also, in the same volume, Darwin to Lyell, 31 Oct. 1859 (363–64), and Lyell to Darwin, 21 Nov. 1859 (384–85). Darwin referred to this correspondence in a letter sent around the same time to his older sister Caroline, who shared Lyell's worries about the Pallasian dog passage ("Lyell was bothered on same point and I have not expressed myself clearly. By my theory, all dogs … have descended from some one very ancient species.") (386–87, 386).

[51] Darwin to Lyell, 23 Nov. 1859, in Burkhardt et al., Correspondence of Charles Darwin, vol. 7, 391–93, emphasis in original.

[52] Darwin, Descent of Man, vol. 1, 229.

[53] On Darwin's work in Ilkley on what became the second edition of the Origin, see Dixon and Radick, Darwin in Ilkley, 107–109.

[54] Darwin, Origin of Species, 427.

[55] See Jonathan Hodge, "Darwin, the Galápagos and his Changing Thoughts about Species Origins: 1835–1837." Proceedings of the California Academy of Sciences, series 4, vol. 61, supp. II (2010).

[56] The cover of the M notebook reads: "This Book full of Metaphysics on Morals and Speculations on Expression – 1838 [/] Selected Dec. 16, 1856." On the cover of the N notebook Darwin wrote something similar, with the same date.

[57] I do not mean to suggest that the suitability of Darwin's notebook theorizing on expression for making a common-ancestry case was the only attraction it held for him. When Lamarckian use inheritance was widely accepted, Lamarckian explanations for behaviour could seem, compared with natural-selection explanations, both better evidenced (because based on habit formation, which anyone could witness, rather than on chance inheritable brain variations, which no one could witness) and more powerful (because where natural selection can explain in a general way why, say, emotions are expressed at all, and even why pairs of expressions come to be the opposite of one another, typically it cannot explain why particular expressions express the emotions they do – that is put down to chance). Even into the 1940s, evolutionarily-minded biologists who were otherwise well-disposed towards natural selection found Lamarckian explanations of the origins of behaviour much more straightforwardly intelligible – hence the considerable relief they felt when the Baldwin Effect, where adaptive habitual behaviour leads and selection follows, emerged as a theoretical option. See, on these themes, Radick, "Darwin on Language," 12–14, and "Animal Agency in the Age of the Modern Synthesis: W. H. Thorpe's Example," in Animal Agents: The Non-Human in the History of Science, ed. Amanda Rees. BJHS Themes 2. Cambridge: Cambridge University Press, in press.

[58] The subtitle of the American edition is *How a Hatred of Slavery Shaped Darwin's Views* on Human Evolution. Unconvinced reviewers include Robert J. Richards, "Descent of Man," American Scientist 97 (2009) and Patricia Fara, "[Review of Desmond and Moore, *Darwin's* Sacred Cause]," Journal of Historical Geography 35 (2009). Cf. Gregory Radick, "[Review of Desmond and Moore, *Darwin's Sacred Cause*]," Times Higher Education (12 Feb. 2009).

[59] Darwin, Descent of Man, vol. 1, 217–29; Darwin, Origin of Species, 419–20.

[60] On the recurrence of surprise-bonus argument structures, at every scale, throughout Darwin's published writings, and their link to an ideal of scientific argumentation known as the vera causa ideal, see Gregory Radick, "Race and Language in the Darwinian Tradition (and what Darwin's Language–Species Parallels have to do with it)." Studies in History and Philosophy of Biological and Biomedical Sciences 39 (2008): 363.

[61] Desmond and Moore, *Darwin's Sacred Cause*, esp. chs. 1 and 3.

[62] Darwin to Fox, 4 Sept. 1850, Darwin Correspondence Project, "Letter no. 1352," accessed on 4 August 2016, http://www.darwinproject.ac.uk/DCP-LETT-1352. Desmond and Moore misidentify the recipient as Lyell; Desmond and Moore, *Darwin's Sacred Cause*, 242.

[63] Darwin, Origin of Species, 23.

[64] John Bachman, The Doctrine of the Unity of the Human Race Examined on the Principles of Science (Charleston, SC: Canning, 1850), 8, and 135–36 on pigeons. On Bachman, see Desmond and Moore, *Darwin's Sacred Cause*, esp. 176, 194 and 209–14.

[65] Desmond and Moore, *Darwin's Sacred Cause*, esp. chs. 8 and 9, with a pithy summary on 243–44.

[66] The author-traveller was Frederick Law Olmsted, better remembered today as the designer of Central Park in New York City. On Darwin as a reader of Olmsted's, see Desmond and Moore, *Darwin's Sacred Cause*, 308–309.

[67] Charles Darwin, Journal of Researches into the Natural History and Geology of the Countries Visited During the Voyage of H.M.S. Beagle Round the World (2nd edition. London: John Murray, 1845), 500. For discussion, see Desmond and Moore, *Darwin's* Sacred Cause, 180–83. Later in life Darwin learned with pleasure that the American abolitionist William Lloyd Garrison had admired the added passage; Desmond and Moore, *Darwin's Sacr*ed Cause, xx.

[68] Desmond and Moore, *Darwin's Sacred Cause*, xvii.

[69] Darwin, Expression of Emotions, 234–35.

[70] For further discussion on Darwin and race, see Radick, "Did Darwin Change?" and Radick, "Race and Language" (with light criticism of Desmond and Moore on this score in Radick, "[Review])." On Lincoln and race, see Garry Wills, "Lincoln's Black History," New York Review of Books (11 June 2009).

[71] On empire and the Beagle, see Hodge, "Notebook Programmes," 70; on Darwin, Fitzroy and the missionaries, see Radick, "Did Darwin Change?," 53.

[72] It should be stressed that, while a historian looking back can see these dependencies and inversions, Darwin betrayed not even the slightest awareness of them.

[73] Ekman, "Introduction [and Commentaries]," 24.

[74] Hong-Jin Liu, "Data and the Development of Research Methods in the Science of Human Emotional Expression from Darwin to Klineberg" (PhD diss., University of Leeds, 2016), esp. ch. 2. Well after the social psychologist Otto Klineberg (1899–1992), human expressive diversity remains a topic of interest. See, e.g., Michael Price, "Facial Expressions – Including Fear – May Not Be as Universal as We Thought," Science online edition (17 October 2016).

[75] Darwin, Expression of Emotions, 365–66.

[76] [Anonymous], "[Review of Darwin, Expression of Emotions]," The Times (13 December 1872), quoting from Darwin, Expression of Emotions, 12 (I have given the version in Darwin's text). A scan of the original review is available at the Darwin Online website, http://darwin-online.org.uk/ On the reviews of the Expression generally, see Angelique Richardson, "'The Book of the Season': The Conception and Reception of Darwin's Expression," in Richardson, After Darwin, 69–79.

[77] The classic discussion of chance versus providence in Darwin's thought is Jonathan Hodge, "Natural Selection as a Causal, Empirical, and Probabilistic Theory," in Before and After

Darwin: Origins, Species, Cosmogonies, and Ontologies (Aldershot: Ashgate, 2008), esp. 240–46. For his more recent reflections see Jonathan Hodge, "Chance and Chances in Darwin's Early Theorizing and in Darwinian Theory Today." In Chance in Evolution, eds. Grant Ramsey and Charles H. Pence (Chicago: University of Chicago Press, 2016).

[78] See Hodge, "Notebook Programmes," 69-71 and Jonathan Hodge, "Capitalist Contexts for Darwinian Theory: Land, Finance, Industry and Empire." Journal of the History of Biology 42 (2009): 407–408 esp..

[79] On Lyell's conversion or, as he joked to Darwin, perversion, and the role in it of Darwin's observations about how rapidly European species had naturalized in newly colonized countries, see Dixon and Radick, Darwin in Ilkley, 28–29 and 32 n. 15.