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By Shattering the Vulture's Nose

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By Shattering the Vulture's Nose

Jonathan Gray opens his entry on “Vultures: Consumptions and Conjurings” in the 2017 *Rhetoric Society Quarterly* by alluding to the “noxious . . . pong of rot or stench of brimstone” associated with the underappreciated scavengers. When articulating his multisensory engagements, Gray first cites his “environmentalist’s nose” (Gray 238). Such olfaction-centric rhetoric around vultures may be readily accepted today, but was once suppressed for over a century due to an ornithological debate between 19th-century naturalists John James Audubon and Charles Waterton. Notably, both men authored imaginative autobiographical writings of questionable veracity. Furthermore, each managed to develop any scientific reputation to speak of through their art alone: Audubon through his *Birds of America* (1827-1838) prints and Waterton as a masterful taxidermist.

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When John James Audubon countered the common stance that scavenger birds used olfaction to find food in 1826, he did so with characteristic hubris in “An Account of the Habits of the Turkey Buzzard (*Vultur Aura*¹), Particularly with the View of Exploding the Opinion Generally Entertained of Its Extraordinary Power of Smelling.” The second half of his lengthy, sensationalistic title resembles clickbait “science” articles trending on today’s newsfeeds, but its content created more lasting chaos and confusion, given the lack of means for the audience to quickly fact-check.

The one major attempt to refute his claim came from a rival who surpassed the American woodsman in eccentricity: Englishman Charles Waterton, who studied the vultures while writing *Wanderings in South America* (1825). Waterton’s essay bears a more modest name—“On the Faculty of Scent in the Vulture”—but its opening moves are bloated with pathos-laden humor and unscientific hyperbole:

I never thought that I should have lived to see this bird deprived of its nose . . . I grieve from my heart that the vulture’s nose has received such a tremendous blow; because the world at large will sustain a great loss by this sudden and unexpected attack upon it . . . Now, as the vulture has not been killed by artillery of this modern writer [Audubon].

¹ *Vultur Aura* was the Linnaean name for the turkey buzzard, or turkey vulture—the scientific name used more commonly today for this species is *Cathartes aura*.

. . . but has only had its nose carried away by an explosion, I will carefully gather up the shattered olfactory parts, and do my best to restore them to their original shape and beautiful proportions. (Waterton 234)

This dramatic exchange erupted into what Waterton's biographer Brian Edginton characterized as the "the most savage internecine combat over the power of smell attributable to the turkey buzzard's nose . . . a civil war amongst naturalists" (109). Indeed, a hard-nosed battle involving art, science, and letters was fought between Waterton's "Nosarians" and Audubon's "Anti-nosarians" (1838).

Both naturalists were prone to artifice, and by today's standards would be considered more artists than scientists. Audubon was a master of amplification, and best known for his enormous *Birds of America*, published in five volumes from 1827 to 1838, and its accompanying *Ornithological Biography* (1831-1839). Printed on the largest paper available at the time, each volume of *Birds of America* was over three feet long and two feet wide (39 by 26 inches). Until 2004, it was not only the "largest and heaviest and most outrageously material works of illustration ever made," but "the largest book ever published, period" (Roberts 78). Audubon portrayed even the broadest birds in full dimensions "from life" at "actual size"—pioneering a method of pinning freshly killed specimens in lifelike forms on a grid for the most dynamic, realistic illustrations.

Audubon achieved his scientific clout, if anything, from his art—ironic, since even in his day, there were naturalists who "sharply criticized" his "elegantly symmetrical and sometimes anthropomorphized compositions of birds . . . as falsifications of nature" (Daston and Galison 79). Robert M. Mengel notes in the *Dictionary of Scientific Biography* (1970): "The chances seem to be very good that had he not been an artist, he would be an unlikely candidate for a dictionary of scientific biography, if remembered to science at all" (Mengel qtd. in Weissmann 9).

Although Audubon was much more a naturalist than a scientist, he was working at a moment when academic scientists were only beginning to formalize professional, disciplinary alliances to distinguish themselves from the adventurous, undisciplined ways of amateur naturalists. The messiness of this liminal moment in science proved kairotic for Audubon, who was allowed significant methodological leeway. With a knack for penning vibrant prose, and strategic, international networking, Audubon performed rhetorical feats that won him support over Waterton, at least in the case of vulture olfaction.

The epigraph editors selected for *John James Audubon's Journal of 1826: The Voyage to the Birds of America* show Audubon being self-aware of his academic limitations but confident in his credibility. The epigraph cited Audubon's 1826 letter to Thomas Stuart Traill:

[I]f my work deserves the attention of the Public, it will stand on its own legs as firm as if joined to those of men who are no doubt far my superiors in point of education and literary acquirements, but not so in the actual courses of observations of Nature at her Best—in her Wilds!—as I positively have done.

Fact-checking Audubon proves the man was an unapologetic fictionalizer in all his work. As an illegitimate child born by a chambermaid of a sea captain in what is now Haiti, he was sent to the United States with his Americanized name and a fake passport to avoid Napoleon's draft. In his writings, he often fictionalized his origins and details about his family. In his later life, he illustrated invented species to prank his competitors, from a set of fish and rodents for Constantine Rafinesque, to the yellow-headed warbler for Alexander Wilson, whose *American Ornithology* inspired Audubon's *Birds of America* in the first place. As a supporter of Wilson's original work, which never achieved the fame of Audubon's flashier project, Waterton's grudge against Audubon was bigger than the case of the buzzard's nose.

Waterton was known as a jokester, in different ways than Audubon. He was a serious early figure in environmental conservation and taxidermy innovation, but better known for grafting together skins to craft hybrid hoax specimens, including the humanoid figure of the "Nondescript" pictured as the frontispiece in *Wanderings*. For all his contributions to environmental protection and knowledge, he is best remembered for his hoaxes and eccentricities. The list in page one of Edginton's biography samples Waterton's best-known anecdotes—"He rode an alligator, boiled a toucan, talked to insects, fought with snakes, apostrophized woodpeckers, phlebotomised himself, offered his toe to the vampire bats and indulged in all manner of scientific monkey business with the primates . . ." (Edginton 1).² If we trust the extensive autobiographical and biographical documentation, Waterton's eclectic flaunted antics may seem strange enough to be invented—but they appear to check out as consistently authentic. This, too, is in stark contrast to Audubon's fabrications, where truths and falsities were woven so seamlessly together they often went unquestioned until pressed.

In their blow-up over whether the birds were naturally anosmic, Audubon's claims were ultimately viewed as accessible and colloquially prosed, while according to contemporary ornithologist Tim Birkhead, Waterton's "arguments were so convoluted, and his manner so strange, that the ornithological community ignored him" (Birkhead 132). Edginton concedes with regret, "The academics, naturally, took Audubon's side" (Edginton 109), and Waterton did not live to see the vultures restored of their "shattered olfactory parts" (Waterton 234).

Audubon had sailed to England with his paintings in 1826 to seek subscribers when he became a success overnight—according to the Audubon Society website,³ his "life-size, highly dramatic bird portraits, along with his embellished descriptions of wilderness life, hit just the right note at the height of the Continent's Romantic era" ("John James Audubon"). Given the sudden fame

²See Victoria Carroll's *Science and Eccentricity: Collecting, Writing, and Performing Science for Early Nineteenth-Century Audiences* (2008) for further theorization on eccentricity, including analyses of anecdotes of Waterton's many antics.

³This quote originally appeared in a biographical sketch of John James Audubon on the National Audubon Society's website (www.audubon.org). This original piece no longer exists, but the quote can still be found on various sites including the regional page cited here.

and support Audubon had from influential figures, it is perhaps less surprising that his vulture essay, published the same year, was so successful.

He also framed the essay by demurely assuring his audience in the opening pages of how he “assiduously engaged in a series of experiments to prove, to *myself* at least, how far this acuteness of smell existed, or if it existed at all” in turkey buzzards (Audubon 173). With this likely feigned emphasis, Audubon assigns readers the responsibility to decide for themselves whether to trust his subsequent observations. Waterton mimics this move to lesser effect in his 1832 response in the *Magazine of Natural History*, writing, “I will set to work upon my own resources, and then the reader shall decide whether the vulture is to have a nose, or to remain without one” (234).

Audubon’s vulture olfaction article details several experiments and “observations of Nature,” beginning with stitching up “a skin of our common deer” stuffed with dried grass, and leaving the taxidermied prop in a field to trick predators to descend (Audubon 173). One turkey vulture, as the birds were also known, “tore the stitches apart . . . but no flesh could the bird find or smell; he was intent on finding some where none existed” (174). As it flew off, the bird caught a garter snake to eat, which led to Audubon’s first conclusion. He claimed because the buzzard could “not discover through its extraordinary sense of smell that no flesh, either fresh or putrid, existed about that [deer] skin,” yet was able to “see a snake scarcely as large as a man’s finger, alive, and destitute of odor, hundreds of yards distant,” it was evident the bird’s “ocular powers were much better than his sense of smell” (174). Audubon, by this account, appeared to have “the strange idea that it was impossible for a species simultaneously to have two well-developed senses” (Birkhead 130).

His second experiment, of several more “increasingly involved experiments,” involved hiding a decaying hog in a ravine to see if the birds could locate the corpse by its putrid smell; the vultures were not interested (van Dooren 28). Waterton conducted a similar experiment, in which he hid the carcass of a large serpent in dense foliage and out of sight. However, in Waterton’s version, “during the afternoon of the third day, when the carcass of the serpent had got into a state of putrefaction, more than twenty of the common vultures came and perched upon the neighbouring trees” (Waterton 235). Based on this, Waterton reaffirmed, the “vulture is attracted to its food by the putrid exhalations which arise from it, when it has arrived at that state of decomposition which renders it fit, and no doubt delicious, food for this interesting tribe of birds” (237).

A footnote on these experiments in Thom van Dooren’s *Vulture* reminds readers of the erasure of scientific labour in the work attributed to these men: “It should be noted . . . that the heavy work necessary for Audubon, Waterton and others to conduct many of these experiments was carried out by others who largely remain unnamed in the texts, often simply referred to as ‘negroes’” (van Dooren 161).

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Racial erasures permeate histories of knowledge-making at every level—from niche case studies to the larger sparseness of olfactory research throughout history. Sensory scholars Constance Classen, Anthony Synnott, and David Howes introduced *Aroma: A Cultural History of Smell* in 1994 to confront how smell has long been regarded as “the sense of madness and savagery” (Classen et al. 4). They attributed this situation to major figures from Charles Darwin to Sigmund Freud, who suggested “the sense of smell had been left behind and that of sight had taken priority” in evolutionary processes (Classen et al. 4). Historians such as Martin Jay have interrogated sensory hierarchies in Western culture—asking why, since the ancient Greeks, vision, then hearing, have been deemed the “‘nobler’ senses,” while olfaction has been ranked the lowest, as an “infantile” and “primitive” sense (Jay 310-13). Writers including David Huebert have studied the marginalization of smell in its relation to the nonhuman animal—how smell “has been simultaneously eroticized and ghettoized as an animalistic sense,” as a “pejoratively bestial vehicle of perception” (Huebert 127). After all, olfaction is a sense many non-human animals require for survival, engaged in their hunt for food—while smell is often non-essential to humans. Yet by necessity of breathing, smell is inescapable to most.

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Among Audubon’s most fervent supporters was the pastor and naturalist John Bachman—a despicable fellow who used religion and science to rationalize racism and endorse slavery—and whose name ornithologists today are actively campaigning to remove from birds named after him (McLaughlin). Bachman staged variations on Audubon’s experiments in the presence of a “learned group of citizens,” who “in turn signed a document to the effect that they had witnessed the tests and were thoroughly convinced that the vulture lacked a sense of smell” (131). He also took liberties to extend the experiments, and supposedly going as far as to display “a coarse painting on canvass [sic] . . . representing a sheep skinned and cut open,” realistic enough to attract and confuse at least one hungry bird (Bachman 76).⁴

Waterton continued to counter quite logically,

If the *Vultur Aura*, which, as I have said above, I have never seen to prey upon living animals, be directed by its eye alone to the object of its food, by what means can it distinguish a dead animal from an animal asleep? Or, how is it to know a newly dead lizard or a snake, from a lizard or a snake basking quite motionless in the sun? (238)

Furthermore, “If the vulture were directed to its food solely by its eye, there would be a necessity for it to soar to an immense height in the sky; and even then it would be often at a loss to perceive its food, on account of intervening objects” (238).

⁴When I recounted this anecdote to a colleague, I was reminded of Zeuxis and Parrhasius’s painting contest, recounted by Pliny the Elder in *Naturalis Historia*. As the tale goes, Zeuxis painted grapes so convincingly that birds flew down to peck at them, but Parrhasius won, with a painting which appeared to be hidden behind a curtain, only to have the curtain turn out to be a painted illusion.

He later wrote a letter proclaiming Audubon and his supporters “ought to be whipped” for believing in the incorrect conclusions of such sloppy science, and recruited supporters under the title of “Nosarians,” dubbing Audubon’s supporters “Anti-Nosarians.” In volume 62 of the 1838 *The Quarterly Review*, the following tongue-in-cheek passage appears in what seems to be a third-person autobiographical sketch by Waterton:

One word on the *Vulture controversy* . . . there are two great vulture parties, who may be termed Nosarians and Anti-nosarians . . . The former, among whom Mr. Waterton is a strenuous partisan, hold not only that the vulture has a real nose, but that he “—snuffs the smell/Of mortal change on earth . . . Sagacious of the quarry from afar—” while the latter, headed by Mr. Audubon, insist that the bird is directed by eye alone. And here we would just hint to Mr. Waterton, once for all, that he should remember how prone we are all to error, and that we should be a little tolerant of those who do not happen to think exactly as we do. (85-86)

There were other nineteenth-century naturalists who sided with Waterton, and those who were uncertain. Charles Darwin conducted his own experiments on condors, and in level-headed fashion, cites both sides: “The evidence in favour of and against the acute smelling powers of carrion-vultures is singularly balanced” (Darwin 90).

Charles Waterton and Charles Darwin shared another curious connection, through John Edmonstone, a freed Black man formerly enslaved by Waterton’s father-in-law. Namely, they shared a taxidermic lineage—Waterton taught John Edmonstone the craft of taxidermy, and as a freed man in Glasgow years later, John Edmonstone taught students how to stuff skins at Edinburgh University, including Darwin himself.

Darwin was a university student at Edinburgh in the 1820s when he first “saw and heard the colourful, famous, and much-admired” Audubon speak at a Wernerian Natural History Society meeting (Frith 9). Audubon had showcased a “buzzard” illustration and demonstrated his novel method of wiring dead birds into life-like postures as models for his paintings. This lecture was evidently memorable enough to merit specific mention in the autobiography Darwin wrote late in his life (Frith 9). John Edmonstone, however, is never mentioned by name. From what I gather, he was given a passing line:

By the way, a negro lived in Edinburgh, who had travelled with Waterton, and gained his livelihood by stuffing birds, which he did excellently: he gave me lessons for payment, and I used often to sit with him, for he was a very pleasant and intelligent man. (Darwin, *Autobiography*)⁵

⁵Additional connections between Darwin and Audubon include Erasmus Darwin being the physician of Audubon’s wife’s family. In *Darwin’s Audubon: Science and the Liberal Imagination*, the author is “persuaded from the many links between Darwin and Audubon—but especially from the impact made on Darwin by the Magnificent Frigate Bird and the turkey vulture—that the theory of natural selection is based, in some small measure, on the facts of nature as collected by Audubon” (Weissmann 22).

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Regarding the vulture olfaction debacle, however, Darwin recalled hearing Audubon “sneering somewhat unjustly at Waterton” (Darwin, *Autobiography*). Still, and despite deriving his results from a set of exploitative quasi-scientific studies, Audubon was charismatic and convincing enough to divert the attention of most ornithologists away from studying avian olfaction for over a century afterwards.

Kenneth Stager was one of the first ornithologists to prove Audubon incorrect by modern scientific standards, through research conducted between 1959 and 1961. Stager’s breakthrough emerged after employees at Union Oil informed him that since they had added “malodorous ethyl mercaptan to natural gas so leaks could be detected” in their pipelines in the 1930s, turkey vultures had been seen “homing in on leaking pipelines” (Eaton). As it turns out, carcasses also emit ethyl mercaptan as they begin to decay, meaning the birds could smell “the same sulfurous compound added to natural gas so humans can sniff out a leak” (Averett). Further studies involving ethyl mercaptan and turkey buzzards cleared up any doubts, and this was when the birds were finally restored their reputation as strong smellers.

Furthermore, scientists now believe Audubon may have observed the incorrect species altogether—“Since turkey vultures seldom take live prey, Audubon’s subject was most likely a black vulture,” a species which looks similar, does catch live prey, and also has a lesser sense of smell than turkey buzzards (Eaton). It also turns out that turkey buzzards and ilk tend to prefer fresh carcasses, not putrid ones, which may have explained many of the futile efforts to attract birds with overly rotted flesh (Averett).⁶

Thus, Waterton’s belief in the birds’ attraction to corpses in an “offensive state of decomposition” is also untrue (Waterton 241). It is nevertheless regrettable that academics did not invest more interest in Waterton’s direction of inquiry; if they had paid him more mind, this research area would likely be far more advanced today. His vision to restore turkey buzzards’ noses to their “Original shape and beautiful proportions” may not have been reified in his lifetime, but in recent decades academics have finally begun to research more specifically how different vultures have varying levels of olfactory acuity. In 2017, scientists at the University of Lethbridge and the University of Alberta collaborated with the Smithsonian Institution in a project published by Nathan P. Grigg et al. in *Scientific Reports*, on “Anatomical Evidence for Scent Guided Foraging in the Turkey Vulture.” In their article and in interviews headlining this project, the team explains they were the first to collect this neuroanatomical data on vultures—and were shocked to discover the enormity of their olfactory bulbs. It turns out, despite having brains 20% smaller than black vultures, turkey vulture brains contain olfactory bulbs four times

⁶That said, the label of “vulture” in itself has been historically flexible as to what birds it has referred to, and as Lucinda Cole and others have discussed, we perhaps cannot fault Audubon for this particular species confusion. Benjamin Joel Wilkinson writes in *Carrion Dreams 2.0*, “vulture is in no sense a technical term; it has had different meanings in different times and places. Some of the birds that are today called vultures were once called eagles, or kites, or something more obscure; and some birds that would never be thought of as vultures today were once faithfully lumped together with the carrion birds” (16).

larger than those of black vultures. Not only do these birds boast a sensitive sense of smell, their brains evidently hold the “largest olfactory bulbs in absolute terms and adjusted for brain size among birds” (Grigg et al.).

In the time after Audubon’s long-held misconceptions were cleared up, a range of scientists began investigating the long-neglected world of avian olfaction, expanding their investigation beyond carrion birds. The bond between mate selection and olfaction became an attractive area of study to bird researchers such as Julie Hagelin in the early 2000s. An expert on avian behavioral ecology and avian communication, Hagelin researched crested auklets, birds who emit a tangerine scent during breeding season, believing this unique scent might impact the birds’ mating success. During courtship, the birds engage in a “ruff-sniff display,” in which the auklets “press their bills against each other’s necks, where the feathers have the strongest odor” (Whitfield; Pickrell). The birds smell so strongly that, Hagelin says, “You can smell a group of crested auklets before you see them” (Whitfield).

In an interview with the *National Geographic*, Hagelin also faults Audubon for “spreading the idea that smell was unimportant” in birds, and refers to his influence and the “assumption that they can’t smell” as part of an “unnatural history” of birds she aims to correct (Hagelin qtd. in Pickrell).⁷ The article notes the crested auklet is not the lone species of scented birds: the related whiskered auklet also smells of citrus, while “shearwaters and storm petrels have distinct musky odors,” and the kakapo has a strong smell of its own in addition to a strong sense of smell: a “sweet musky scent detectable meters away” (Pickrell).

The range of avian olfactory abilities is wide enough that making any generalizations about bird noses would be ill-advised. It is, of course, also impossible to ask a bird to describe its experience of smell due to lack of common language, despite the presence of talking birds. In closing, it is noteworthy how powerful a role language has played in shaping not only the experimental histories of smelling birds, but the direction of scientific study overall. By dismantling Audubon’s rhetorical influence, researchers have finally moved on to fully embrace this “completely new mode of communication in birds that we’ve overlooked,” and Waterton and his Nosarians would be proud (Hagelin qtd. in Whitfield).

⁷This interview has since been removed from the *National Geographic* website, and it is possible other links to earlier research may have faced (or will face) similar ephemeral fates. The notes and links cited here were recorded when I began researching this topic around 2016—where possible, I have included updated links. Unfortunately, while quotes from this interview can be found scattered in various places, I have been unable to recover the full text of the original feature.

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