

“Literature Rather Than Science”: Henry Neville Hutchinson (1856-1927) and the Literary Borderlines of Science Writing

Richard Fallon

All the world's a stage
And all the men and beasts merely players;
They have their exits and their entrances.
And in former ages played they many parts,
Their acts being seven ages. First *Eozoon*,
Lapped in the bosom of primæval seas . . .

(Hutchinson, “All the World’s a Stage; A Geological Parody.”)

In 1889, Henry Neville Hutchinson demonstrated to readers of *Hardwicke’s Science-Gossip* the potential for a literary classic to express evocative scientific ideas, twisting the iconic speech from Shakespeare’s *As You Like It* (1599) into a comical narrative of evolutionary progress (“All the World’s a Stage” 260-1). This theatrical pronouncement marked the start of a prolific writing career in the popularization of geology, palaeontology, archaeology, and anthropology. Hutchinson’s passion for all things literary infused these scientific books with allusions to authors ranging from Homer to H. G. Wells. He even proposed, in both 1899 and 1925, the creation of a beneficent British Association for the Advancement of Literature intended to mirror the functions of the more venerable British Association for the Advancement of Science (“Literary Notes”; “British Association”). As suggested by this conscious parallel, Hutchinson’s enthusiasms for both literature and science were intertwined. He believed that the prevalence of complex technical language had diminished the romance and wider intelligibility of science, alienating the public from meaningful engagement. This alienation could be reversed by more captivating presentations of scientific information. He characteristically argued, for instance, that audiences flocking to Shakespeare productions would equally enjoy well-delivered natural history lectures (“Popular Science Lectures”). Educated to see science, like great literature, as a vibrant and democratic force in modern life, Hutchinson hoped to popularize cutting-edge scientific information with books intended to be as readable as the latest novels, encouraging wider participation in debate and discovery.

Leading by example, Hutchinson was unafraid to criticize the accessibility and accuracy of specialist scientific writing; however, his sometimes vociferous disparagement of trends in contemporary science attracted a backlash. Although Hutchinson moved in various prominent scientific societies, he had little-to-no primary research to his name and held no institutional scientific positions. For many figures in the community, the explicitly popular books written by Hutchinson were inappropriate venues for undermining recognized scientific authorities, especially when the author was a man of such indeterminate standing. Indeed, Hutchinson’s works indicated his deep secondary reading, but for certain men of science (to use the pointedly-gendered contemporary term) the apparently learned nature of Hutchinson’s books was a threat to developing social hierarchies within, and around the perimeter of, the scientific community. Reviewing these books in *Nature*, several figures fought back with appraisals that hinged upon polemical definitions of what constituted “literature.” As palaeontologist Harry Govier Seeley asserted in 1894, Hutchinson was writing

"literature rather than science" ("Creatures of Other Days" 426). This acute distinction worked to shut difficult popularizers like Hutchinson out of the palaeontological conversation.

This article demonstrates that, in opposition to Hutchinson's participatory rhetoric, leading researchers characterized his popular science texts as literature and thus as largely irrelevant to scientific thought. Such generic distinctions were extremely important. Seeley correctly recognized that many non-specialist readers of Hutchinson's attractive books would be unable to tell that the extremely well-informed author was not, in fact, an accomplished or authoritative primary researcher. Placing Hutchinson's books in a realm implied to be removed from truly scientific writing was an attempt to police the uncertain bounds of late-Victorian knowledge-making. This characterization of Hutchinson's books as unscientific could be reinforced by drawing attention to the preferred register of romance with which he appealed to the public. Despite the critical attention that has previously been paid to Hutchinson's expressive literary techniques and his habit of provoking the ire of the scientific establishment by Bernard Lightman (*Popularizers of Science* 450-60), Ralph O'Connor ("Henry Hutchinson" 91-94), and Gowan Dawson (*Show Me the Bone* 369-74), these clashes over his books' style and function, and his own status in the community, have yet to be explored. In addition to revealing more about a controversial and ambiguous figure, this case study shows how, through the redefinition of literature, men of science were removing science writing from wider culture. At a time when scholars of literature and science are reflecting upon the definitions and practices we mean to take forward in the future (Littlefield and Willis 1), Hutchinson's dilemma proves to be an enlightening case study in the field's past.

A New Language

Before turning to more specific rhetorical combat zones, it is necessary to first situate Hutchinson within nineteenth-century renegotiations of science and literature. His own preferred fields, the earth sciences, have come to represent the nineteenth-century heights of the literature of science. O'Connor (2007) and Adelene Buckland (2013), among others, affirm that pioneering writers and researchers like William Buckland and Charles Lyell shaped geology itself through their romanticism, deft poetry, and finely-honed prose. These scientific authors shaded into the many non-specialist poets, novelists, and journalists who found the subject pregnant with suggestion. Geology thus occasioned a fertile interchange of concepts and aesthetic values. This was no homogenous unitary culture, but firm boundaries of form and content between works intended to be works of poetry and fiction, original scientific contributions, and works of popularization, were contested and often far from self-evident. Partially due to the increasing difficulty of scientific language, a result of specialization, these traffics slowed down. By the century's end, the specialization and sheer quantity of research were eroding potential reciprocity in language and ideas, even in the previously fashionable earth sciences. Thomas George Bonney, formerly Hutchinson's geology tutor at Cambridge, remarked upon this in 1893:

Forty years since a book dealing with the main principles of geology, such as Sir C. Lyell's well-known work [*Principles of Geology* (1830-33)], would have been understood with little difficulty by any man of good general education . . . But [technical terms] have now become so numerous that the beginner has not only to comprehend new ideas, but also to learn a new language. (iii)

Lyell's *Principles* was widely read in the 1830s, coupling grandiose visions of deep time with a controversial and exciting argument for the consistency of geological processes. As Bonney observed, the difficulty of keeping up with the latest research had made such books rare and their non-specialist readers rarer.

While Bonney lamented the decline of the world where Lyell's *Principles* was read as literature, this development was partially the result of reconceptualizations by influential men of letters and reforms from scientific specialists. The evolving contemporary definitions of "literature" preserve traces of this process. Endeavours to map the etymological evolution of this word have, nonetheless, revealed a craggy and irregular landscape. O'Connor ("Meanings of 'Literature'" 37; "Poetics of Earth Science" 611-15) and Dawson and Lightman (vii-xii) show that, in the early- and mid-nineteenth century, the now-familiar definition of "literature" that implied primarily aesthetic or emotive writing was muddily emergent rather than the representation of a consensus. The spread of this new sense of "literature" may have been facilitated by attempts to institutionalize the study of meritorious English writing in British universities (Court). Meanwhile, prominent intellectuals began to define "literature" not merely as being different from science writing, but as science's opposite. As noted by Jonathan Smith (7), this binary was inspired by William Wordsworth's memorable and ambiguous juxtaposition of poetry with "Matter of fact, or Science" in the 1802 edition of the *Lyrical Ballads* (xxiv). Wordsworth's friend Thomas De Quincey further theorized and widened the divide by conceiving of true literature as expressing emotional power, rather than knowledge (Smith 6-7, 48-54). These definitions implicitly or explicitly privileged poetry and "literature" over science writing, although the division was used for other purposes as well. In 1852, G. H. Lewes declared in the *Westminster Review* that "[s]cience is the expression of the forms and order of Nature; literature is the expression of the forms and order of human life" (130). Lewes's admission that such a sharp distinction was required "at least for our present purpose" (which was chiefly to define "the literature of women"), rather than in all instances, indicated the novel and precarious nature of the binary (130). His provocative definition nonetheless implied that he was a master of both supposed domains.

The "strategic" construction of what Dawson calls "localised boundaries" between science and literature were intended to make a variety of claims for cultural prestige (*Victorian Respectability* 221). Lewes's assertion of the polymathic ability to span "literature" and "science" was contested by the scientific naturalist and reformer, Thomas Henry Huxley, who called for the establishment of stricter hierarchies of authority to rank those engaged in scientific enterprise (Barton 106). He challenged the non-specialist intellectual ethos of the *Westminster Review* by condemning Lewes's book-founded scientific expertise for lacking "the discipline and knowledge which result from being a worker" (Huxley 255). The practical experience in which Huxley found Lewes deficient indicated an important way to qualify oneself as a true "man of science." Lewes thus found himself placed on one side of the literary-scientific boundary he had helped to define. While Lewes was embarrassed by Huxley's accusations, boundaries between science and literary culture were not built solely for the benefit of those seeking firmer state support for science. This is demonstrated by Huxley's alliance with another man who sought educational reform: the cultural critic and humanist, Matthew Arnold. Paul White argues that, "[b]y dividing culture exclusively between science and literature," Huxley and Arnold's academic crusades "authorized their joint possession of its terrain" (94). Through the magisterial authority of these men, the territorial boundaries of culture could be defined and conquered.

Science periodicals provided a more enclosed space for members of scientific communities to negotiate their own self-understanding. Melinda Baldwin shows that *Nature*, which quickly became the leading British science periodical after its founding in 1869, was a key site for scientific self-fashioning. The prevailing view of contributors was that figures "who simply read about science or who focused on the practical applications" were far less welcome in the periodical's pages than those committed to "the creation of new knowledge" (Baldwin 75). This stance was vigorously opposed elsewhere: Lightman identifies the rival "participatory ideal" of a more inclusive model of science promoted, for example, in astronomer Richard Proctor's periodical, *Knowledge* ("Popularizers, Participation" 346). Tellingly, Hutchinson wrote many articles for *Knowledge* and the most damaging attacks on his right to speak as a scientific authority appeared in *Nature*. As the remainder of this article will demonstrate, his works and their reception reveal unique sites in which the redefinition of literature was reshaping participation in science.

As Fascinating as a Modern Romance

Lightman provides the most detailed extant biographical information on Hutchinson, although many aspects of his life remain unknown (*Popularizers of Science* 450). It is clear, however, that Hutchinson's educational experiences were formative in his later attitude towards science's role in culture. Rugby School, where Hutchinson was taught and where his father was Natural Science Master, stood at the vanguard of school-level science. In 1860, Rugby became the recipient of the first purpose-built science laboratory in a public school and, from 1864, two hours a week of middle-school science were compulsory (Brock 605). Entering this fruitful environment, the young Hutchinson honed his scientific and literary skills, winning the Rugby School Natural History Society's second prize for his essay "On Motive Power" in 1872 and editing the journal for the years 1873 and 1874. Subsequently, taking his BA at St. John's College, Cambridge, he nurtured an interest in geology during a period in which St John's geological tutors, such as Bonney, were nationally renowned (Porter). After graduation, Hutchinson briefly taught science at Clifton College, Bristol, another institution at the national forefront of bringing science into education (Williams 195-212). Illness caused him to give up his vocation as a priest not long after being ordained the Reverend Hutchinson and, in 1890, after a brief spell of private tutoring, he began to address his passion for science to the hungry, growing mass readership ("Geological Society" lvii). Hutchinson's popularizing career was thus born of an adolescence and young adulthood in which he absorbed a sense of the importance of both education and science.

Although he rarely if ever explicitly published specialist research, Hutchinson joined many scientific societies and moved in circles alongside the leading men of science of his day. His experiences made him an opinionated commentator on the state of science in society. Whether lamenting the school curriculum's separation of science teaching from the moral instruction of the classics and the Bible in the sermonic *Sunday Magazine* ("Science as a Revelation") or haranguing *Daily Mail* readers about "the neglect of science in everyday life" ("Steam Cooking" 6), Hutchinson essentially promoted more effective and meaningful mass popularization of scientific knowledge. Writing several decades after the 1867 Reform Act and the 1870 Education Act, Hutchinson recognized the onset of political democracy: fiercely democratic attitudes to science writing and participation were an important part of the modern "New Journalism" to which he contributed (Dawson, "The *Review of Reviews*"; Tucker 114-24). Attacks on the apparently intentional aloofness and isolation of the most

scientifically active bodies were fundamental to his criticisms. In *Science-Gossip*, preempting "severe criticism on behalf of democracy," Hutchinson suggested that "our learned societies might play a much more important part than they do in further spreading scientific knowledge and feeding the people intellectually," but that instead they "go on in the same humdrum way as they have always done, publishing their ponderous and almost unreadable reports" ("Scientific Society" 90). For Hutchinson, the verbosity of these writings was particularly problematic: "[t]he sum and substance" of a typical lengthy scientific paper, he argued, "could often be compressed into a single column of SCIENCE-GOSSIP" (90). He offered "progressive" solutions befitting "the spirit of the age," including the improvement of society libraries, the creation of publishing departments, annual conversazioni, and the admission of female members (90-93). Hutchinson's arguments implored a more outward-facing approach from scientific societies, with sharper focus on the communication of their discussions and discoveries to the widest possible audiences. In this manner, he cultivated the image of a practical obliterator of scientific obfuscation.

Hutchinson aimed to spark up interest in science by writing the informative, readable books on the earth sciences that he felt had been neglected in recent decades. The competitive late-century literary market was potentially a highly profitable one. At twelve shillings, for instance, his classic *Extinct Monsters* (1892) was a rather costly gift book, although half-price editions followed, and the book was widely reviewed and its illustrations reproduced in a range of periodicals. To earn a living, Hutchinson had to combine his own enthusiasm with a canny understanding of readers' demands. Lightman's study of his prose shows a largely derivative recycling of classic tropes of geological popularization and the evolutionary epic, employing well-established imagery of nature as a book or stage and science as a fairy tale (*Popularizers of Science* 454-57). O'Connor characterizes Hutchinson's common Victorian mode of writing as "Familiar Didactic Exposition," in which a strong authorial voice complemented description with frequent anecdotes and quotations ("Introduction" xv). These components would have been familiar to his chiefly middle-class audience of adults and older children. Hutchinson's most distinctive technique was his frequent recourse to the creative literature with which readers were likely to be acquainted. *Extinct Monsters*, for instance, began by comparing the prehistoric world to "the fairy-land of Grimm or Lewis Carroll" (1). Hutchinson tantalizingly invoked the "Jabberwocky" poem from Carroll's 1871 *Through the Looking-Glass* (21-24), only to insist that the "antique world" was "not inhabited by 'slithy toves' or 'jabber-wocks,' but by real beasts" (1). Readers familiar with the famous Jabberwock would find new and genuine monsters to delight in, such as the recently-discovered American dinosaurs: *Triceratops*, *Stegosaurus*, *Brontosaurus*. Sophisticated illustrations of these dinosaurs by Hutchinson's zoological artist, Joseph Smit, provided *Extinct Monsters* with its most unique selling-points for calculating consumers.

Despite what may appear to be a lack of genuine literary innovation, Hutchinson was extremely interested in making science writing grippingly readable. In his early work, *The Autobiography of the Earth* (1890), he dismissed "geological text-books" as "dry, uninteresting, or even quite unintelligible" to the "general reader" (ix). Instead, for "those who follow the stony science," he contested in *The Story of the Hills* (1892), "it is quite as fascinating as a modern romance, and a great deal more wonderful" (142). Thanks to earlier popularizers, geology had long been associated with the enchanting realm of romance, but Hutchinson's reference to "modern romance" held contemporary resonance. Since the mid-1880s, the single-volume New Romance stories pioneered by authors such as Robert Louis Stevenson and H. Rider Haggard had dominated the

literary market. The appeal of these fast-paced books was commonly attributed to their combination of fantastic events with a finely-crafted semblance of realism (Vaninskaya 62). When told by a scientific storyteller, Hutchinson suggested, geological processes and palaeontological discoveries required no such textual trickery to satisfy the reader's desire for wonder and excitement. Science would never be as exciting as a "modern romance," however, while its specialists communicated primarily in "almost unreadable reports" ("Scientific Society" 90). Meanwhile, Hutchinson's contemporary, H. G. Wells, expressed exasperation at the style of most popular science writers, whose lifeless or otherwise over-simplistic texts rarely sought to hook non-specialists by recreating the "ingenious unravelling" of a Sherlock Holmes plot ("Popularising Science" 301). Sympathetic to this position, Hutchinson evoked the thoroughly modern contrivances of the New Romance in his *Prehistoric Man and Beast* (1896), inviting readers to join him in pulling "the lever of Mr. Wells's 'time machine' to find ourselves travelling backwards into the past" just a year after the book publication of Wells's influential scientific romance (9). Later in the book, when Hutchinson compared the ancient tomb-engraving of a pair of feet to "some prehistoric 'Trilby,'" all readers would have been familiar with his reference (245). George du Maurier's sensational and risqué novel *Trilby* (1894), named after its barefooted female protagonist, was already one of the bestselling books of the century. Hutchinson's allusive writing reflected his own warning that the scientific community needed to recognize the coming world of "democracy" ("Scientific Society" 90). In the mass-market age of *The Time Machine* and *Trilby*, science writing could cater to popular demand and reap both financial and educational rewards.

Hutchinson's books regularly received glowing reviews, his works on palaeontology most of all. The *Morning Post* went so far as to call *Extinct Monsters* "quite one of the most successful of recent undertakings in the field of popular science" ("Extinct Monsters"). Sizing up its sequel, *Creatures of Other Days* (1894), the *Saturday Review* argued that Hutchinson's characteristic "clearness and simplicity of style," cultivated in deliberate contrast to the complexity of specialist writing, produced an enjoyable text that "in less skilful hands . . . might degenerate into an arid list of defunct creatures, with names that increase in length in proportion to their remoteness in time" ("Reptiles of the Past" 305). For some reviewers, Hutchinson's books were not simply well-written: they were novelistic, with all the successive thrills of the latest romances. The *National Observer* called *Extinct Monsters* "far more amusing than most novels" ("Old and New"); *Science's* reviewer believed that readers would consume "chapter after chapter without any desire to lay the book down," even despite its shortcomings, so "skilfully" was it otherwise "interspersed" with "striking incidents" ("Extinct Monsters"). Fondly recalling Hutchinson's earlier Shakespearean contribution to *Science-Gossip*, a reviewer in the same periodical judged that "from a literary, scientific, or artistic point of view," *Extinct Monsters* was "the best book and most interesting book on popular geology since Hugh Miller's time," roughly half a century earlier ("Notes on New Books" 86).

As the comparison to the famed mid-century geologist and popularizer, Hugh Miller, implied, Hutchinson was steeped in the history of his subject. He quoted at length classic texts by revered geologists from earlier in the century, such as William Buckland, Gideon Mantell, and Charles Lyell, who had worked in a climate when geology was a more integral part of literary culture. Hutchinson's desire to entice wide audiences with the evocation of geology's romance consciously hearkened back to the graphic, sublime language of these classics, such as Buckland's *Geology and Mineralogy* (1836) and Mantell's *The Wonders of Geology* (1838). By the standards of

the 1890s, these books of the early- and mid-century were generically unstable. As Jonathan Topham observes, *Geology and Mineralogy* had functioned as both popularization and as a contribution to elite science (17-18). At the end of the century, the difference in literary style and content between popularization and new contributions to scientific thought, combined with the increased emphasis on primary research as the focus of the man of science, had significantly diminished the opportunity to span these solidified genres. Bonney's lament that a modern equivalent of Lyell's *Principles* could have limited impact beyond specialized geological circles drew attention to this point (iii).

Hutchinson's fondness for these earlier writings and his liminal position in the community encouraged him to fight this crystallizing status quo. While he intended his books to be readable for all, they were also his venue for entering printed scientific debate and he poured significant time and effort into his research. *Extinct Monsters* enjoyed a laudatory preface by the London Natural History Museum's Keeper of Geology, Henry Woodward (v-viii); the preface of *Creatures of Other Days* was penned by the Museum's Director, William Henry Flower (v-vii). Both books were built upon significant assistance from leading scientific authorities and were intended to relay the most recent research available. Although his books were ostensibly popular, Hutchinson did not modestly echo the primary research of these figures. Rather, in keeping with his persona as the reformer sweeping away excessive scholarly detritus and conventions, he often entered debates on controverted issues of the day, frequently taking a distinctly combative tone against the theories of recognized authorities. For example, he argued that the concept of an evolutionary link between dinosaurs and birds enjoyed popularity "partly, perhaps, in deference to so great an authority as Professor Huxley" (*Other Days* 130). In this matter, Hutchinson positioned himself as a sceptical and well-informed proponent of common sense: "[p]alaeontologists tell us they are related," he ventured, but "we confess to being not quite convinced"; instead, when one was to apply "reason," the similarities between dinosaurs and birds were likely the same parallelisms of function that made whales appear similar to fishes (131). In his opinion, critical distance gave him the intellectual clarity to see through knotty problems that misled even revered figures like Huxley. Thus, his readers would be able to enjoy a book written by a man with all the knowledge of the latest scientific developments and no servile loyalty to jargon or status.

Literature Rather Than Science

Various men of science were unamused by Hutchinson's tone, presuming himself a scientific authority and attacking their specialist language. As a countermeasure, these figures characterized Hutchinson's books as literature, not science. These appraisals damagingly turned against Hutchinson his own calls for the democratization of scientific participation, which had largely hinged upon the literary style of scientific texts. Particularly in *Nature*, Hutchinson's books thus became a front line in the policing of scientific participation, based upon perceived differences between literature and science writing.

One highly accomplished if idiosyncratic man of science, the geologist Harry Govier Seeley, launched a probing attack on Hutchinson's credentials. Due to the limited nature of Hutchinson's surviving correspondence, the relationship between these two men is unclear: Seeley belonged to St John's College until several years before Hutchinson matriculated there, but from the 1890s they were both working in London. Their shared interests and colleagues make a more than passing acquaintance probable; certainly, Hutchinson credited the "distinguished English geologist" Seeley

(alongside many others) for providing him with some assistance in the composition of *Creatures of Other Days* (xv, 82). Whatever Hutchinson and Seeley's personal acquaintance may have been, it did little to ameliorate the terms of Seeley's withering reviews. Lightman briefly comments on the review of *Extinct Monsters in Nature* by "H. G. S." (*Popularizers of Science* 459-60). The rarity of these initials in the palaeontological community, and the particular concerns about dinosaurian anatomy indicated in the reviews, point to Seeley, who signed himself "H. G. S." in his popular *Dragons of the Air* (1901). Seeley's detailed explication, across several reviews, of the difference between literature and science writing, has not previously been explored.

Seeley's initial review outlined the grounds upon which the later definition of literature was to be made. His primary criticism was the way Hutchinson, "with second-hand information, speaks authoritatively" (250). To Seeley, the idea that scientific authority could be won without first-hand research was to be seen as a contradiction. His complaint echoed the manner in which, forty years prior, Huxley had undermined Lewes based on errors caused by the latter's lack of practical work, although Seeley's critique went further. Noting that Hutchinson had "read much, and shown an excellent capacity for quotation," he scathingly characterized him as a ventriloquist of the works of others rather than a comprehensive thinker (251). Hutchinson "conscientiously endeavoured to tell the story which is contained in his quotations, but beyond this he does not pretend" to the sophisticated understanding only attainable by a specialist (251). The word "story" did not carry the positive connotations Hutchinson often intended for it. Instead, it implied the difference between a sober piece of scientific research and a literary attempt to string together loosely-understood "striking incidents" (as the less sarcastic reviewer in *Science* had called them), like adventures in the boyish New Romance, into entertainment for the scientifically illiterate. Dismissing the value of much of the book's information, Seeley directed *Extinct Monsters* to this uneducated audience, who he felt had no need for the most accurate details. Patronizingly commending the book merely for being "an excellent book for boys and unlearned people," both "clearly and simply written, without any pretence at being scientific," Seeley separated the book's readers and its author entirely from the realm of scientific activity (250). While Hutchinson had appealed to a wide audience, including those with little palaeontological knowledge, the suggestion that it had no "pretence at being scientific" was disingenuous. The book had been intended to attract the novice while also displaying the fact that Hutchinson was anything but a dilettante in the subject.

Seeley phrased his complaints more succinctly when reviewing Hutchinson's subsequent book, *Creatures of Other Days* (1894). He immediately declared this "a work of literature rather than science" which was "so full of reference to scientific facts and discoveries that it appears like a work of learning" (426). Seeley perceived Hutchinson's deployment of cherry-picked information under an authoritative authorial persona to be a trespassing into the domain of science writing. Seeley argued that Hutchinson, despite possessing the capacity to seem learned, employed no "critical digest of the facts" whilst accepting "impartially" material "which any author has supplied" (426). The result was a book of "unscientific attitude" that tried to camouflage this fact (426). For Seeley, truly scientific writing was based on original specialist research and even intensive secondary reading without this laborious primary activity could not provide a writer with the experience to compose anything other than literature. Science popularization written by one unqualified to speak authoritatively on the subject, then, was literature. Literature was not a part of the same conversation as science. Unlike the earlier definitions of De Quincey and Lewes, who had attempted to compartmentalize writings on nature and on feeling, Seeley's literature was founded on

the qualifications of the writer, not the subject matter of the content. He made minimal reference to Hutchinson's rhetorical features, the attributes which have typically been seen as differentiating science from literature in the eyes of commentators. Reading Seeley's reviews conspicuously supports Baldwin's argument that *Nature* was a crucial construction site for the man of science as a specialist researcher. By defining literature as he did, Seeley suggested to his readers that it was surplus to scientific requirements.

The review carried with it an unspoken admission: the very need to verbalize the difference between literature and science admitted the potentially equivocal position of Hutchinson's writings. This dogmatic distinction was a particularly important one for Seeley to make. In *Extinct Monsters*, Hutchinson had ignored Seeley's authoritative contention that "the Dinosauria has no natural existence as a group of animals, but includes two distinct types of animal structure" which "may be conveniently named the Ornithischia and the Saurischia" ("Dinosauria" 170). Instead, Hutchinson used the supposedly invalidated term "dinosaur" more frequently than any earlier popularizer and employed the American palaeontologist O. C. Marsh's names for the sub-orders ("Extinct Monsters" 63-64). As Seeley made clear in the reviews, he was opposed to Marsh on many important issues. He was also fully aware that many more people would read Hutchinson's books and see their attractive and widely-reproduced illustrations than would ever read his own material. It was, therefore, highly damaging for a man of limited scientific reputation, such as Hutchinson, to wade into the debate without providing readers with the proper context. By characterizing *Creatures of Other Days* as literature, Seeley placed it in a category where the book's scientific content was effectively irrelevant to the progress of palaeontology. Seeley did not disavow Hutchinson's belief in the importance of wide scientific education; on the contrary, he was an active proponent of access to science (Secord, "Seeley, Harry Govier"). This did not mean that he was willing to lighten the strict standards of hierarchy and expertise that constituted rightful authority.

As Seeley suspected, Hutchinson's own lack of standing in primary research was not always evident or significant to readers. Reviewing Hutchinson's later book of scientific cartoons, *Primeval Scenes* (1899), the popular literary periodical *Outlook* considered the previous works of the "eminent scientist" Hutchinson as "among the most authoritative" ("For Nursery Shelves"), and New York's *Sun* similarly described Hutchinson as a "scientist" ("Monsters of Long Ago"). The transcriber of the Visitors' Book at the Natural History Museum had struggled to pin down the man's ambiguous qualifications as well. For the most part, he was, correctly, "Rev^d," but on occasion he became simply "Mr.," or even "Dr." He typically described himself as a geologist. Clearly knowledgeable and famed while writing largely in popular works and correspondence columns, Hutchinson himself defied easy categorization. There were, however, other ways to categorize what made his publications problematic.

Solicitous about the Truth

Seeley clarified Hutchinson's ambiguous status by characterizing his books as literature, hardly mentioning the author's frequent references to poetry, novels, and romance that could conceivably have presented further evidence for his division. Another reviewer attacked this language head on, turning Hutchinson's fondness for these genres into a weapon against his authority. As noted earlier, various reviewers described Hutchinson's popular science books as possessing the gripping readability of a good novel. These echoed the language of the author himself. James A. Secord points out, in reference to the mid-century, that the remark that one's science book was as readable as fiction often held an implicit characterization of the book as being

designed to seduce the reader's capacity for intellectual interrogation (*Victorian Sensation* 59-61). Such connotations persisted at the end of the century. For a man of indeterminate status in the scientific establishment, like Hutchinson, this could be a serious accusation and one that exploited a blind spot in his literary style: attacking dry technical writing meant that its proponents could accuse him of being a populist lacking a sober scientific temperament.

In *Prehistoric Man and Beast* (1896), Hutchinson expanded his focus to include archaeology and anthropology. This work was far more contentious in tone than his previous books. Using similar terms to his *Science-Gossip* article of the previous year, Hutchinson argued vociferously that, while the subject offered "a fascinating story, full of romantic and weird interest," latter-day geologists had "obscured the romance by their 'dry-as-dust' descriptions and ponderous reports" (46). As O'Connor notes, Hutchinson's unabashed desire for romance here accompanied a "circular or mutually reinforcing" argument that cited the scientific evidence for myths and fairy tales, and equally used these myths and fairy tales as data for scientific hypotheses ("Henry Hutchinson" 93). This controversial stance was accompanied, as always, by frequent allusions to creative literature, but these were now weaved into an argument that emphasized literature as evidencing the cultural survival of prehistoric races. Richard Wagner's opera *Tannhäuser* (1845) "rightly represented" the home of "the Queen of the Fairies" as a "green berg, or green hill, into which the hero is tempted by the attractions of the dwarf-women," and even Robert Browning's poem, the "Pied Piper of Hamelin" (1842), supplied "another example of the magical and thievish arts attributed to the dwarf people" when "[a]llowing for 'poetic license'" (*Prehistoric Man* 220). Imaginative literature was not now limited to epigraphs and similes, instead becoming part of the book's scientific content.

This time, *Nature's* reviewer was the geologist William Johnson Sollas, another former student of St John's from slightly before Hutchinson's time. Sollas adroitly countered the popular writer's mockery by suggesting that the dry writers Hutchinson referred to "were too solicitous about the truth to care much about the romance" (314). Their scientific sobriety was contrasted with Hutchinson, who Sollas suggested held "little sympathy with the technical details on which scientific results depend" (314). Moreover, he accused Hutchinson of possessing the distinctly unscientific tendency to sacrifice strict truth to a "striking passage" (314). Such "striking" romantic passages had attracted glowing reviews for many of the author's previous works and Sollas alluded to this: if Hutchinson lacked the patience and precision that modern science required, what he instead possessed was "the true instinct of a writer for the populace" (314). For Sollas, as for Seeley, a crowd-pleasing journalistic ability to highlight the curious and wonderful was what made Hutchinson's books so appealing for modern mass audiences. It was, however, quite different from the stylistic restraint and sense of perspective required in scientific investigation. Scientific writing was here characterized by a total lack of interest in the fantastic thrills of romance. This argument viewed from a different angle the division of literature and science proposed by Seeley, which had focused more squarely on qualifications. Sollas contrasted "the truth," where we can substitute "science," with "the romance," where we may read "literature" (314). This distinction neutralized Hutchinson's frequent assertion that the truth itself was romantic and that science writing ought to reflect this. If Hutchinson intended his arguments about the scientific basis of fairy tales to be taken seriously by archaeologists, Sollas demanded a less romantic, or literary, register.

Even positive reviews, as the comparison of Hutchinson's books to novels hinted, could carry damaging suggestions that the "literary" nature of the work

compromised the integrity of the "scientific" aspects. Reviewing *Extinct Monsters*, the *Geological Magazine*, whose editor, Woodward, had provided the book with its preface, perceived a "freshness about the whole thing which suggests 'Alice in Wonderland[?]" and confirmed that, although it could "not fail to interest geologists of all ages," it was "safe" for children (43). As noted above, Hutchinson had indeed invoked Lewis Carroll in the introduction to *Extinct Monsters*, knowing that the wide appeal of the *Alice* books would provide a diverting frame of reference for those not intrinsically interested in palaeontology. His good-natured analogy tempted readers such as the reviewer from the *Geological Magazine* to suggest that the appealingly-written, amusingly-illustrated *Extinct Monsters* might be read in the same manner as an ingenious work of children's literature. After all, Carroll's books, filled with nonsense and paradoxes, were typically associated with the Christmas publishing season shared by Hutchinson's own volume (Moore 109-10). The *Geological Magazine* thus grouped Hutchinson's thoroughly-researched text alongside the fanciful reading a child might be given at Christmas or New Year. This was an entirely different reaction to that of Seeley, who would later find it imperative to discredit the author before too many were fooled by the mass of "scientific facts" that gave *Creatures of Other Days* the veneer of "a work of learning" (426). Nonetheless, both reviewers effectively trivialized Hutchinson's book by suggesting it belonged to a lighter, literary realm. Whether belittled in *Nature* or praised in the *Geological Magazine*, Hutchinson was told that his books were intrinsically literature rather than science.

By the early-twentieth century, *Extinct Monsters* was becoming outdated. The Natural History Museum's Director, E. Ray Lankester, another *Nature* stalwart and dedicated popularizer, decided to publish his own popular book on prehistoric life, based on his Royal Institution Christmas lecture series (Lester 153-59). Avoiding the pitfalls encountered by Hutchinson, whose books had been accused in *Nature* of being problematic in terms of genre and style, Lankester defined his parameters carefully. He trusted that, like his lectures, "this volume will not be regarded as anything more ambitious than an attempt to excite in young people an interest" in palaeontology (vi). Unlike *Extinct Monsters*, Lankester's *Extinct Animals* (1905) – a pointedly less romantic title – was aimed specifically at children, with no intention of contributing to scientific debate. Lankester knew that his research was better aired elsewhere. If his similar title and juvenile audience could be read as insinuations about the proper place of the earlier *Extinct Monsters*, Lankester's subsequent assault on one of Hutchinson's favourite literary tropes could hardly have been missed. Lankester derided those popularizers who "talk about the 'fairy tales of science'," as Hutchinson had done in many of his books (59). Lankester bellicosely declared that "[t]here never was a more inappropriate phrase: it is altogether wrong to speak of fairy tales having anything to do with science" (59). Just like Sollas, Lankester cleft science from the romantic and folkloric imagery that Hutchinson employed. The Natural History Museum Director thus instructed readers in the proper way to engage with science and popularization, or science and literature, as separate domains.

Conclusion: Common Humanity

In his later writing, Hutchinson assessed with some exasperation the distinctions that had been established between imaginative and scientific literature. His long-term anxieties about access to science came to a head in a letter from 1917, written while he was recovering from a nervous breakdown. Hutchinson had been working for some time on a specialist paper intended for submission in the *Geological Magazine*. The paper, a reassessment of the anatomy of the world-famous dinosaur, *Diplodocus*

carnegii (or *carnegiei*), was rejected. His subsequent outburst to the Natural History Museum's Keeper of Geology, Arthur Smith Woodward, condemned modern science and science writing's divorce from other methods of searching for truth and meaning:

As yo[u] say, my scheme is "Not Science"[.] But that is just why I am doing it[.] Sci[en]ce make[s] a mistake in keeping Knowledge in water-tight compartments[.] It is Philosophy. Some of these ideas will in time be accepted. . . . The mystery of Evolution will never be solved by the pure scientist. It wants the help of the Poet and the Philosopher and esp the religious philosopher such as the poet Wordsworth. Look at Swedenborg, what marvellous insight he had[:] he anticipated many modern discoveries esp in Physiology. With regard to the Geological Magazine I think it would have a far wider circulation if it were not written in such a pedantic style. It is far beyond the reach of the ordinary geologist. (24 May 1917)

In Hutchinson's eyes, the modern hierarchies of knowledge between scientists and the public, elite science and wider practices, and science and philosophy, were the disturbing results of technocratic specialization. His somewhat frantic communication allied Wordsworth with the prolific and diverse researches of the eighteenth-century thinker, Emanuel Swedenborg, providing historical counterpoints to the disciplinarity of twentieth-century science.

This sad description of an atomizing scientific community was, like Seeley's "literature," a tactical construct. As Hutchinson knew, the *Geological Magazine's* editor, Henry Woodward (unrelated to his colleague, Arthur Smith Woodward), often expressed generosity even to figures whose opinions tended towards unorthodoxy (Sheets-Pyenson 184). Following a conciliatory letter from Henry Woodward, the paper on *Diplodocus* was edited and published. The article, which Hutchinson considered submitting to *Knowledge* instead, was written in his typically exuberant popular style and, as the original draft is lost, the supposedly unscientific elements that were deleted to make it acceptable are unknown ("*Diplodocus Carnegiei*"). Natural History Museum osteologist W. P. Pycraft remained highly sceptical of the published paper. Hutchinson, he argued, "summarises the views of others who have written on this theme, without apparently giving any very serious thought to the problems presented!" (423). Publication was no guarantee of authority and respect even if, in this case, a self-professed "ordinary geologist" had punctured the *Geological Magazine's* supposedly "water-tight compartments" of knowledge.

Hutchinson's *Geological Magazine* paper was published, albeit in ambiguous circumstances, but his outlook on popular engagement with science remained bleak. As a 1925 letter to the *Saturday Review* revealed, his view of modern literary culture was far brighter, encouraging him once again to propose the creation of a British Association of Literature. "For one person interested in science," he observed, "there are probably twenty or more interested in literature, especially among women. Literature appeals to our common humanity" ("British Association"). "Since the war," he continued, "one is glad to note, a desire for knowledge has been manifested by many welcome signs." For Hutchinson, as for Seeley, and in a manner that would have been highly contentious a century prior, science writing was not literature. Hutchinson, who believed that evolutionary biologists could learn from Wordsworthian natural theology, nonetheless felt that science and literature belonged on the same continuum of "knowledge," just as they had in Wordsworth's 1802 "Preface" (xxxiv-xxix). The fierce

reviews in *Nature* betrayed few signs of sympathy for this argument of interdependence.

This article has argued that reforming men of science sequestered Hutchinson's generically ambiguous writings by classifying them as literature, a word that was taking on the associations of being non-scientific writing or work by non-scientific authors. The deliberation of generic definitions was an important, contested process for deciding how seriously a work of scientific content ought to be taken and for evaluating the authority of its author. Hutchinson's experience of the early wave of scientific school education, and his reading of works written earlier in the century, had trained him to believe he had a right to participate in debates and question the value of science writing that alienated non-specialists. Whether through referencing *Trilby* or writing in the *Daily Mail*, Hutchinson reached out to the masses. Specialists, however, resented having their painstaking work attacked by an underqualified author writing popular books. The case study of Hutchinson and his critics indicates how science and literature were divided both as the result of technical specialization and deliberate attempts to clarify social hierarchies of knowledge within the scientific community and around it. As his heartfelt response to the *Geological Magazine's* rejection showed, Hutchinson did not understand or agree with these hierarchies, and his works represented pointed attempts to break with them.

Hutchinson's obituarist in the Geological Society's *Journal* claimed that "[h]is popular works on Extinct Monsters and the like are familiar to us all," adding that he was "known, at least by name, to a far wider circle than that which most of us can reach" (lvii). While the man's fame hardly extends so widely today, various points of general interest to students of literature and science emerge from this case study. Three considerations may be sketched out here. Firstly, the study of Hutchinson encourages scholars to look for early fashioning of the field not only in civic exchanges, like those of Arnold and Huxley or of C. P. Snow and F. R. Leavis, but also in unshowy reviews where critics pigeonholed books, clipping unsightly protrusions around the edges of genres. Secondly, the findings related in this article suggest that the decades around the turn of the twentieth century may hide further permutations of the redefinition of "literature". This subject is still only partially understood, even in the context of its more commonly-studied Romantic origins. How widely, for instance, would Seeley, Solla, and Lankester's arguments about literature and science have been met with understanding and affirmation? Thirdly, this article suggests that the earth sciences, which have already proved so productive for literary study, may prove to be of continued interest at the turn of the twentieth century and beyond. Findings emerging from attention to this period would likely differ greatly from those already made concerning the earlier birth and expansion of geology and palaeontology. Such findings, nonetheless, could tell a surprising story.

Hutchinson's writings and their reception provide us with a frozen relic of the culture of literature and science caught in transition. In this sense he is rather like the feathered dinosaur tail, recently discovered trapped in amber, which demonstrates so vividly the connection between birds and dinosaurs (although Hutchinson would have found this evidence highly damaging to his own theory that these groups were unrelated). Similar finds will help palaeontologists better understand the flow of the one group of animals into the other. For scholars of literature and science, further study of writers like Hutchinson will illuminate the developments that once made the pillars of the Two Cultures appear as discrete categories, just like dinosaurs and birds.

Works Cited

- Baldwin, Melinda. *Making Nature: The History of a Scientific Journal*. U of Chicago P, 2015.
- Barton, Ruth. "'Men of Science': Language, Identity and Professionalization in the Mid-Victorian Scientific Community." *History of Science*, vol. 41, no. 1, 2003, pp. 73-119.
- Bonney, Thomas George. *The Story of Our Planet*. Cassell Publishing Co., 1893.
- Brock, William. "Founding Fathers of Science Education (5): Formalising Science in the School Curriculum." *New Scientist*, vol. 75, no. 1068, 1977, pp. 604-5.
- Browning, Robert. *Bells and Pomegranates. No. III. – Dramatic Lyrics*. Edward Moxton, 1842.
- Buckland, Adelene. *Novel Science: Fiction and the Invention of Nineteenth-Century Geology*. U of Chicago P, 2013.
- Buckland, William. *Geology and Mineralogy Considered with Reference to Natural Theology*. William Pickering, 1836. 2 vols.
- Carroll, Lewis. *Through the Looking-Glass, and What Alice Found There*. Macmillan and Co., 1871.
- Court, Franklin E. *Institutionalizing English Literature: The Culture and Politics of Literary Study, 1750-1900*. Stanford UP, 1992.
- Dawson, Gowan. "The Review of Reviews and the New Journalism in Late-Victorian Britain." *Science in the Nineteenth-Century Periodical: Reading the Magazine of Nature*, edited by Geoffrey Cantor et al., Cambridge UP, 2004, pp. 172-95.
- . *Darwin, Literature and Victorian Respectability*. Cambridge UP, 2007.
- . *Show Me the Bone: Reconstructing Prehistoric Monsters in Nineteenth-Century Britain and America*. U of Chicago P, 2016.
- Dawson, Gowan, and Bernard Lightman. "General Introduction." *Victorian Science and Literature*, edited by Piers J. Hale and Jonathan Smith, vol. 1, Pickering and Chatto, 2011, pp. vii-xix.
- Du Maurier, George. *Trilby: A Novel*. Osgood, McIlvaine & Co., 1895.
- "Extinct Monsters." *Geological Magazine*, vol. 10, no. 1, 1893, pp. 41-43.
- "Extinct Monsters." *Morning Post*, 3 Dec. 1892, p. 3.
- "Extinct Monsters." *Science*, vol. 21, no. 530, 1893, p. 179.
- "For Nursery Shelves—II." *Outlook*, vol. 4, no. 97, 1899, p. 622.
- Hutchinson, Henry Neville. "On Motive Power, and Ammonia and Carbonic Acid as Motive Power for Engines." *Report of the Rugby School Natural History Society for the Year 1872*, edited by F. E. Kitchener, L. Maxwell, and H. O. Arnold, W. Billington, 1873, pp. 28-31.
- . "All the World's a Stage; A Geological Parody." *Hardwicke's Science-Gossip*, vol. 25, 1889, pp. 260-61.
- . "Science as a Revelation." *Sunday Magazine*, 1891, pp. 274-77.
- . *The Autobiography of the Earth: A Popular Account of Geological History*. D. Appleton & Company, 1891.
- . *The Story of the Hills: A Book about Mountains for General Readers*. Seeley & Co., 1892.
- . *Extinct Monsters: A Popular Account of Some of the Larger Forms of Ancient Animal Life*. Chapman & Hall, 1892.
- . *Creatures of Other Days*. Chapman & Hall, 1894.
- . "The Work of a Scientific Society." *Science-Gossip*, vol. 2, 1895-96, pp. 90-93.
- . *Prehistoric Man and Beast*. Smith, Elder, & Co., 1896.

- . *Primeval Scenes: Being Some Comic Aspects of Life in Prehistoric Times*. Lamley & Co., 1899.
- . "Observations on the Reconstructed Skeleton of the Dinosaurian Reptile *Diplodocus Carnegiei* as set up by Dr. W. J. Holland in the Natural History Museum in London, and an attempt to restore it by means of a Model." *Geological Magazine*, vol. 4, no. 8, 1917, pp. 356-70.
- . "Steam Cooking Saves Money." *Daily Mail*, 29 Oct. 1919, p. 6.
- . "Popular Science Lectures on Natural History." *Nature*, vol. 106, no. 2674, 1921, p. 694.
- . "A British Association of Literature." *Saturday Review*, vol. 139, no. 3611, 1925, p. 32.
- Hutchinson, Henry Neville, to Arthur Smith Woodward. 24 May 1917. Natural History Museum Archives DF100/63/201, Department of Palaeontology, Departmental Correspondence, 1917. By permission of the Trustees of the Natural History Museum.
- [Huxley, Thomas Henry]. "Science." *Westminster Review*, vol. 61, no. 119, 1854, pp. 254-70.
- Lankester, E. Ray. *Extinct Animals*. A. Constable & Co., 1905.
- [Lewes, George Henry]. "The Lady Novelists." *Westminster Review*, vol. 58, no. 113, 1852, pp. 129-41.
- Lightman, Bernard. *Victorian Popularizers of Science: Designing Nature for New Audiences*. U of Chicago P, 2007.
- . "Popularizers, Participation and the Transformations of Nineteenth-Century Publishing: From the 1860s to the 1880s." *Notes and Records*, vol. 70, no. 4, 2016, pp. 343-59.
- Lester, Joseph. *E. Ray Lankester and the Making of Modern British Biology*. Edited by Peter J. Bowler, BSHS, 1995.
- "Literary Notes." *Morning Post*, 14 Dec. 1899, p. 3.
- Littlefield, Melissa M., and Martin Willis. "Introduction: The State of the Unions." *Journal of Literature and Science*, vol. 10, no. 1, 2017, pp. 1-4.
- Lyell, Charles. *Principles of Geology, Being an Attempt to Explain the Former Changes of the Earth's Surface, by Reference to Causes Now in Operation*. John Murray, 1830-33. 3 vols.
- Mantell, Gideon. *The Wonders of Geology*. Relfe and Fletcher, 1838. 2 vols.
- "Monsters of Long Ago." *The Sun* [NY], 26 Feb. 1893, p. 5.
- Moore, Tara. *Victorian Christmas in Print*. Palgrave Macmillan, 2009.
- "Notes on New Books." *Hardwicke's Science-Gossip*, vol. 29, 1893, pp. 83-86.
- O'Connor, Ralph. "The Poetics of Earth Science: "Romanticism" and the Two Cultures." *Studies in History and Philosophy of Science*, vol. 36, no. 3, 2006, pp. 607-17.
- . *The Earth on Show: Fossils and the Poetics of Popular Science, 1802-1856*. U of Chicago P, 2007.
- . "Introduction: Varieties of Romance in Victorian Science." *Victorian Science and Literature*, edited by Ralph O'Connor, vol. 7, Pickering & Chatto, 2012, pp. xi-xxxvi.
- . "Henry Hutchinson." *Victorian Science and Literature*, edited by Ralph O'Connor, vol. 7, Pickering & Chatto, 2012, pp. 91-94.
- . "The Meanings of 'Literature' and the Place of Modern Scientific Nonfiction in Literature and Science." *Journal of Literature and Science*, vol. 10, no. 1, 2017, pp. 37-45.

- "Old and New." *National Observer*, vol. 9, no. 211, 1892, p. 70.
- Palaeontology Department Visitors' Book 1900-1912*. Natural History Museum Archives DF108/8, Department of Palaeontology, Palaeontology Visitor Books, 1869-1979. By permission of the Trustees of the Natural History Museum.
- Porter, Roy. "The Natural Science Tripos and the 'Cambridge School of Geology', 1850-1914." *History of Universities*, vol. 2, 1982, pp. 193-216.
- "Proceedings of the Geological Society of London: Session 1927-28." *Quarterly Journal of the Geological Society*, vol. 84, 1928, pp. i-cv.
- Pycraft, W. P. "Palæontology." *Science Progress*, vol. 12, no. 47, 1918, pp. 420-25.
- "Reptiles of the Past." *Saturday Review*, vol. 78, no. 2029, 1894, pp. 305-6.
- Secord, James A. *Victorian Sensation: The Extraordinary Publication, Reception, and Secret Authorship of Vestiges of the Natural History of Creation*. U of Chicago P, 2000.
- . "Seeley, Harry Govier (1839–1909)." *Oxford Dictionary of National Biography*, edited by David Cannadine, online ed., Oxford UP, 2004. www.oxforddnb.com/view/article/36006. Accessed 20 June 2017.
- Seeley, Harry Govier. "On the Classification of the Fossil Animals Commonly Named Dinosauria." *Proceedings of the Royal Society*, vol. 43, no. 258-65, 1888, pp. 165–71.
- . "Extinct Monsters." *Nature*, vol. 47, no. 1211, 1893, pp. 250-52.
- . "Creatures of Other Days." *Nature*, vol. 50, no. 1296, 1894, pp. 426-28.
- . *Dragons of the Air: An Account of Extinct Flying Reptiles*. London: Methuen & Co., 1901.
- Sheets-Pyenson, Susan. "Geological Communication in the Nineteenth Century: The Ellen S. Woodward Autograph Collection at McGill University." *Bulletin of the British Museum (Natural History)*, vol. 10, no. 6, 1982, pp. 179-226.
- Smith, Jonathan. *Fact and Feeling: Baconian Science and the Nineteenth-Century Literary Imagination*. U of Wisconsin P, 1994.
- Sollas, William Johnson. "Prehistoric Man and Beast." *Nature*, vol. 55, no. 1423, 1897, pp. 314-15.
- Topham, Jonathan. "Rethinking the History of Science Popularization/Popular Science." *Popularizing Science and Technology in the European Periphery, 1800-2000*, edited by Faidra Papanelopoulou et al., Ashgate, 2009, pp. 1-20.
- Tucker, Jennifer. *Nature Exposed: Photography as Eyewitness in Victorian Science*. Johns Hopkins UP, 2005.
- Vaninskaya, Anna. "The Late-Victorian Romance Revival: A Generic Excursus." *English Literature in Transition, 1880-1920*, vol. 51, no. 1, 2008, pp. 57-79.
- Wells, H. G. "Popularising Science." *Nature*, vol. 50, no. 1291, 1894, pp. 300-1.
- . *The Time Machine*. London: William Heinemann, 1895.
- White, Paul. *Thomas Huxley: Making the 'Man of Science.'* Cambridge UP, 2003.
- Williams, T. I. "Clifton and Science." *Centenary Essays on Clifton College*, edited by N. G. L. Hammond, J. W. Arrowsmith, 1962, pp. 195-212.
- Wordsworth, William. *Lyrical Ballads, with Pastoral and other Poems*. 3rd ed., vol. 1. London: T. N. Longman and O. Rees, 1802. 2 vols.