

**‘By a Comparison of Incidents and Dialogue’: Richard Owen, Comparative
Anatomy and Victorian Serial Fiction
Gowan Dawson**

The ‘omnivorous’ and ‘unguarded reading’ undertaken by Charles Darwin between the 1830s and 1850s, as recorded in the extensive reading-lists in his Notebooks, was a crucial starting point for the central insights into the interchange between science and culture which have shaped scholarship in the field for the last three decades. Gillian Beer’s justly celebrated *Darwin’s Plots* (1983) begins by examining the ‘importance of his reading to the imaginative development of his ideas’, and, along with a further essay by Beer on Darwin’s reading practices in David Kohn’s *The Darwinian Heritage* (1985), contends that the ‘interpenetration of Darwin’s literary and scientific reading’ was fundamental to the ‘precipitation of his theory, and to his questioning of simple notions of development’.¹ Beer’s subtle and sustained analysis of, amongst other things, how Darwin’s reading of Milton in the tropical forests of South America during the voyage of HMS *Beagle* made him especially sensitive to the productive superabundance and fertility of the natural world, and coalesced creatively with his earlier reading of Malthus’s jeremiads on overpopulation, is wholly persuasive and has been hugely influential. David Amigoni’s recent *Colonies, Cults and Evolution* (2007), for instance, similarly—if more allusively—suggests that Darwin’s youthful reading of Wordsworth’s *The Excursion* (twice so he claimed!) ‘would eventually impact powerfully on evolutionary speculation’.² Considering how significant this attention to Darwin’s literary reading was for the emergence of Beer’s now ubiquitous method of studying the two-way traffic between science and culture, as well as how productive it continues to be, it is notable, although perhaps unsurprising, that there has been hardly any concern with the parallel readerly tastes of other prominent Victorian men of science. This is all the more striking given the increasing prevalence of methods from the field of the history of the book, which focus on reconstructing the historically specific reading practices of particular individuals and groups, in the study of nineteenth-century science, as exemplified in James A. Secord’s *Victorian Sensation* (2000).³ At the same time, with the meticulous editing of Darwin’s Notebooks in the mid-1980s and ongoing publication of his correspondence, alongside the textual scholarship of Beer, Amigoni and others, there is hardly any aspect of his reading of fiction and poetry that has not been considered in detail, even including his attitudes to the material form of such works. This virtually exclusive focus on Darwin can give the

impression that the level of his literary reading, and its manifest significance for his scientific thought, is another facet of his status as an exceptional and uniquely brilliant scientific and cultural figurehead.

It requires only a cursory glance over the ‘Lives and Letters’ of a few nineteenth-century men of science to recognize that there was nothing anomalous about Darwin’s aesthetic predilections (and, of course, I’m not implying that either Beer or Amigoni suggest that there is), but the absence of any detailed or sustained analysis of this broader context of scientists’ reading practices in relation to literature can nevertheless imply that Darwin’s thought was especially, perhaps uniquely, amenable to the impact of his immersion in fiction and poetry. After all, numerous critical works, in the wake of *Darwin’s Plots*, have established a pronounced connection between Darwinian evolutionism and narrative fiction that is informed as much by Darwin’s reading of novels as novelists’ subsequent reading of his work. In this paper, which draws on work-in-progress from a larger project on functionalist palaeontology in Victorian culture, I want to explore the possibility that the important relation between Darwin’s literary reading and the imaginative development of his ideas that was identified so skilfully by Beer was actually no more exceptional than his canonical and widely-shared tastes for Milton, Wordsworth and the latest novels of the day. By examining the extensive but comparatively little-known literary reading of Richard Owen, a prominent opponent of Darwin whom Nicolaas Rupke has recently described as ‘Britain’s leading biologist of the mid-nineteenth century’, with the same kind of detail that has previously been the preserve of studies of Darwin, it will become clear that important aspects of other, and even explicitly non-Darwinian, areas of Victorian science were just as likely to be influenced by their practitioners’ enthusiasm for fiction and poetry.⁴

Rather than merely introducing another scientific reader with a marked fondness for literature to set alongside Darwin, or simply replicating the approach taken by Beer in the mid-1980s, my account of Owen’s reading is also significantly informed by the greater emphasis placed upon material practices amongst recent historians of science, in which reading, no less than collecting in the field or experimenting in a laboratory, is perceived as a form of physical activity involving tangible objects that takes place in specific times and places, and within the broader context of everyday life.⁵ Such a focus on practices rather than disembodied ideas or abstract theorizing has the potential to open up a new

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range of connections between the literary reading of men of science and their professional activities. Indeed, that Darwin and Owen frequently read the same literary works, and often in the same or similar locations (whether in metropolitan clubs or out in the field), permits direct comparisons of their particular practices of reading, which, intriguingly, suggest that, far from being uniquely amenable to it, Darwin's scientific thought might in fact have been shaped much less by his literary reading than that of contemporaneous naturalists like Owen.

Owen's principal field of expertise was in comparative anatomy, the techniques of which enabled him to identify and reconstruct extinct creatures from fossilized bones and teeth. Most notably, in November 1839 Owen inferred the existence of a hitherto unknown giant prehistoric bird in New Zealand from the evidence of just a small fragment of femur bone, a prediction that was spectacularly confirmed four years later with the arrival of a consignment of bones from which Owen was able to reconstruct the entire skeleton of the wingless Moa, or *Dinornis* as he named it. Owen accomplished this extraordinary vindication of the power of inductive reasoning through the technique of functional correlation, a method of palaeontological reconstruction in which each element, or part, of an animal is presumed to correspond mutually with all the others, so that a carnivorous tooth must be accompanied by a particular kind of jawbone, and so on, that facilitates the consumption of flesh, and thus any part, even the mere fragment of a bone, necessarily indicates the configuration of the integrated whole. This principle had been developed in the 1810s by the renowned French anatomist Georges Cuvier, but it had become increasingly central to the English tradition of natural theology, and Owen's startling discovery of the *Dinornis* was welcomed as an indisputable affirmation that only providential design could have produced such a perfectly integrated mechanism. Owen's seemingly miraculous palaeontological feats also became popular and enduring *causes célèbres* in Victorian Britain.

Owen's growing scientific renown ensured that, from the early 1840s, he was feted by royalty and politicians as well as many of the period's leading literary writers. Indeed, unlike the more reclusive Darwin, who in later life claimed to have lost the capacity for aesthetic appreciation, Owen numbered Dickens, Thackeray, George Eliot, Tennyson, Carlyle and R. D. Blackmore amongst his closest friends and acquaintances, and it is clear that he read their works with great enthusiasm and enjoyment. In particular, he was an

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especially devoted reader of the nascent format of serialized fiction. Although this was only one of many facets of what the author of an obituary notice for the *Church Quarterly Review* called the ‘many-sidedness’ of this ‘polished gentleman of varied accomplishments’, the extent of Owen’s passionate enthusiasm for this particular form of literature is nonetheless striking, and the same obituarist went on to observe: ‘Mrs Owen kept him well supplied with the novels of the day; and he sat up half the night over ...the serial stories of Dickens’.⁶ In addition to furnishing her husband with the latest instalments of current novels, Owen’s wife Caroline also recorded his responses to them in her diary, and it is this—as partially reprinted in his grandson’s deferential *Life* (1894)—, along with his correspondence, which affords an understanding of Owen’s reading of fiction that is considerably more detailed than what can be gleaned from Darwin’s Notebooks.⁷

The attachment to serial novels seems to have begun with Dickens’s pioneering *The Pickwick Papers*, which, after a slow beginning, had become a publishing phenomenon by the end of 1836, and, from the start, Owen’s fictional reading was closely intertwined with his professional scientific activities. He regularly referred to the geologist John Brown, a collector of important Pleistocene fossils, as ‘Mr. Pickwick’, informing his sister Eliza, in a letter of October 1842, that he was the ‘closest approximation to Boz’s famed type’ and ‘like the founder of the Pickwick Club, he solaceth himself with virtuosoizing in antiquities; but, as the immortal Cuvier hath it—“of a higher order” than those which amuse the F. A. S.’s’.⁸ As this curious juxtaposition of the distinctive styles of the youthful originator of serialized fiction and the late founder of functionalist palaeontology might suggest, reconstructing Owen’s literary reading practices will potentially shed important light on his own researches in comparative anatomy, a connection that Owen would, at times, acknowledge even himself.

At first sight, it appears that the serialized novels supplied by his wife offered Owen merely an engrossing escape from the pressures and demands of his scientific labours. The regularly published instalments of a novel, as Jennifer Hayward has argued, accorded with the increasing separation of public work and domestic leisure in the mid-nineteenth century, with the ‘ritualization of its consumption ...help[ing] to mark off work time from leisure time’.⁹ This certainly seems to be the case in the following entry from Caroline’s diary made during the spring of 1844:

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May 3.—After a hard day's work, R. deep in 'Martin Chuzzlewit'. My father [i.e. William Clift] came in before going to the Royal Society, and talked to R. without mercy; but R., whose thoughts and attention were so entirely given up to Mrs. Gamp and Jonas, could only answer at random. As soon as my father was gone, we laughed over Mrs. Gamp till bedtime.¹⁰

Owen's almost total absorption in what appears to be the fifteenth of the novel's nineteen monthly numbers denuded him of the ability to partake in a presumably professional and scientific conversation with his father-in-law and erstwhile mentor. Rather, following an exhausting day amidst the abundance of fossilized remains at the Royal College of Surgeons, the particular instalment of Dickens's sixth serial novel confined Owen, both physically and mentally, to the space of the domestic sphere and the company of his wife, who, it would seem, was able to take precisely the same pleasure as himself in the bathos of the bilious nurse Sairey Gamp's tea making. The rumbustious humour of Gamp's so-called 'scientific treatment' of Mr. Chuffey, in which the elderly clerk is subjected to vigorous shaking that renders him 'rather black in the face', displaced the more sober scientific subject of the secretion of carbon by animals which was to be discussed at that evening's meeting of the Royal Society.¹¹ As the Owens's living quarters at this time were a cramped apartment in the same building as the Royal College of Surgeons, where Caroline sometimes had to 'keep all the windows open' and prompt her husband to 'smoke cigars all over the house' to counteract the smell of putrid animal cadavers, their mutual enjoyment of the monthly numbers of a novel like *Martin Chuzzlewit* (1843–44) evidently helped mark off the ambivalent space of the home from the constant intrusions, olfactory as much as bureaucratic, of the adjacent College.¹²

This theme of an absorption in fiction, following the completion of his professional activities, that was so rapt that it kept him aloof from his intellectual peers is also discernible in the entries in Caroline's diary relating to Owen's reading of serialized novels in other environments. On 22 January 1848 she recorded that

after hearing a lecture of Whewell's, he went on to the [Athenaeum] Club, and took up Thackeray's 'Vanity Fair' to read. He became so deeply absorbed ...that he sat on, oblivious of the fact that everyone else had disappeared one by one...Then, having looked at his watch and found it considerably past 2 A.M., he rushed wildly out of the Club, and, like a scientific Cinderella, left his umbrella and great coat behind.¹³

Rather than engaging in any form of conversation or sociability with his exclusively male

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fellow Club members, or indeed discussing the Friday Evening Discourse on the use of hypothesis in science that William Whewell had just given at Royal Institution, Owen was instead isolated by his immersion in the thirteenth instalment of Thackeray's novel, and finally departed from the Athenaeum in the ambiguously gendered position of a scientific Cinderella.

Almost exactly a decade earlier, the very same location had also played host to another man of science who became equally absorbed, as well as finding a similar respite from onerous scientific concerns, in reading fiction. As Darwin recorded in his M Notebook for 12 August 1838: 'At the Athenæum Club was very much struck with an intense headache <<after a good days work>>...my head got better when reading an article by Boz.— ...and read so intently as to be unconscious of all around'. With a work such as *Sketches by Boz* (1836), Darwin reflected, there is 'no strain on the intellectual powers', thereby permitting a level of rapt concentration that, as had been the case for himself and would be again for Owen ten years later, rendered the reader unconscious of both his surroundings and even the physical ailments brought on by intensive scientific study.¹⁴ It is unlikely, however, that Darwin's decision to take up one of Dickens's early picaresque tales at the gentleman's Club to which he had been elected less than two months earlier constituted merely a casual means of escaping from his exhausting intellectual labours. Rather, it was whilst at the Athenaeum during the summer of 1838 that Darwin adopted a 'new plan' of 'only working about two hours at a spell' recommended by the geologist Charles Lyell, who advised him that 'as your eyes are strong, you can afford to read the light articles and newspaper gossip' and then 'after lying two hours fallow the mind is refreshed'. Reading even the most seemingly undemanding fiction could be an essential element of such a regime for the self-conscious regulation of intellectual energies, and Lyell's caution to Darwin that when at the Athenaeum and 'meeting with clever people, who would often talk to me' he 'used to forget that this ought to count for work ...and that I ought consequently to give up my second "two hours' spell"' might explain why ten years later Owen, another close friend of the geologist, stuck so assiduously to his reading of *Martin Chuzzlewit* and *Vanity Fair* and declined to engage in scientific conversation with either his father-in-law or any of his fellow Club members.¹⁵

Much of the original audience of *Vanity Fair*, as Richard D. Altick has noted, read the monthly parts of Thackeray's initial foray into serialized fiction alongside those of

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Dickens's almost contemporaneous *Dombey and Son*, with their experience of the respective serials shaping their responses to both.¹⁶ In the month following Owen's evening of engrossment at the Athenaeum, Caroline's diary recorded: 'On February 29 [1848] No. 18 of "Dombey" appeared and he "stayed up very late reading it"', and it very much appears that he read the two novels concurrently.¹⁷ By the late 1840s Dickens and Thackeray were established as Owen's favourite serial authors, and their absorbing fictions continued to afford him relaxation and a regulated release from the pressures of his various professional and public commitments.¹⁸ In a letter to his sister Eliza from May 1862, by which time he and Caroline had moved from their malodorous apartment in Lincoln's Inn to a grace-and-favour residence in Richmond Park, Owen recalled how Mayday was 'passed ...pleasantly in my garden ...I was reading [Thackeray's] "Philip", in the last "Cornhill [Magazine]"', under my cedar, listening to the trill of the nightingale'.¹⁹ With the exception of the Athenaeum, where he in any case made such a spectacle of himself, the location of Owen's novel reading was resolutely domestic, the interior of his cramped London apartment or the spacious garden of his country home, while its timing was either in the evening or holidays like Mayday, and it provided him with a subject that he could discuss with female family members who might recoil at the more grisly anatomical aspects of his professional activities. Through his reading of novelists like Dickens and Thackeray Owen could discharge his roles as a devoted husband and family man, while, by restricting such fictional reading to evenings or holidays, nevertheless conducting himself as a proper man of science.

Such a predictable binary between a public, masculine world of the scientific and a feminized, domestic realm of the literary, though, is of questionable validity in accounting for Owen's conspicuous predilection for serialized fiction. Indeed, even when reading *The Adventures of Philip* (1861–62) amidst the pastoral tranquillity of his garden he was never far from reminders of his scientific researches, with Thackeray's novel making frequent allusions to both his recent and extremely acrimonious public dispute with Thomas Henry Huxley over the existence of small cerebral distinctions between apes and man, and, more positively, his celebrated elaboration of the structure and habits of the sloth-like *Megatherium*.²⁰ As with the Pickwickian fossilist John Brown, Owen also continued to compare his scientific acquaintances with fictional characters, finding an American 'youth in spectacles' who used polygenist arguments to endorse slavery the

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very ‘model of Dickens’s Jefferson Brick’.²¹ Reviewers of *Martin Chuzzlewit*, in whose sixth number the Yankee journalist was first introduced, had already begun to warn that serialized novels, consumed regularly over an extended period of time, might actually distort their readers’ perception of reality. Each ‘new number of Dickens’, the *North British Review* advised, is not a mere healthy recreation like ...a game of backgammon. It throws us into a state of unreal excitement, a trance, or dream ...But now our dreams are mingled with our daily business’.²² Owen was partial to a ‘hit of backgammon’ when ‘tired of my work’, as he put it in a letter to a Richmond neighbour, but reviewers suggested that his much greater fondness for serialized fiction would not afford the same respite from his professional labours and, alarmingly, might instead become inextricably confused with them.²³

It therefore becomes problematic to separate Owen’s marked enthusiasm for this particular format of fiction from the activities which he undertook during his long working hours at the Royal College of Surgeons, and maybe even from the kind of cognitive processes that he employed there. In the still innovative practice of ‘reading one instalment, then pausing in that story’, as Linda Hughes and Michael Lund have suggested, ‘the Victorian audience turned to their own world with much the same set of critical faculties they had used to understand the literature’.²⁴ Whereas the earlier tradition of sentimental fiction had conceived of the novel as offering a training of the sympathies through the exercise of imagination, for Victorian psychologists such as Herbert Spencer and Alexander Bain who were concerned with the cognitive processes involved in reading fiction, the distinctive forms of interrupted reading necessitated by lengthy, digressive serial novels like those of Dickens or Thackeray were no less potentially valuable, affording readers the liberty to reflect expansively on, for instance, a narrative’s ethical bearing on their own conduct.²⁵ The same practices of reading could also encourage reflection on the relations between fiction and other aspects of readers’ personal and professional lives, and rather than merely immuring him in a domestic realm of literary leisure, Owen’s own experience of reading novels like *Martin Chuzzlewit* or *The Adventures of Philip* as part of a discontinuous but repeated pattern extending over a period of almost two years might have exercised a lasting influence on crucial aspects of his scientific thought.

There were particularly striking connections between his reading of such serialized fiction and his practices as a comparative anatomist. In the fifteenth number of *Nicholas Nickleby* (1838–39) the eponymous hero expressed Dickens’s indignation with the piratical adaptations of his serial novels that appeared on the London stage before they were even completed by remonstrating with a ‘literary gentleman ...who had dramatised in his time two hundred and forty-seven novels as fast as they had come out—some of them faster than they had come out’. He and other similarly prolific dramatists, Nicholas heatedly insists, ‘take the uncompleted books of living authors’, ‘finish unfinished works’ and ‘vamp up ideas not yet worked out by their original projector’. It is ‘by a *comparison* of incidents and dialogue, down to the very last word he may have written a fortnight before’, Nicholas goes on, that you ‘do your utmost to *anticipate* his plot’ [italics mine].²⁶ The method of such nefarious dramatists was not actually that different from the typical practices of less calculating readers of serial fiction, who, as Wolfgang Iser and Hayward have both noted, ‘try to imagine how a story will unfold’ and take ‘active pleasure in guessing the outcome’ (although many readers would clearly have taken umbrage at the suggestion that they were merely guessing).²⁷

What is still more remarkable is that exactly the same terms in which Nicholas portrays the disreputable methods of this piratical literary gentleman, and by implication the less culpable practices of many other readers of serial novels, were used by Owen to describe his own Cuvierian palaeontological practices, in which the ‘interpretation of ...fossil remains requires a *comparison* of them with the corresponding parts of animals now living, or of previously determined extinct species’.²⁸ In Cuvier’s analysis of extinct elephants, Owen proposed, these comparative procedures had meant that a ‘rapid glance ...over other fossil bones, made him *anticipate* all that he afterwards proved’ [italics mine].²⁹ Serialization presented readers with small, disconnected parts from which they had to make inferences about the nature of a work that would often not be completed for several months or even years to come, and it was on the basis of these projections, which assumed an unerring relation between part and whole, that they made commercially crucial decisions whether to continue purchasing a particular serial. The audience for serial fiction also made careful comparisons between the available parts of a novel—as well as with a broader taxonomic repertoire of plots and characters drawn from their reading of other novels—in order to anticipate the resolution of its plot in a way that

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closely resembled the methods and language used by comparative anatomists. In fact, the above passage from *Nicholas Nickleby*, first published in the fifteenth number in May 1839, offers a striking parallel with what Owen would do only five months later when anticipating the structure of an unknown flightless bird from New Zealand by what he termed an ‘exhaustive comparison’ of its femur with ‘similar-sized portions of the skeletons of ...various quadrupeds’ in the Royal College of Surgeons.³⁰

Even more strikingly, it is clear that Owen was actually reading the monthly instalments of *Nicholas Nickleby* in the period immediately prior to his receiving this enigmatic bone. On 8 September 1839 he told his mother-in-law ‘I read the last number of “Nicholas Nickleby” in bed the other night’, and, having stayed up late to finish the penultimate part of Dickens’s novel, it is likely that its concluding double number, which was published three weeks later at the start of October, would have occasioned no less excitement and been read with a similar alacrity.³¹ Dickens’s usual practice was for the initial parts of his next novel to appear simultaneously with the final instalments of the previous one (as had happened with *Oliver Twist* and *Nicholas Nickleby*), but the as yet untitled ‘NEW WORK BY “BOZ”’ advertised in the wrappers of the last number of *Nicholas Nickleby* was not due to commence until the following March. The ‘Author of these pages’, as Dickens noted archly in the Preface appended to the novel’s final part, acknowledged of its readers ‘that on the first of next month they may miss his company at the accustomed time as something which used to be expected with pleasure’.³² By the middle of October, Owen, for the first time since his enthusiastic response to *The Pickwick Papers* in the winter of 1836, was deprived of his regular fix of serialized fiction and its attendant readerly activities of comparison and anticipation. Only days later, on 18 October, he was sent a letter ‘offer[ing] for sale a portion or fragment of a bone’ recovered from the ‘mud of a river that disembogues into one of the bays in New Zealand’, and the mysterious ‘part of the femor [sic]’ which he received soon after might therefore have afforded a timely surrogate with which he could engage in similar procedures.³³

That Owen’s own reading of serialized fiction involved precisely such anticipations based on comparisons of the evidence gleaned from earlier instalments is made clear by his sense of grievance that his apparently rational predictions about the fate of Mr Carker when reading the serial parts of *Dombey and Son* were stymied by his abrupt and sensationalist death beneath a train in the eighteenth number. The ‘character of

Carker as drawn throughout the book', Owen observed disgruntledly, 'makes it evident to me that he was not the man either to act or to be acted upon in such a way'.³⁴ Nor was Owen alone in such a view, with the *English Review* also complaining of the 'exaggerated ...portraiture' of *Dombey and Son*, contrasting it with Thackeray's 'thoroughly self-consistent "Vanity Fair", in which 'nothing is forced, nothing artificial'.³⁵ Owen's own strictures regarding the inconsistent characterisation of Carker may also, as Altick suggested was the case with other readers of the novel, have been conditioned by his simultaneous reading of the parts of *Vanity Fair*. In fact, during the spring of 1848 he seems to have spent his evenings comparing the individual parts of the two novels, in their respective green and yellow wrappers, before predicting the likely fates that awaited characters such as Carker, while, during the day, he was employing analogous comparative procedures to arrange a miscellaneous collection of Dinornis bones recently arrived from New Zealand. His earlier engrossment in the parts of *Martin Chuzzlewit* similarly coincided with his being painted by Henry Pickersgill 'in the act of lecturing, holding the dinornis bone', and Owen's reading of serialized novels consistently overlapped with his professional activities as a comparative anatomist and, in light of all the conceptual and material parallels examined throughout this paper, it seems highly implausible that the two were not in some way connected.³⁶

The connection is made even clearer by Owen's account of the sequential temporality of palaeontological study and how in waiting for new fossil remains that might confirm initial predictions about the structure of prehistoric creatures 'one's interest is revived and roused year by year as bit by bit of the petrified portions of the skeleton come to hand'.³⁷ Indeed, few things, as Owen noted in the *Philosophical Transactions of the Royal Society*, could 'equal the excitement of that in which, bit by bit, and year after year, one captures the elements for reconstructing the entire creature of which a single tooth or fragment of bone may have initiated the quest'.³⁸ Despite their publication in prestigious scientific journals, these emotive descriptions, with their emphasis on eager expectancy and the periodic revival of interest in a quest narrative that began with merely a single component and would eventually result in recreating an inhabitant of a vanished world, closely resembled Owen's grandson's portrayal of his own attitude towards serialized novels: 'He watched for the monthly numbers of Dickens's works with great eagerness, and read them with much enjoyment as they came out'.³⁹ And even if, as was

evidently the case with the eighteenth number of *Dombey and Son*, this eagerness soon gave way to disappointment, this was, again, not so very different from Owen's experience of palaeontological frustrations such as a long-awaited 'moa's head (so called)' that, as his wife recorded on 29 July 1844, had 'just arrived' at the Royal College of Surgeons. After 'so much excitement', Caroline observed, 'it was perhaps a little trying to find that this enormous head proved to be nothing more than the skull of a seal. A bit of dinornis skull was thrown in'.⁴⁰ From the mid-1830s until at least the early 1860s, then, Owen was perpetually waiting, with apparently equal anticipation and excitement, for fossilized remains coming bit by bit and novels arriving part by part, in the expectation, albeit tempered by occasional disappointment, that both would verify earlier predictions made largely on the basis of comparison.

The ostensible relation between his anatomical procedures and his practices as a reader of serial fiction was even recognized, at least to some extent, by Owen himself. In a speech given at the anniversary dinner of the Royal Literary Fund in May 1844 he professed to the audience of novelists and poets 'that whatever faculty he might possess of describing the structure or properties of a recent or fossil animal had been in a great measure gained by a study of some of the immortal examples of English literature'. He then went on, in the same postprandial tone, to express

his gratitude for a more immediate and personal boon, which he had experienced — no doubt in common with other labourers in the field of science — from works which characterise and adorn the present period of literature. Often after the labours of the day, the nervous system, oppressed by the atmosphere of a dissecting room, and the eye wearied by poring through the microscope, he had rejoined the family circle, too exhausted, perhaps, for the enjoyment of social conversation. And where had he found the best restorative? Sometimes in listening to the genial humour and touches of exquisite pathos which are yielded by the pages of a DICKENS.⁴¹

While these comments seem once more to instantiate a gap between the public and the private, the scientific and the literary, as well as recalling Darwin's notebook entry on how reading *Sketches by Boz* cured him of a headache, Owen had probably intended the encomium to be spoken in Dickens's presence — although the much coveted novelist absented himself with a 'most intolerable cold' — and his accompanying remarks that 'so much were the power and influence of the writer on science increased by the cultivation of literature' and 'literature has lent indispensable aid, has adorned and made fruitful the

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labours of science' suggest an awareness that his immersion in contemporary fiction provided something more than merely a recuperative antidote to the dissecting room and the microscope.⁴²

At another Royal Literary Fund anniversary dinner, in June 1859, Owen similarly reflected on his reading of poetry, which, he acknowledged, had at times actively assisted him in formulating scientific ideas:

More than once it has happened that ideas vaguely suggested by profound views into nature, the result of accumulated experience and observation, have found their truest and tersest expressions in immortal verse:—that the Naturalist's glimpse of 'the law within the law' has been made clear vision through the deeper insight of the Poet.⁴³

Poetry, according to Owen, enabled the man of science clearly to express, and thus actually to perceive, what had hitherto been only partially and fleetingly glimpsed. Owen's reading practices in relation to verse certainly suggest that scientific considerations were never far from his mind, and his great grandson recalled that, in later life, he annotated a 'little leather-bound Keats' with 'marginal notes in a quivering hand ...Where Hyperion is chasing a golden butterfly through the happy vales there stands ...a long list of generic and specific names—the butterflies which science thought perhaps Hyperion was chasing!'⁴⁴ In earlier decades he had shown a more sensitive—although seemingly no less scientific—appreciation of such Romantic poetry, validating Cuvierian palaeontological method on the distinctly Keatsian grounds that the 'laws of correlation rightly discerned ...are ...as beautiful as they are true'.⁴⁵ The undeviating perfections and exquisite harmonies of functional correlation, which reveal the flawlessly integrated design of organic structures, transform the mere empirical accuracy of a palaeontological technique into a higher form of sanctified truth. It was nevertheless not Keats whom Owen chose to invoke during his observations on the crucial significance of poetry for science at the Royal Literary Fund anniversary dinner in 1859, and instead he remarked: 'I have sometimes found in a song of Tennyson the most fitting garment of a thought engendered by a generalization in Science'.⁴⁶ In illustration of this, Owen's reference to the 'Naturalist's glimpse of "the law within the law"' in the preceding sentence drew upon a passage in Tennyson's early meditation on scepticism and suicide 'The Two Voices'. Contemporary verse like that of Tennyson, as Owen seemed to acknowledge, actively assisted his scientific thought in a way that his reading of serialized novels never could.

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Owen was perhaps more willing to acknowledge the significance of poetry for his scientific thinking because, unlike novels, it had long-established (and, for the man of science, highly desirable) associations with ideal beauty, universal truths and underlying law. Yet much nineteenth-century poetry, no less than works of fiction, was first published in serial parts, either on a periodic basis like Browning's *The Ring and the Book* or issued a volume at a time at irregular intervals such as Tennyson's *Idylls of the Kings*, and, just as with the novels of Dickens and Thackeray, these 'Victorian serial poems', as Hughes and Lund have argued, 'exhibited a continuing story over extended time with enforced interruptions, and they were read by an audience attuned to a vast production of serial literature'.⁴⁷ This habituated audience included Owen, who in April 1862, as his wife's diary documents, 'read part of one of the "Idylls"', presumably the instalment of Tennyson's protracted epic that had come out in 1859 and was generally viewed as a continuation of 'Morte d'Arthur' and 'The Epic' from 1842.⁴⁸ *Idylls of the King* was, according to Kathleen Tillotson, 'Tennyson's serial poem', and for its readers the 'parts ...would be seen gradually cohering into a whole'.⁴⁹ The spring of 1862 when Caroline noted Owen's own reading of *Idylls* was precisely the same time that he was also immersed in the monthly parts of *The Adventures of Philip* in the *Cornhill Magazine*, and the alternation of his rapt absorption in the latest serial by Thackeray with his no less engaged reading of one by Tennyson, whose importance to his scientific thought he had acknowledged explicitly to the Royal Literary Fund three years earlier, suggests strongly that the conceptual habits Owen developed whilst reading serialized fiction and verse had a tangible impact on his exactly contemporaneous deployment of analogous Cuvierian palaeontological techniques to reconstruct prehistoric creatures, as well as vice versa.

There is one further aspect of Owen's literary reading that again demonstrates its significant impact on his scientific activities, and which, interestingly, contrasts markedly with the material practices in relation to literature adopted by Darwin. Reciting passages of poetry had long been a feature of Owen's palaeontological fieldwork, and in April 1855 he recalled how 'my dear friend Fred. Dixon used to summon me to the exposed beds of Bracklesham, and we rambled in the pure bracing breeze, pitting against each other our stores of remembered lines from Milton & other choice spirits, revelling over our acquisitions' of fossils.⁵⁰ As with Darwin's reading of *Paradise Lost* in the tropical forests of South America during the voyage of HMS *Beagle*, poetry such as that of Milton

helped Owen to conceptualise the pre-Adamite world as he and Dixon traversed the fossiliferous rocks of West Sussex. ‘A MILTON ...heightens whatever in ...nature is lovely and brilliant’, as he told the same Royal Literary Fund anniversary dinner at which he had lauded the recuperative effects of Dickens.⁵¹ However, whereas Darwin conceded that ‘I have never been able to remember for more than a few days a single date or line of poetry’ and had always had to carry his volume of Milton with him on inland expeditions from the *Beagle* even when this meant he could take no other books, Owen clearly retained ‘stores of remembered lines from Milton’, and the suffusion of his mind with memorized passages from *Paradise Lost* contributed to his thinking on methodological aspects of the reconstruction of prehistoric fauna.⁵² Without the ‘guide-post of Palæontology’, as Owen reflected, ‘we find ourselves in a wilderness of conjecture, where to try to advance is to find ourselves “in wandering mazes lost”’, implying that those who refused the clear light of Cuvierian correlation were in the same position as the philosophical devils of Milton’s epic who, having rejected God, become entrapped in abstruse metaphysical considerations, although he also recognized that details of such necessary palaeontological techniques were generally ‘addressed to readers “fit but few”, in ...out-of-the-way scientific quartos’.⁵³

Poetry, as Owen told the Royal Literary Fund, enabled men of science fully to articulate, and therefore for the first time truly see, what previously had been grasped only incompletely, and, significantly, it was Owen rather than the avowedly more forgetful Darwin whose consciousness was most conspicuously affected by his reading of verse. Shifting the focus from Darwin and emphasizing the material practices involved in literary reading, while at the same time retaining the detailed examination of how the reading of fiction and poetry might shape the imaginative development of scientific ideas and practices pioneered by Beer, suggests the possibility of a much broader and diverse range of examples of this paradigmatic instance of the creative interpenetration of science and culture. In fact, in comparison with other examples such as Owen, Darwin, notwithstanding the hitherto almost exclusive focus on him, might actually present only a limited instance of this particular mode of interchange.

¹ Gillian Beer, *Darwin’s Plots: Evolutionary Narrative in Darwin, George Eliot and Nineteenth-Century Fiction* 3rd edn. (Cambridge: Cambridge University Press, [1983] 2009), p. 27. See also Gillian Beer,

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- 'Darwin's Reading and the Fictions of Development', in *The Darwinian Heritage*, ed. by David Kohn (Princeton, NJ: Princeton University Press, 1985), pp. 543–88.
- ² David Amigoni, *Colonies, Cults and Evolution: Literature, Science and Culture in Nineteenth-Century Writing* (Cambridge: Cambridge University Press, 2007), p. 89.
- ³ James A. Secord, *Victorian Sensation: The Extraordinary Publication, Reception, and Secret Authorship of Vestiges of the Natural History of Creation* (Chicago: University of Chicago Press, 2000).
- ⁴ Nicolaas Rupke, *Richard Owen: Biology Without Darwin* (Chicago: University of Chicago Press, 2009), p. xi.
- ⁵ See Secord, *Victorian Sensation*, pp. 3–6; Jim Endersby, *Imperial Nature: Joseph Hooker and the Practices of Victorian Science* (Chicago: University of Chicago Press, 2008), pp. 6–7.
- ⁶ 'Sir Richard Owen', *Church Quarterly Review* 40 (1895), 345–71 (pp. 347 and 362).
- ⁷ The original of Caroline Owen's diary seems to have been lost; see Jacob W. Gruber and John C. Thackray, *Richard Owen Commemoration: Three Studies* (London: Natural History Museum, 1992), p. 5.
- ⁸ Richard S. Owen, *The Life of Richard Owen*, 2 vols. (London: John Murray, 1894), I, p. 201.
- ⁹ Jennifer Hayward, *Consuming Pleasures: Active Audiences and Serial Fictions from Dickens to Soap Opera* (Lexington: University Press of Kentucky, 1997), p. 35.
- ¹⁰ Owen, *Life*, I, pp. 233–34.
- ¹¹ Charles Dickens, *Martin Chuzzlewit* (London: Chapman and Hall, 1844), p. 530.
- ¹² Owen, *Life*, I, p. 296.
- ¹³ *Ibid.*, I, p. 318.
- ¹⁴ Paul H. Barrett *et al.*, eds., *Charles Darwin's Notebooks 1836–1844* (Ithaca: Cornell University Press, 1987), p. 539.
- ¹⁵ Frederick H. Burkhardt *et al.*, ed., *The Correspondence of Charles Darwin*, 13 vols. (Cambridge: Cambridge University Press, 1983–), II, pp. 97 and 100–01.
- ¹⁶ See Richard D. Altick, 'Varieties of Reader Response: The Case of *Dombey and Son*', *Yearbook of English Studies* 10 (1980), 70–94 (pp. 83–84).
- ¹⁷ Owen, *Life*, I, p. 318.
- ¹⁸ David Masson, 'Thackeray and Dickens', *North British Review* 15 (1851), 57–89 (p. 57).
- ¹⁹ Owen, *Life*, II, p. 130.
- ²⁰ William Makepeace Thackeray, 'The Adventures of Philip', *Cornhill Magazine* 3 (1861), 166–89 (p. 188) and 385–408 (pp. 389 and 392).
- ²¹ Owen, *Life*, II, p. 97.
- ²² Thomas Cleghorn, 'Writings of Charles Dickens', *North British Review* 3 (1845), 65–87 (p. 85).
- ²³ C. M., *Letters and Reminiscences of the Rev. John Mitford* (London: Sampson Low, 1891), p. 277.
- ²⁴ Linda K. Hughes and Michael Lund, *The Victorian Serial* (Charlottesville: University Press of Virginia, 1991), p. 11.
- ²⁵ See Nicholas Dames, *The Physiology of the Novel: Reading, Neural Science, and the Forms of Victorian Fiction* (Oxford: Oxford University Press, 2007), pp. 73–122.

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- ²⁶ Charles Dickens, *The Life and Adventures of Nicholas Nickleby*, 2 vols. (London: Chapman and Hall, 1839), II, pp. 477–78.
- ²⁷ Wolfgang Iser, *The Act of Reading: A Theory of Aesthetic Response* (Baltimore: Johns Hopkins University Press, 1978), p. 191; Hayward, *Consuming Pleasures*, p. 54.
- ²⁸ Richard Owen, *Palæontology* (Edinburgh: Adam and Charles Black, 1860), p. 297.
- ²⁹ Richard Owen, *History of British Fossil Mammals, and Birds* (London: John Van Voorst, 1846), p. 220.
- ³⁰ Richard Owen, *Memoirs on the Extinct Wingless Birds of New Zealand*, 2 vols. (London: John Van Voorst, 1879), I, p. iii.
- ³¹ Owen, *Life*, I, p. 164.
- ³² Dickens, *Nicholas Nickleby*, I, p. x.
- ³³ J. Rule to R. Owen, 18 October 1839, Owen Papers 22:444(a), Natural History Museum, London.
- ³⁴ Owen, *Life*, I, p. 319.
- ³⁵ ‘Humourists: Dickens and Thackeray’, *English Review* 10 (1848), 257–75 (pp. 271 and 273–74).
- ³⁶ Owen, *Life*, I, p. 233.
- ³⁷ Richard Owen, ‘Extinct Animals of the Colonies of Great Britain’, *Popular Science Review* 3 (1879), 253–73 (p. 268).
- ³⁸ Richard Owen, ‘On the Fossil Mammals of Australia’, *Philosophical Transactions of the Royal Society* 160 (1870), 519–78 (p. 520).
- ³⁹ Owen, *Life*, I, p. 318.
- ⁴⁰ *Ibid.*, I, p. 239.
- ⁴¹ Royal Literary Fund Annual Reports 6 (1844), 21 and 23–24, Royal Literary Fund Archive, Loan 96, British Library.
- ⁴² Madeline House, Graham Storey and Kathleen Tillotson, eds., *The Letters of Charles Dickens*, 12 vols. (Oxford: Clarendon Press, 1965–2002), IV, pp. 119–20; Royal Literary Fund Annual Reports, 21–22.
- ⁴³ Royal Literary Fund Annual Reports 10 (1859), 27.
- ⁴⁴ F. D. Ommanney, *The House in the Park* (London: Longmans, 1944), pp. 12–13.
- ⁴⁵ Richard Owen, *Monograph on the Fossil Mammalia of the Mesozoic Formations* (London: Palæontographical Society, 1871), p. 100.
- ⁴⁶ Royal Literary Fund Annual Reports 10 (1859), 27.
- ⁴⁷ Hughes and Lund, *Victorian Serial*, p. 4.
- ⁴⁸ Owen, *Life*, II, p. 130.
- ⁴⁹ Kathleen Tillotson, ‘Tennyson’s Serial Poem’, in Geoffrey and Kathleen Tillotson, *Mid-Victorian Studies* (London: Athlone Press, 1965), pp. 80–109 (p. 82).
- ⁵⁰ Quoted in Gruber and Thackray, *Owen Commemoration*, p. 52.
- ⁵¹ Royal Literary Fund Annual Reports 6 (1844), 22.
- ⁵² Francis Darwin, ed., *The Life and Letters of Charles Darwin*, 3 vols. (London: John Murray, 1887), I, p. 103.

⁵³ Owen, *Palæontology*, p. 412; 'Professor Owen and the Darwinian Theory', *London Review* 12 (1866), 516. The allusions are to *Paradise Lost* II.561 and, slightly paraphrased, VII.31.