

## Darwin and 1860s Children's Literature: Belief, Myth or Detritus

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Everyone found themselves living in a Darwinian world in which old assumptions had ceased to be assumptions, could be at best beliefs, or myths, or, at worst, detritus of the past.

(Gillian Beer, *Darwin's Plots* 6)

In the immediate aftermath of the publication of Darwin's *Origin of Species* (1859), three significant children's literature texts were published: Margaret Gatty's *Parables from Nature* (third series; 1861-64), Charles Kingsley's *The Water-Babies* (1863) and Lewis Carroll's *Alice's Adventures in Wonderland* (1865). The impact of Darwin and evolution on these three texts has been noted and examined, but critical readings tend to neglect one key trope that links these three texts: they are *children's* literature, written and marketed with the child reader in mind. Yet because books for children are generally bought and read by adults before children access them, children's literature inevitably has a dual audience of both children and adults. The texts considered here, which are ostensibly *for* children, are in fact more *about* children, and function to educate both the child and adult reader about what childhood and children are in the wake of Darwinian challenges to popular understanding of nature, the child, and the role of science-based literature. That fiction should reflect and react to contemporary controversies and changes in the construction of the natural world is not surprising, but these three texts do far more than simply register the impact of Darwinian ideas on Victorian society, or seek to explain the correct response to the new ideas to child readers. *Parables from Nature*, *The Water-Babies* and *Alice's Adventures in Wonderland*, published in quick succession so close to the *Origin*, represent three divergent responses to the Darwin-inspired controversy which was circulating through both scientific circles and the general public. These texts reflect, reinterpret, respond to and help to shape the new ideas of nature and the child, and so exemplify the way that old constructions of nature and the child became, in Beer's words, "beliefs, myths or detritus" in the post-Darwinian world.

Margaret Gatty's *Parables from Nature*, Charles Kingsley's *The Water-Babies* and Lewis Carroll's *Alice's Adventures in Wonderland* all used children's literature as an arena in which to explore the changing construction of nature in a post-Darwinian world. Gatty and Kingsley attempted to use the medium to take control of what nature means, and to educate the reader in what the texts present as the correct way to respond to the Darwinian controversy. Gatty used children's literature as a socially acceptable medium to challenge the arrogance and materialism she saw in Darwinian evolutionary theory, and to appeal to her readers to trust in religious faith and continue to embrace traditional constructions of nature as evidence of God. Despite her insistence on the importance of belief, however, the new theories implicitly change the text's construction of childhood, subverting the overt didactic message of her evangelical text. Kingsley also used children's literature to try to educate the reader about how to respond to evolutionary ideas, but turns to fantasy to provide a new myth, integrating Christian faith with Darwinian evolution, and redefining the child as recapitulative. However, the text remains ambivalent about the relationship between religion and science, and becomes focused more on explaining

childhood to the (adult) reader than science to the child. In contrast, Carroll did not respond directly to the evolutionary debate, and *Alice* does not try to dictate the reader's response to evolution, but instead assumes that the science-religion debate has rendered old constructions of nature and the child redundant, or "detritus," as Beer suggests. Carroll used children's literature as a space to explore the implications and possibilities of a post-Darwinian understanding of nature and childhood. Yet in doing so, Carroll's text creates a new construction of the child, suggesting that the text is not, in fact, aimed at children or explaining science, but is explaining children and childhood to adult readers. These three texts respond very differently to the scientific controversy of the 1860s, but by turning to children's literature as a medium for their responses, they all address fundamental issues raised by Darwin and evolutionary theory: what is nature and what is the child? And how should nature be used to educate and understand the child in the post-Darwinian world?

### Science and Children's Literature in the Nineteenth Century

While Robert Chambers' *Vestiges of the Natural History of Creation* had ignited controversy and introduced evolutionary ideas into non-scientific society in 1844, it was the storm of discussion, debate and denial that followed Darwin's theory of natural selection described in the *Origin*, and its revelation of a violent, chaotic and uncaring nature, that irrevocably changed the way the Victorians thought about humanity, animals and the natural world (Bowler, *Evolution*).<sup>1</sup> Bowler argues that the *Origin* "ignited the debate that converted the scientific world, and everyone else, to evolutionism" (*Non-Darwinian Revolution* 47). The *Origin* itself was carefully ambivalent, focusing entirely on animal development without reference to humanity; however, scientific and public debate focused on human evolution from apes, and the ethical problems of reconciling a brutal, indifferent nature with a benevolent and omnipotent God (Bratchell 71). The Huxley-Wilberforce Oxford debate in 1860 and T.H. Huxley's long-running battle with Richard Owen over the exact relationship of humans to the higher primates through the early part of the decade kept the public focused on the problem of human descent, while the more conservative religious groups argued that accepting the new materialistic theories of nature would lead to social collapse, as there could be no morality in a world where divine laws were questioned (Desmond and Moore 492-499; Cosans 52-58; Bratchell 70-79). "From the start," Bowler argues, "the theory was a religious, philosophical, and ideological battleground, and the scientific debates can be understood only in this context" (*Evolution* 177). Equally, the literary reaction to the Darwinian controversy can only be understood by realising that science and literature were inextricably intertwined, and already functioning as a space in which the popular understanding of science and nature could be shaped and controlled. Children's literature was no exception, and played an important role in terms of educating children to receive and respond to the new scientific ideas.

Literature provided a popular arena where scientific debate flourished, both about the truth and implications of a given theory, but also about the nature of science and fiction, and what was appropriate for each (Paradis and Postlewait xii). The 1850s and 1860s represent a mid-point in the Victorian appreciation of science.<sup>2</sup> By the end of the century the intellectual elite would claim science as a profession, with its own language and cultural context, but in the middle of the century science remained accessible to the general public as a fashionable and respectable interest (Lightman, *Victorian Popularizers* 2). Science – specifically, nature studies – was also recommended as a good topic for children to study, as it provided a practical

education, virtuous recreation and also, through natural theology, an appreciation of Christian faith (Fyfe 282). Science seemed the perfect hobby for children: it encouraged outdoor activity, rational thought and was morally and spiritually improving. In the early nineteenth century, scientific texts for children that combined factual knowledge with moral instruction flourished, such as Sarah Trimmer's *Easy Introduction to the Knowledge of Nature, and Reading the Holy Scripture, Adapted to the Capacities of Children* (1780), Priscilla Wakefield's *Domestic Recreation; or, Dialogues Illustrative of Natural and Scientific Subjects* (1805), and Jane Marcet's *Conversations on Natural Philosophy* (1819), which confidently blended natural theology and natural history in a fictional narrative. These texts described and explained natural phenomenon but packaged their educational and moral content in a fictional frame (Myers; Lightman, *Victorian Popularizers*; Layton; Lightman, *Victorian Science*; Chapple; Pickering, Jr.). Children's literature in the late eighteenth and early nineteenth century was dominated by an evangelical tradition of overtly didactic literature aimed at teaching proper behaviour and religious faith to the child, who was assumed to be an innately sinful being requiring careful education and discipline (Hunt 48). Children's literature was seen to be formative, teaching the child how to understand and respond to the world, and so represented an opportunity to improve the future by shaping the child reader into a model individual.

However, children's literature was not as distinct in its readership from adult literature as it is assumed to be now. Gillian Avery claims that the writers of evangelical children's literature "seemed to feel the cottager child and parent had the same needs and tastes in literature" (82). Avery notes that although such books often featured a central child character and seem intended for lower class readers, they were often given indiscriminately as prizes for middle class children, or as gifts from servants to their employers. There is an implicit assumption that both child and adult readers of both classes would benefit from the practical and moral lessons found in children's fiction. U.C. Knoepfelmacher credits Margaret Gatty with establishing a mode of addressing both the child and adult reader that would be "imitated, complicated and refined" by the fantasy writers who established the 'Golden Age' of children's literature (502). Although children's literature is ostensibly for children, it is written by adults, and is usually marketed to and bought by adults, rather than children (Rose 2). Children's literature must, therefore, address both the child they hope to educate, and the adult who will choose which books to give to the child (Nodelman 5). Children's texts were and are often read by adults before being given to children, to assess suitability, or read directly to children for education or entertainment. In the mid-nineteenth century, the boundaries between adult's and children's literature were less defined than they are assumed to be now, and so what we categorise as Victorian children's literature was often read simply as literature in its own right by adults. Texts for children that explained science, or dealt with the relationship between scientific knowledge and the social and spiritual world, provided a layman's guide to science and faith for scientifically naive adults (Myers; Pickering, Jr.). Children's literature therefore provided a wide audience and a space to teach a very specific message in an openly didactic style which may have been contested in adult literature.

### **Margaret Gatty's *Parables from Nature***

Margaret Gatty was a naturalist, an expert on seaweeds, a correspondent of other famous naturalists of the 1830s and 1840s, and the author of the popular scientific text *British Seaweeds* (1862). She also wrote for and edited *Aunt Judy's Magazine* (1866-

85) for children, raised a family, including her more famous literary daughter, Juliana Ewing, and found time to write five series of stories under the title *Parables from Nature* from 1855 to 1870.<sup>3</sup> Gatty's *Parables from Nature* are largely forgotten, but were immensely popular through the second half of the nineteenth century. Gatty was a prolific writer in the natural theology tradition, which represented a harmonious, ordered world of nature, with fixed and immutable laws proceeding from God. Natural theology, as exemplified in William Paley's watchmaker analogy, defined nature's complexity as proof of God, with each individual and species carefully designed by God to be perfectly fitted to its environment. This led to nature being regarded as God's book, a world made for humanity's dominion and designed to be read and understood in the same way as scripture. Nature's beauty and abundance existed for the use of God's special creation, humanity, and is organised for human need and appreciation. Natural theology interpreted the spiritual truth behind the material fact of nature for the reader; careful study of nature was believed to reveal evidence of God's wisdom, benevolence, omnipotence, and His immanence in Creation. On first reading, the *Parables from Nature* appear to be exactly what the title suggests, that is, a series of short Christian allegories, using animals, plants and personified natural forces to teach moral and religious lessons to children. Gatty uses accurate information from her own scientific observations to explain Christian faith. For example in 'Not Lost, but Gone Before,' the transformation of a Grub into a Dragonfly and its move from the underwater world to the air above is a metaphor for death and the ascent into heaven; and in 'Authority and Obedience' a discontented worker bee learns that everyone must submit to the rule of authority for their own good and the good of the community. For Gatty, "the instincts of nature confirm the reasoning conclusions of man" (15). To emphasise the link between the two, her allegorical stories are followed by detailed notes explaining which specific species of dragon-fly's larvae and pupae she refers to by 'grub,' or exactly which flower produces poisonous honey, implicitly linking her documented and factual scientific knowledge with her religious inference. Gatty also uses the *Parables* to emphasise proper social behaviour and to endorse the power relations of Victorian society by establishing a natural and beneficial hierarchy: "Animals under man – servants under masters – children under parents – wives under husbands – men under authorities – nations under rulers – all under God" (257).

Suzanne Le-May Sheffield reads the *Parables* as both teaching the reader appropriate moral and religious lessons through natural allegories and also showing the reader how to use their own nature studies to reinforce religious truths, in keeping with the accepted role of a Protestant female populariser of science (47). As a devout believer in natural theology, Gatty was extremely hostile to evolution and decisively rejected Darwin and natural selection. She raged, in her private correspondence, about the arrogance and lack of faith she saw in the *Origin*, viewing it as a challenge to the Bible and irreconcilable with religious belief. Gatty was equally horrified by the support evolutionary theory was gaining in scientific and popular circles, calling it, in her letters to Bell, her publisher, a "great man's blunder" and hoping it would be "found out by somebody and exposed" (Lightman, *Victorian Popularizers* 156). Gates and Shteir suggest that Gatty felt a responsibility as a religious and moral teacher in her writing for children, and as a committed opponent of scientific materialism and Darwinian theory it is not surprising she turned to her children's literature to express her outrage (14). Gatty chose to use her fiction for children to directly challenge the materialism she saw in evolution, rather than her factual text, *British Seaweeds*, which was published around the same time, as children's literature provided a mixed

audience of both children and adults. Lightman attributes this choice to Gatty's belief that it was not appropriate for women to speak publicly on scientific issues and especially not to argue against the opinions of male authors, even those who might be perceived as wrong or offensive, such as Darwin (*Victorian Popularizers* 158). Children's literature, however, was an acceptable medium in which women could act as authority figures. As an authorial voice, Gatty was able to express her opinion of both the scientific issues and the male authors she would not challenge in public, and teach an alternative response to the changing perception of nature in society to a varied and responsive audience. Gatty's children's fiction provided a space for her to be more subversive, even as she authorised the hierarchy which excluded her voice from scientific debate.

Gatty's subversive counter-argument to evolution is made explicit in "Inferior Animals," from the third series of *Parables* published in 1861. Gatty wrote to a friend that in this story she had "combated the Darwin presumption as far as I could in a small way," and the narrative is a deliberate denouncement of Darwin and evolutionary science (Lightman, *Victorian Popularizers* 157). In this tale, the narrator dreams that they are watching a parliament of rooks, who have assembled to explain their belief that man is a devolved and inferior rook. The rooks debate "the origin" of man and dismiss claims of human superiority, arguing that humans are physically less able than rooks (27). They posit that "gradual change [. . .] over ages and ages" turned some rooks into inferior humans (32); the story describes at length the ridiculous arguments of the rooks and their dangerously incorrect assumptions, such as their belief that guns do not kill, but rather frighten young rooks into unconsciousness, and that the unharmed rooks are then taken by humans to act as teachers so that humans might re-evolve into birds. But rather than presenting the rook's evolutionary musing as comical or amusingly mistaken, the narrator ferociously condemns their arrogance and ignorance and extols the reader to trust faith over scientific knowledge. It is "arrogant nonsense" (27) for the rooks as "imperfect beings to hope to fathom the higher nature" (33). Gillian Beer points out that in this story, Gatty parodies both the content and the language of Darwin's *Origin*, emphasising the conditional nature of Darwin's syntax and theory and exposing the anthropomorphism hidden in it (130-1). Tess Cosslett reads the rooks as "a parody of human scientific behaviour and pretensions" (148), and comments on how the story revolves around the impossibility of inferior beings comprehending the true nature of superior beings, a theme often explored in Gatty's pre-Darwinian *Parables*.

However, "Inferior Animals" reveals more than Gatty's objections to Darwinian theory. By addressing the evolutionary debate in children's literature, Gatty had access via their parents, to a wide and varied audience of adult readers or listeners, and it is for this audience of doubting and implicitly non-scientific adults that the polemic of "Inferior Animals" and the post-Darwinian *Parables* seems intended. "Inferior Animals" reveals a shift in the construction of the child; whereas the child in the earlier natural theology text was assumed to be fallible and in need of education, here children are identified as more pure and spiritual than the implicitly corrupted adults. There is a tension between the construction of an implied child reader, who is uneducated and therefore at risk of accepting evolutionary arguments, and the narrative construction of a Romantic-inspired heavenly and innocent child within the text who can lead the adult reader back to salvation:

Who would not be a child again? Reader, can you hear this and remain unmoved, or shall you and I become children in heart once more? Come!

own with me how hateful were the lessons which undeceived us from our earlier instincts of faith and sweet companionship with all created things: and let us go forth together, and for a while forget such teaching. (25)

This passage clearly addresses an adult reader, who has been turned from proper "instincts of faith" and must return to an unsullied childhood state in order to absorb the message of the narrator's dream. The child within the text has become so innately pure and spiritual that they are immune to the rook's nonsense. The spiritual child is superior to the doubting adult reader being addressed, which implies that children do not need to read the narrative, unless they have already been corrupted by adult education and are no longer "children in heart." The implied child reader all but disappears from the intended audience of "Inferior Animals" as Gatty strives to convince the adult reader of the importance of maintaining faith in the face of materialistic science. Gatty's religious objections to the materialism she saw in Darwinism have had a startling effect on her construction of the child in her moral children's literature: the sinful child in need of moral and spiritual edification found in Evangelical literature and Gatty's pre-Darwinian *Parables* has been transformed into a spiritual and morally superior child akin to the Romantic child of Wordsworth. As nature and nature studies became a site of doubt, the fictional child becomes a religious redeemer, leading the adult reader from the sin of desiring to be like God in knowledge. The child reader seems to be ignored in favour of an attempt to convince the adult reader to choose faith over science. Gatty's plea for the corrupt adult to return to a childlike state of grace implicitly disrupts the hierarchies she endorses; the concept of childhood constructed in this anti-Darwinian narrative for an adult reader subverts and undermines the didactic message of the child-focused narratives.

### **Charles Kingsley's *The Water-Babies***

Although Gatty's *Parables* continued to be published and widely read until the end of the nineteenth century, her writing represents the end of a tradition of confident natural theology in scientific texts for children. But where Gatty felt compelled to defend her theological belief against scientific advancements, Charles Kingsley balanced his belief in evolution with his religious faith. Kingsley believed that natural theology and evolutionary theory were reconcilable, by rewriting the evolutionary process as proceeding from God, with science demonstrating how nature worked, and Christian faith explaining why struggle and conflict were necessary in the world. As the canonical first 'Golden Age' fantasy for children, *The Water-Babies* has received a great deal of critical attention (Carpenter; Prickett; Manlove). Most criticism focuses on its role as a fantasy, or in relation to Kingsley's personal life, but the text's response to Darwin and the evolutionary debate of the early 1860s is often commented on, as a consequence of Kingsley's personal involvement with the evolutionary debate (Beer 121; Levine 85). Humphrey Carpenter acknowledges Kingsley's innovation in blending an original fantasy with social commentary, natural history and moral education, but is largely dismissive of *The Water-Babies*, reading the text in biographical terms as a psychological release for Kingsley the destructive sexual sadist, commenting that he "was the first writer in England, perhaps the first in the world [. . .] to discover that a children's book can be the perfect vehicle for an adult's most personal and private concerns" (37). Lilia Marz Harper counters this limited reading with an extensive discussion of the positioning of *The Water-Babies* as a children's text, and its continued popularity through the nineteenth century and slow decline in the twentieth. Harper argues that the appeal of *The Water-Babies* to

Victorian parents was its repackaging of evolutionary ideas within a familiar moral framework, to "clarify a moral and religious position that accommodated natural selection" (121). Harper argues that Kingsley provided Victorian parents with a way to explain the evolutionary debate to their children and to themselves, emphasising the dual audience of the text. *The Water-Babies* was initially serialised in *Macmillan's Magazine* from August 1862 to March 1863; Jonathan Padley points out that this makes the initial audience for this apparent children's text highbrow middle- to upper-class gentlemen, who might then read the story to their children, or purchase the book for the children to read themselves (53).

*The Water-Babies* describes the physical and moral evolution of a neglected chimneysweep, Tom, who is transformed into a water-baby after drowning. Tom progresses through a series of adventures by meeting the accurately-realised inhabitants of the river and the ocean, being taught by the moral sisters Mrs Bedonebyasyoudid and Mrs Doasyouwouldbedoneby, and setting out to find the spirit of evolution, Mother Carey, who sits "quite still" and "make[s] things make themselves" (164-5). Along the way, Tom learns that physical change is the consequence of moral choice, as exemplified in the lesson of the Doasyoulikes, who regress from men to gorillas as a result of laziness. Although not as overtly didactic as Gatty's *Parables*, *The Water-Babies* contains a variety of moral and social lessons, as Tom is punished for bad behaviour, such as bullying and stealing, and rewarded for good behaviour, such as altruism and compassion. Jessica Straley reads Tom's evolution from a dirty, "little black ape" (15) to "a great man of science" (199) as mimicking, or recapitulating, the evolutionary struggle from primitive life to humanity, in keeping with the latest contemporary theories of childhood development (584). Moral improvement is aligned with a physical change from animal to human, defining evolution as progressive and teleological, as both the soul and body advance from bestial savagery to a civilised, Christian self. *The Water-Babies* anticipates the concept of the recapitulative child that became dominant at the turn of the century, where the individual development of a child was considered to reveal the progression of the human race from animal to modern man as the child literally re-enacted the entire evolutionary history of humanity in its growth from infancy to maturity (Shuttleworth; Bowler). Straley explores how Kingsley's evolutionary narrative relies on, and explains, the new concept of the child as recapitulative, and so teaches the adult and child reader what childhood and children are, and offers a model of natural education.

However, as well as repackaging the new evolutionary theory in an understandable and acceptable form for the non-scientific public and child readers, *The Water-Babies* conceptualises a new understanding of the child as an evolutionary being in the figure of Tom. The (male) child is a liminal figure, poised between beast and man and with the potential to grow into either, no longer either a Romantic innocent or a sinful being in need of Evangelical redemption, but a complex creature blending humanity's animal past and its socialised present. But while the text confidently uses Tom to demonstrate how the savage child becomes a civilised man, a close reading of *The Water-Babies* reveals an underlying uneasiness with the emerging professional and materialistic scientific discourse and its implications for faith. The text is therefore not as confident in its endorsement of evolution and the recapitulative child as critical readings assume. There are two key moments of ambivalence in the text, where it retreats from its commitment to science and instead returns to natural theology. Both passages discuss materialistic proofs of the human soul and human evolution respectively, and both invoke famous naturalists and

contemporary debates in meandering passages that halt the fantasy narrative in order to directly address the reader. When chimneysweep Tom is first turned into a water-baby, the narrative departs abruptly from Dickensian realism and at this precise moment the narrator halts the story for a long dialogue between himself and an imagined reader about the possible existence of water-babies in reality. Invoking a roll-call of famous naturalists including "Professor Owen," "Professor Huxley" and "Mr. Darwin," the narrator insists that nature is essentially unknowable and that lack of empirical proof is no barrier to personal faith:

"But there are no such things as water-babies."

How do you know that? [. . .] no-one has the right to say that no water-babies exist, till they have seen no water-babies existing; which is quite a different thing, mind, from not seeing water-babies.

"[. . .] But surely if there were water-babies, somebody would have caught one [. . .] and sent one to Professor Owen, and one to Professor Huxley, to see what they would each say about it [. . .] a water-baby is contrary to nature."

[. . .] You do not know what Nature is, or what she can do; and nobody knows; not even Sir Roderick Murchinson, or Professor Owen, or Professor Sedgwick, or Professor Huxley, or Mr. Darwin, or Professor Faraday, or Mr. Grove [. . .] They are very wise men; and you must listen respectfully to all they say: but even if they should say, which I am sure they never would, "That cannot exist. That is contrary to nature," you must wait a little and see; for perhaps even they may be wrong. (38-9)

On first reading, this passage seems to be invoking the naturalists to support the possible existence of creatures as yet unknown to science, but it is in fact making the same underlying point as Margaret Gatty's "Inferior Animals." Despite arguing that nature provides evidence for God, Kingsley here retreats from science as a way to understand the world and instead seems to advocate faith, regardless of the absence of evidence or even in the face of evidence against God. But this dialogue is not quite the direct, didactic address to the child, instructing them what to believe. It is uncertain if the text is addressing a child reader or an adult. It seems strange for the narrative to interrupt its flow in order to convince a child reader that the fantasy is grounded in actual, scientific possibility; the text does not attempt to define the fairies or magical lands Tom later visits as potentially real. The language used is also much more diffident than Gatty's strident pleas: "even if"; "I am sure they never would"; "wait a little and see"; "perhaps"; "they may be wrong." The narrative voice cannot confidently instruct the reader to trust in science or to trust in faith, but instead remains ambivalent.

The second episode rejecting materialistic science is the "great hippopotamus test" (88). The text again detours from the plot to give a satirical summary of Richard Owen and T. H. Huxley's hippocampus debate. Owen and Huxley carried out a very public and personal argument over the relationship of man to the great apes, with Owen insisting that humans had a specific structure in the brain –the hippocampus minor - and that apes did not. He argued that this was proof that humans are not related to primates and are therefore a separate, unique species (Cosans 52-58). By 1863, Huxley definitively proved that apes did have a hippocampus minor, and asserted that this was proof that humans had evolved from an ape-like ancestor and were therefore primates. Kingsley followed the debate avidly and inserted into *The*



*Water-Babies* a description of Professor Pthmlnsprts (Put-them-all-in-spirits), a composite of Owen and Huxley, who first voices Huxley's opinion and then seamlessly switches to that of Owen, leaving the reader, and presumably the Professor, utterly confused by the whole issue:

[The Professor] declared that apes have hippopotamus majors in their brains just as men have [. . .]. Nothing is to be depended on but the great hippopotamus test [. . .] always remember that the one true, certain, final, and all-important difference between you and an ape is, that you have a hippopotamus major in your brain, and it has none. (87-8)

The narrator follows by rejecting the materialistic definition of the debate by defining humanity as "being able to speak, and make machines, and know right from wrong, and say your prayers" (87-8). The text dismisses the intense contemporary scientific debate defining humans in terms of their physical bodies as irrelevant, arguing that it is intelligence, morality and religious belief which separate humans from other animals. The rest of the chapter emphasises its rejection of empirical materialism, giving a lengthy and ridiculous description of Owen/Huxley's punishment for refusing to believe in water-babies, even when presented with one.

Kingsley originally wrote this passage as a skit for his friends while attending one of the Owen-Huxley debates at the British Association in 1862, and then modified it slightly for *The Water-Babies* as it was being serialised in *Macmillan's Magazine* (Browne 160; Rupke 221). For Kingsley, it seems, scientific knowledge is all well and good when it functions as an allegory to reveal the essential goodness of God's creation, but its focus on empirical evidence and its threat to destabilise religious readings of nature make it ultimately untrustworthy. Harper suggests that these episodes argue that science is not a "source for all information" and that "this message may have provided parents with a much needed way of explaining religious and scientific conflicts" (132-3). This reading of the pedagogical message of these disruptive passages seems correct, but the text is not as certain of itself as Harper implies. Victorian parents may have recognised their own confusion in the text's promotion of the latest evolutionary theory and simultaneous reluctance to endorse scientific materialism, but the text provides no clear explanation for how to reconcile specific conflicts between religious and scientific authority, seemingly advising the reader to wait and see which wins out in the long run. Kingsley himself may have been confident that eventually science and Christianity would reconcile, and that "God's earth and God's word will never contradict each other" (304), but the text itself is more ambivalent, hesitating to completely endorse the reconciliation of science and faith it is apparently teaching to the reader.

But who is the implied reader of these passages? *The Water-Babies*, like Gatty's *Parables*, is using children's literature as a space to address an adult reader, to plead for the privileging of religion over science and faith over fact. However, where the child reader disappears entirely from Gatty's polemic, to be replaced with a textual construction of a redemptive and faithful child, in *The Water-Babies* the text struggles to address both a child and adult reader. The first readers of the hippocampus passage were Kingsley's friends, then the wider audience of the educated, intellectual gentlemen readers of *Macmillan's Magazine*, and only then the child reader. Following Padley's argument that *The Water-Babies* was written to appeal to and challenge a scientific elite, and Harper's suggestion that part of that appeal was the text's demonstration of how to reconcile evolutionary theory and

Christian belief, then it becomes apparent that *The Water-Babies* is not really literature *for* children, but literature *about* children. The child reader is excluded from what is ostensibly their literature, as the text explores the nature of the evolutionary child. Yet the text's underlying ambivalence towards the science it attempts to reshape also affects its construction of the child. The child within the text is a scientific one, as Straley shows, but in ultimately rejecting science in favour of faith, the text also implicitly rejects its own construction of the recapitulative, evolutionary child. The text's retreat from materialistic science offers the possibility that its own rewriting of the child as evolutionary and recapitulative may be wrong, and the reader must again wait and see. *The Water-Babies* is a product of, and a response to, the rapidly changing constructions of nature, faith and childhood focalised by the debates surrounding Darwin and the *Origin*, but also represents the changing nature of children's literature. Kingsley's text draws on the established tradition of moral and scientific fiction for children, but is also a new genre of original children's fantasy, blending realism, religious allegory, satirical skits and inventive fantasy sequences. *The Water-Babies* is therefore a transitional text, mediating between old and new concepts of science, religion and literature, and, as such, remains hesitant, unwilling to completely commit to its own new constructions of nature and the child.

### **Lewis Carroll's *Alice's Adventures in Wonderland***

Despite accepting Darwin's theory, Kingsley remained a staunchly Christian naturalist, not a materialist scientist, and his text is, finally, a moral tale, ultimately insisting that faith must always outrank fact and affirming Margaret Gatty's and the natural theologians' credo that knowledge must not be the limit of belief. Unlike Gatty and Kingsley, Lewis Carroll did not deal directly with the evolutionary arguments raging through society in his fiction for children, and his personal views on evolution remain unknown, as his diaries for 1853 to 1863 are missing or destroyed (Leach 48-52). However, as a post-Darwinian text, *Alice* has a choice between two visions of nature – nature as a forum for physical, moral and religious progression towards perfection, or nature as a violent, chaotic struggle for life in the face of extinction. *Alice's Adventures in Wonderland*, with its multiplicity of possible readings, is a difficult text that has already received extensive critical attention. Evolution has been of particular interest to critics: particularly how the Darwinian 'struggle for life' infects and inflects what is perhaps the archetypal Victorian children's fantasy. As Grey Meyers points out, *Alice* retains elements of the didactic science tradition Gatty and Kingsley drew on; the plot is based on exploration of the world, much of the dialogue is in a question and answer format, with definitions of words explored, and the child protagonist is always aware of her role and of proper behaviour (195). Unlike the *Parables* and *The Water-Babies*, *Alice* does not overtly discuss evolution, nature or scientific authority; however, evolutionary ideas suffuse the text, and evolutionary readings of *Alice* focus on her rapidly changing size, her obsession with eating, and the relocation of the human as part of a violent, predatory animal kingdom, as in William Empson's now classic 1935 reading. For Empson, the pool of tears Alice falls into is a primordial sea, from which she and all other creatures emerge, and the Caucus-Race, where all win and must have prizes, a parody of natural selection. Empson notes the repetition of death references, which Humphrey Carpenter uses to summarise his biographical reading of Carroll's books, commenting that "in its exploration of Nothingness and Not Being [*Alice*] denied the old certainties about the physical world, just then being shaken in another fashion by Darwin [. . .] *Alice* was, therefore, far more than its author realised, a tract for the times" (69).

But the evolutionary nature of Wonderland is more fundamental than a series of physical changes or death jokes. Kincaid argues that Alice is not an innocent child of nature but a cultured, socialised being who tries to impose the social rules she has learned onto her environment. Kincaid reads Alice as a cannibalistic embodiment of culture disrupting the natural, playful relations between the Wonderland creatures (6). Marah Gubar counters this reading by showing that the text draws attention to the predator/prey power relations implicit in size, as Alice is unafraid of animals the same size as her, such as the Caterpillar, Pigeon or the White Rabbit, but is frightened that the enormous puppy "might be hungry" (36), respectful to the Cheshire Cat because of his "very long claws [and] great many teeth" (66) and deliberately cruel to a smaller lizard. Unlike *The Water-Babies*, where physical change is a direct result of moral laxity, Alice's body is in a state of flux, reacting to environmental, not moral, changes. In fact, as Alice progresses through Wonderland she becomes more aggressive and less tied to conventional morality, kicking Bill the lizard without consequence, snapping at the Duchess and the Queen of Hearts and finally dismissing the entire population as a pack of cards. Rose Lovell-Smith explores Alice's encounter with the Pigeon, identified as a Darwinian animal, and argues that the animals of Wonderland resemble animals found in natural history books more than fairy-tale or fable creatures. Lovell-Smith suggests that the *Alice* books "frequently bring Alice under nature's eye," repositioning her as part of the natural world, an interactive "fellow creature" rather than a detached "human observer" (28). She suggests that when read through a natural history – and evolutionary – context, Wonderland becomes a thematically consistent place, where human superiority over animals is repeatedly confronted, undermined and replaced with a post-Darwinian insistence that humans are merely clever animals, interchangeable with other species.

Rather than presenting a human reconsidering her identity in nature, as Lovell-Smith and Gubar imply, *Alice* constructs a child being re-written and re-identified by nature. It is not Alice's humanity that defines her engagement with nature, but her physicality, positioning her as potential predator, prey or equal, with the resulting behaviour motivated by appetite and aggression. Nature projects a reading on to her, defining her in a hierarchy of physical, rather than moral or social relationships. Despite interrogating her about her identity, once the inhabitants have established she is not a threat to them, they show no interest in her safety, in helping her resolve her identity crisis or in explaining how to survive in Wonderland. With few exceptions, nature is careless and uninterested in Alice and her survival or extinction, in direct contrast to the representations of nature as an essentially benevolent space for learning in both *The Water-Babies* and the *Parables*. Instead of finding an education in Nature, Alice finds only random change and bewildering variety. Her own identity becomes suspect as her knowledge of the world and her place in it is revealed to be "wrong from beginning to end" (54). Her own voice sounds "hoarse and strange" (23) as she recites her moral lessons, only to find that they have been corrupted to fit the amoral, Darwinian Nature she is immersed in: the industrious bee is a predatory crocodile who grins while swallowing fish and pious Father William is now a gluttonous, argumentative acrobat. Most frighteningly of all, Alice's body is no longer stable, but repeatedly transforms as she is subject to environmental stimulus. Alice receives a first-hand lesson in the 'survival of the fittest' as she is forced to adapt her behaviour to her place within the predator/prey physical hierarchy; once she gains the ability to regulate her size herself she uses her newfound understanding of size and power relations to control her encounters with the Wonderland creatures.

Alice has adapted to Wonderland by regulating her size to ensure she is no longer potential prey and has become more confident and aggressive as a result. By the courtroom scene, Carroll's curious child, returning to her biologically correct larger size without interference, has become physically aggressive, impatient with social hierarchies and unafraid of challenging authority's explanations as meaningless – a far cry from the polite, well-mannered girl who fell down the rabbit-hole trying to recall facts and figures. Her last act in Wonderland is to denounce the court, try to fight off the pack of cards and give "a little scream, half of fright and half of anger" (129). Rather than engage logically with the legal system, Alice reacts physically, with an animalistic fight-or-flight response which causes her to wake up in her sister's lap. John Goldthwaite comments that Alice "reasons and argues as fast as she can for her very survival" (75) but it is not her rational or scientific speech that helps her survive, but the passive or aggressive behaviour that depends on her relative size to her fellow creatures. The text is not directly promoting a reading of Darwinian nature, but instead takes it as fact, and then explores how this might change the concept of childhood. Alice, the perfectly socialised and civilised Victorian drawing-room child, progresses – or regresses, depending on perspective – into a 'natural' child: aggressive to the weak and small, cautious when faced with a possible predator and impatient with the language and displays of culture. Instead of progressing from beast to human, like Tom in *The Water-Babies*, Alice reverts to aggression in a world of purely physical and environmental relations. Implicitly, the text teaches both the adult and child reader what childhood is in the post-Darwinian world.

The belief in the essential goodness of nature, the need to reconcile theology and evolution, and the insistence on the importance of faith for the child and adult reader that dominate Gatty and Kingsley's texts are irrelevant here; the old ways of thinking and understanding have become detritus for Alice and for the reader, put aside in favour of exploring a new construction of nature and childhood. In 1864, Benjamin Disraeli articulated the question at the heart of the evolutionary debate, asking: "Is man an ape or an angel?" (Kebbel 612) Like many contemporary conservative thinkers, Disraeli chose 'the side of the angels' over the prospect of humans as apes, but *Alice* replies that humanity – in the form of the child – is both, and it is circumstance and company that determines whether the individual acts like a beast or a saint. Alice, however, refuses to define the human and the animal as a binary opposition or different places on an evolutionary hierarchy, instead constructing both the child and the human as just another strange and fluid creature in a violent and competitive world of nature. *Alice's* insistence that what you are depends on your environment is a far more unsettling approach to the recapitulative child than Kingsley's teleological progression, and anticipates the fin-de-siècle and Freudian interest in civilisation as a mask overlying the essential animal nature of humanity.<sup>4</sup>

The *Parables*, *The Water-Babies* and *Alice in Wonderland* exemplify how the evolutionary debate spread through literary society and culture in the 1860s. Gatty turned to children's literature to try and convince both adult and child readers of the importance of faith over science, using her mostly realistic *Parables* to reaffirm her belief and the validity of the old assumptions about nature. Kingsley had already written for children, and saw the educational and didactic possibilities of turning evolution into fantasy, using *The Water-Babies* to try to rewrite the book of nature as a new myth, both evolutionary and divine. Carroll used children's literature as a space for what would be unspeakable in an adult novel, creating a world of danger,

predation and death, where the certainty of old theories and old knowledge are 'detritus' in the new, Darwinian world.

Gatty, then, is the last flourish of natural theology, unable to refute the science of Darwinism and so urging a return to faith over science. Yet by addressing a potentially corrupted adult reader, Gatty relies on a concept of the child as innately spiritual, and so inadvertently disrupts the very hierarchies that the *Parables* are designed to teach to children, and also excludes child readers from their own literature. Kingsley and Carroll represent the future: they rewrite and interpret scientific theory and reshape and define public understanding of evolution and Darwinism. Hailed as the first Golden Age children's texts, Kingsley's and Carroll's novels had a huge impact on the reading public, both adults and children, helping to shape popular science just as much as science shaped them. Like many Victorian children's texts *The Water-Babies* is no longer popular among child readers, having become instead part of the academic canon, perhaps partly because the text's educational purpose is no longer relevant, but also because its inherent ambivalence reveals that it may not really be a book for children at all. *Alice*, however, thrives and multiplies as a cultural phenomenon, still affecting how children and childhood are understood. Read together, these three texts ultimately reveal that *The Parables from Nature* and *The Water-Babies* are holding on to their faith-based knowledge and "behold the face of nature bright with gladness" (Darwin 65) at all costs, but it is Alice, scrambling through the "entangled bank" (Darwin 426), shedding her old assumptions and adapting her body and her behaviour in order to survive, who represents a new, Darwinian vision of nature and the child.

## Notes

1. As Bowler details, Darwin was not the first individual to suggest evolution: theories of transmutation of species, adaptation and cumulative change were debated through the first half of the nineteenth century. However, in Britain, theories based solely on physical causes, without reference to God, were associated with socialism, atheism and revolutionary politics, and so remained outside of the conservative, natural theology based approach to natural history.

2. Lightman notes that "those who could claim to speak on behalf of science gained immense cultural authority and intellectual prestige" (*Victorian Popularizers* 5). In the 1860's, the voice of scientific authority was still unstable, with many groups striving to convince the public that their interpretation of science was correct. Church officials, gentlemen philosophers, the new professional scientists and a variety of literary authors all laid claim to a true understanding of science and therefore of the nature of the world. Science offered a rational basis for a new worldview in a society profoundly changed by industrialisation, urban growth and the emergence of the middle class (Lightman, *Victorian Science* 3).

3. The difficulty in dating the Parables is well known; I am following Tess Cosslett ("Animals Under Man?") in dating the first series to 1855 and the third series to between 1861 and 1864.

4. I refer here to Freud's theories of the id, ego and super-ego, and totems and taboo, rather than Freudian readings of Alice itself. See *The Cambridge Companion to Freud* (edited by Jerome Neu) for discussions of Freudian theory and its wider impacts.

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