The nineteenth-century Anglican theologian Charles Kingsley was immediately impressed by Darwin’s *Origin of Species*. Whilst many in Victorian Britain reacted against the idea of natural selection, Kingsley saw in the contingency of selection a divinely ordained imperative for human endeavour, not least the pursuit of scientific knowledge. Here, Kingsley believed, was a crucial insight into the seemingly indifferent laws of nature, one that humankind could use to elevate themselves to ever-greater heights. Kingsley chose to teach these lessons about the moral nature of evolution through *Water Babies*, one of the most charming and enduring of children’s fairy tales.

The origin of a fairy tale
In the second edition of the *Origin of Species*, Charles Darwin gratefully acknowledged a certain “celebrated author and divine” who had written to affirm that the theory of evolution by natural selection was by no means heterodox. As Darwin quoted him,

‘it is just as noble a conception of the Deity to believe that He created a few original forms capable of self-development into other and needful forms, as to believe that He required a fresh act of creation to supply the voids caused by the action of His laws’ [1].

Darwin’s correspondent was Charles Kingsley, who was indeed a very popular writer and influential theologian. He was also a naturalist of merit, on familiar terms with other members of Darwin’s circle, including the geologist Charles Lyell and “Darwin’s Bulldog” Thomas Henry Huxley.

Kingsley is best known today for his fairy tale *Water Babies*, which was published in instalments in *Macmillan’s Magazine* from August 1862 to March 1863 and as a book later that year. Since then, it has never been out of print, published over the years in several beautifully illustrated editions, including the 1885 Macmillan edition featuring black and white prints by Linley Sambourne, and the 1916 American edition with 12 colour plates by Jessie Wilcox Smith [2]. In recent years it has also been the subject of considerable scholarly study [3].

*Water Babies* is a fitting legacy, in that it is at once a great contribution to English literature, theology and natural history. It is a spirited defence of evolution, and a thoughtful exploration of the moral and religious dimensions of evolutionary thought, all wrapped up in a fantasy (although one of Kingsley’s main points was to show that no fantasy could be any more fantastic than nature itself.) It is only appropriate that this parable for children was reviewed along with other “biological literature” in the 1863 *Anthropological Review* [4].

A remarkable transformation
*Water Babies* is the story of a young chimneysweep named Tom who, unacquainted for, unloved and ignorant of cleanliness, virtue and God, is well on his way to becoming every bit as beastly as his master, Mr. Grimes. However, circumstances intervene and *Water Babies* becomes a story of redemption, as Tom learns through his many adventures exactly the moral lessons that Kingsley hoped to teach his young readers. As with so many children’s stories, it was also intended for the adults who read it aloud, and it was almost certainly written for Kingsley’s good friend Huxley.

When the story opens, Tom and Mr. Grimes are on their way to clean the chimneys of the local squire’s mansion, where Tom encounters Ellie, the squire’s daughter. Ashamed of his uncleanness, Tom runs away and dives into a stream to clean himself, and exhausted, falls into a deep and peaceful sleep. As Kingsley explains, “the reason for his falling into such a delightful sleep is very simple; and yet hardly anyone has found it out. It was merely that the fairies took him” [5].

Tom’s apparent drowning would have eluded many or most of the story’s young readers. But it surely did not elude Huxley. Kingsley and Huxley had recently exchanged frank and deeply personal letters about the possibility of an afterlife following the death of Huxley’s young son Noel, and it is both telling and touching that Kingsley chose to continue the discussion with Huxley in a tale about Tom’s hereafter [6].

Upon entering the underwater fairy world Tom underwent a most remarkable transformation:

[He] found himself swimming about in the stream, being about four inches, or – that I may be accurate – 3.87902 inches long, and having round the parotid region of his fauces a set of external gills (I hope you understand all the big words) just like those of a sucking eft [a salamander], which he mistook for a lace frill, till he pulled at them, found he hurt himself, and made up his mind that they were part of himself, and best left alone [7].

The fairies had turned him into a water baby (Figure 1).

The three wise fairies
From this point on, the story becomes one of evolution and the evolutionary issues of the day. For example, Tom’s transformation into a lowly salamander-like creature (and
then into ever higher forms of life as the story progresses) is a play on the evolutionary interpretation of the “law of embryological recapitulation”, which had several adherents at the time. According to this law, the embryological development of an organism proceeds in an orderly sequence, beginning with stages that represent its most remote ancestors, proceeding through stages that correspond to its closer and higher kin. Thus, early on, a human embryo passes through a stage (characterized by the appearance of “gill folds”) corresponding to an ancestor.
that we have in common with fish and amphibians, later through stages corresponding to ancestors that we have in common with other four-legged animals, and so on. Our most distinctively human attributes, like advanced reasoning and moral judgment, appear still later.

As a chimney sweep, Tom’s own individual development had been proceeding in reverse evolutionarily as he became ever-more ape-like. This had mainly resulted from Tom’s acting like an ape. However, with his baptism in the river and transformation into a salamander-like water baby, Tom is given a fresh start at life—the fairies having rewound life’s tape, so to speak. This time around Tom develops in the right direction, gradually climbing up the phylogeny of humankind to become an upright Christian Englishman— for Kingsley, the very pinnacle of evolution.

However, and as Kingsley is clear to point out, Tom’s development is by no means preordained (the debate about free will and predestination was as much a theological hot-potato in Kingsley’s day as it is in our own). Rather, it depends very much upon the moral choices he makes.

In order to develop as far as possible in the right direction, Tom had to become the kind of person who could make a difference in the world, which requires, in turn, knowing the difference between right and wrong, and also understanding the laws of nature that God built into the world. To this end, Tom is tutored by three wise fairies: Mrs. Doasyouwouldbe doneby, who speaks for God’s benevolent purposes, Mrs. Bedonebyasyoudid, who teaches Tom about the inflexible laws of nature that God built into the world in order to achieve His purposes, and Mother Carey, who represents God. But Tom cannot simply be taught everything. He also has to learn for himself. To do this he has to reason like a scientist, basing his conclusions on what he has seen, while keeping his eyes open to all possibilities. Kingsley teaches this lesson about inductive inquiry to his young readers with reference to any doubts they might harbour about the existence of water babies:

“But surely if there were water babies, somebody would have caught one at least?”

“Well. How do you know that somebody has not?”

“But they would have put it into spirits, or into the Illustrated News, or perhaps cut it into two halves, poor dear little thing, and sent one to Professor Owen, and one to Professor Huxley, to see what they would each say about it…”

“But a water baby is contrary to nature.”

“Well, but my dear little man, you must learn to talk about such things, when you grow older, in a very different way from that. You must not talk about “ain’t” and “can’t” when you speak of this great wonderful world around you, of which the wisest man knows only the very smallest corner, and is, as the great Sir Isaac Newton said, only a child picking up pebbles on the shore of a boundless ocean [8].

Professor Owen in the above passage is Richard Owen, with whom Huxley had already waged several of the most notable battles in the Darwinian campaign (Figure 2).

Professor Ptthmllnsprts

Huxley reappears a little later in the book in the character of Professor Ptthmllnsprts (“put them all in spirits”), who held that “no man was forced to believe anything to be true but what he could see, hear, taste, or handle” [9]. Kingsley was referring not only to his friend’s approach to science, but also to his agnosticism, which the two had discussed in their correspondence following the death of Huxley’s son. Huxley had argued that there was not sufficient evidence for or against the existence of God, and therefore he would withhold judgement, even if doing so denied him the solace of believing that he and his son might be reunited in an afterlife. Kingsley, on the other hand, like other “natural theologians” of his day, believed that one could indeed argue for the existence of a Creator on the basis of what we see in the living world—namely, that almost every aspect of life is useful. Although we have never witnessed a species coming into existence, we have witnessed the origin of other things that exhibit usefulness in almost every
aspect, like clocks and other manmade devices. And we can truly say that whenever we have witnessed the origin of something that is useful in almost every respect, it has always issued from an intelligent and benevolent designer. To infer otherwise in the case of living things would be to reason contrary to our past experiences. This line of reasoning was known as an “argument by analogy”.

But surely, and as Huxley pointed out, we could just as well reason that living things were created by a wise and 

malevolent designer, since there are so many aspects of life that are bound up with pain and suffering [10]. Take for instance the fact pointed out by Thomas Robert Malthus, that human population size increases much faster than the resources needed to sustain it. Remember though that Malthus went on to point out that the inevitability of scarce resources is actually very useful, because it forces us to exercise our reason in order to make the most of what we have. Scarcity is thus the engine of the intellectual as well as the material improvement of humankind.

Huxley had waved-off this sort of inference in his correspondence with Kingsley, saying that “It is of no use to speak to me of analogies and probabilities...” [11]. But by the time Kingsley came to write Water Babies, he felt that enough water had passed under the bridge for him to gently and playfully question whether his friend was sufficiently open to seeing the evidence for God’s existence. To that end, he imagined Huxley’s position on the existence of water babies. Professor Pthmlnsprts had accompanied Ellie on a netting expedition, during which she raised the question of the existence of water babies (at this point, unaware of Tom’s fate), prompting the most inappropriate response from the Professor:

forgetting that he was a scientific man, and therefore ought to have known that he couldn’t know; and that he was a logician, and therefore ought to have known that he could not prove an universal negative... the professor answered quite sharply – “Because there ain’t.”

Which was not even very good English, my dear little boy [12].

At that moment, the Professor netted Tom, whom he half knew was indeed a water baby. However, he let Tom escape rather than acknowledge that all of his previous and public assertions had been in error.

In his old age, Huxley had occasion to reflect back on these exchanges with his friend, and write the following letter from his grandson Julian who had just been read Water Babies by his mother.

Dear Grandpater – have you seen a Waterbaby? Did you put it in a bottle? Did it wonder if it could get out? Can I see it some day? Your loving Julian

To which his grandfather replied,

My Dear Julian,

I never could make sure about that Water Baby. I have seen Babies in water and Babies in bottles; but the baby in the water was not in a bottle and the baby in the bottle was not in water.

My friend who wrote the story of the Water Baby was a very kind man and very clever. Perhaps he thought I could see as much in the water as he did – There are some people who see a great deal and some who see very little in the same things.

When you grow up I dare say you will be one of the great-deal seers and see things more wonderful than Water Babies where other folk see nothing [13].

And indeed, Kingsley would doubtless have been as proud as would Huxley, had they lived to see that Julian Huxley would indeed become one of life’s “great-deal” seers: an important evolutionary biologist and author of Evolution: The Modern Synthesis (1942).

The Doasyoulikes

Of course, one of the things Tom learns along his journey is how evolution takes place. And as usual, Kingsley’s point is to teach how to make the best moral use of our understanding of nature. This time the lesson is taught by way of a fairy-story within the fairy-story: “The Great and Famous Nation of the Doasyoulikes.” The Doasyoulikes had moved from the Land of Hard Work and chosen to settle in the Land of Readymade – at the foot of the Happygolucky mountains – a land where there was, for a while, a great abundance of resources. Indeed, they might have thought themselves very wise in their choice (it seemed like the right choice to Tom), for living there was effortless:

Figure 3. The Doasyoulikes evolved into to hairy tree-dwelling apes.
They sat under the flapdoodle-trees, and let flapdoodle drop into their mouths; and under the vines, and squeezed the grape-juice down their throats; and if any little pigs ran about ready roasted, crying “Come and eat me,” as was their fashion in that country, they waited till the pigs ran against their mouths, and then took a bite, and were content, just as so many oysters would have been.

They needed no weapons, for no enemies ever came near their land; and no tools, for everything was readymade to their hand; and the stern old fairy Necessity never came near them to hunt them up, and make them use their wits or die [14].

In this land, under these circumstances, there was no Malthusian imperative. Indeed, the Doasyoulikes had grown more and more lazy, both physically and mentally. What’s more, they had never troubled themselves to learn about the periodically erupting volcanoes in the vicinity, a failure to learn from nature that proved costly when their oasis was reduced to ashes. The Doasyoulikes evolved into hairy tree-dwelling apes (Figure 3).

In telling this tale Mrs. Bedonebyasyoudid was not only emphasizing that people ignore the laws of nature at their peril, but that knowing the laws of nature alone is not enough. The same law of nature can lead to very different outcomes depending on what circumstances obtain. People therefore have to choose to put themselves in just the right circumstances so that the laws of nature will lead to just the right results.

A convert to Darwin’s views
But what kind of Creator leaves so much to circumstance and the seemingly dispassionate operation of natural law? Kingsley may have suggested to Darwin that it was “just as noble a conception of the Deity” to suppose that He imposed laws of evolution, instead of endlessly creating species separately. But Kingsley really believed, as did the young Darwin, that the former was a far more noble conception of God. Precisely by leaving so much to circumstance and law, God encourages and rewards the study of nature, moral development and hard work. This is how Tom had progressed, and how humankind as a whole advances. Indeed, it was through reading the Origin that Kingsley had come to appreciate this view of life as

“utterly wonderful… because it looks most like an immense chapter of accidents, and is really, if true, a chapter of special Providences of Him without whom not a sparrow falls to the ground, and whose greatness, wisdom and perpetual care I never understood as I have since I became a convert to Darwin’s views” [15].

Tom learns this lesson toward the end of his journey, when he finally encounters Mother Carey on her throne (Figure 4):

And from the foot of the throne there swum away, out and into the sea, millions of new-born creatures, of more shapes and colours than man ever dreamed. And they were Mother Carey’s children, whom she makes out of the sea-water all day long.

He expected, of course – like some grown people who ought to know better – to find her snipping, piecing, fitting, stitching, cobbling, basting, filing, planing, hammering, turning, polishing, moulding, measuring, chiselling, clipping, and so forth as men do when they go to work to make anything.

But instead of that, she sat quite still with her chin upon her hand, looking down into the sea with two great grand blue eyes, as blue as the sea itself. Her hair was as white as the snow – for she was very old – in fact as old as anything which you are likely to come across, except the difference between right and wrong.

Tom said:
“I hear you are very busy.”
“I am never more busy than I am now,” she said without stirring a finger.
“I heard, ma’am, that you were always making new beasts out of old.”

“So people fancy. But I am not going to trouble myself to make things, my little dear. I sit here and make them make themselves.”
“You are a very clever fairy indeed,” thought Tom. And he was quite right [16].

One is reminded here of the very last lines of the Origin:

Thus, from the war of nature, from famine and death, the most exalted object which we are capable of conceiving, namely, the production of the higher animals, directly follows. There is grandeur in this view of life, with its several powers, having been originally breathed into a few forms or into one; and that whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been and are being evolved [17].

Conclusion

Although Water Babies has much to offer the modern reader, it also remains very much a book of its time. Most editions published after the turn of the century have been heavily edited to exclude not only the scientific debates of the previous century, but also Kingsley’s views about national, racial and class hierarchy. (The worst of his criticisms of America, both its politics and its people, were carefully excised by MacMillan for the first book edition.) Read increasingly as no more than a children’s story, the narrative, and thus Kingsley’s moral lessons for his young readers, remained unaffected by the subsequent developments in embryology that undermined the recapitulation upon which Tom’s development is based. Children might still do-as-they-would-be-done-by in anticipation of being-done-by-as-they-did!

Nevertheless, the unabridged Water Babies certainly merits serious consideration by historians of science. Kingsley was not only a popular author, but also influential in scientific as well as Society circles. Through his thoughtful theorization of a post-Darwinian Natural Theology he did as much to allay the religious concerns that Darwin’s work provoked amongst scientific men as he did among his fellow men of the cloth, not to mention among the broader British public that made up his congregation.

References

2. See the Library of Congress exhibition at http://www.loc.gov/rr/print/swann/waterbabies
7. WB’s, p. 78
8. WBs, pp. 79–81
9. WBs, p. 172
12. WBs, p. 175
14. WBs, p. 260
16. WBs, pp. 304–307