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Telling the Story of Life Twice: Henry Knipe and the Versification of Natural History

Richard Somerset

The History of Life, sometimes called the Evolutionary Epic¹, is a genre straddling science and literature that came into being in the middle of the nineteenth century as a way of presenting a synthesizing overview of the findings of the new discipline of palæontology. Although the palæontologists themselves usually concentrated in their writings on the meticulous description of a specific kind of fossil remains or a particular find, there was clearly space for more general accounts that would attempt to encapsulate ‘the story as a whole’, summarising the entire ‘History of Life’ from its first foundations to the present day. It would be an extraordinary but purely factual history, a veritable *Bildungsroman* with Life itself as the hero. The possibility of such a narrative had in fact been signalled from the beginning of the century by respected scientists, notably the French naturalist Georges Cuvier. His *Recherches sur les ossements fossiles* (1812)² did much to draw general attention to the emergent study of palæontology, and particularly its extraordinary capacity to appeal to the imaginative senses. It was this particular quality that earned Cuvier the admiration of novelists such as the young Honoré de Balzac who famously described the naturalist in the pages of his novel *La Peau de Chagrin* (1831) as a poet comparable or even superior in stature to Lord Byron³. By the mid-century, the discipline had spawned a variety of more or less scientific writings such as Robert Chambers’ grand theory of cosmic developmentalism anonymously published as *Vestiges of the Natural History of Creation* (1844), and then a wide array of popularizing textbooks, often intended for the instruction of the youth, started to appear in the 1850s and 60s. These derivative works all used the discipline’s inherent narrative potential as a way of promoting the pedagogical value of natural science, or as a way of arranging naturalistic evidence in support of a particular theoretical stance, notably either in favour or against a developmentalist conception of nature’s historical dynamics. Most did both at the same time.

¹ Bernard Lightman, *Victorian Popularizers of Science: Designing Nature For New Audiences*, Chicago, University of Chicago Press, 2007. Includes a chapter entitled ‘The Evolution of the Evolutionary Epic’.

² The main theoretical statement contained in the ‘Discours préliminaire’ was republished as an independent piece in 1825 under the title, *Discours sur les révolutions de la surface du globe*.

³ Honoré de Balzac, *La Peau de Chagrin*, Paris, Garnier-Flammarion, 1971, p. 78.

The pedagogical value of the 'History of Life' genre was made explicit by one of its first and most successful exponents, the French author Louis Figuier. A tireless scientific popularizer who concentrated mainly on the technological applications of scientific knowledge, Figuier produced in 1863 the work which, according to Martin Rudwick, was to set the standard for the History of Life genre in decades to come⁴. In the preface of *La Terre avant le déluge*, he spelled out just what it was he hoped young people would gain from coming into contact in his book with the scientific study of the geological past. He took a radical stance against existing pedagogical practices which, according to Figuier, formed youthful minds on an exclusive diet of Classical works of fantasy, and he proposed in its place a modern and rigorously fact-based regime. The substitution would be all to the benefit of the youth, who would thus gain a firmer grasp of the material reality of the world they lived in, but without thereby incurring any loss to the imaginative faculties, whose importance Figuier recognised. A basis in factual rather than fantastic inspiration would actually make for a stronger and more healthy poetic imagination, breeding a generation of young people less prey to the snares of the world – be they “fanatical ignorance” or “menacing socialism” – and better equipped to receive the “useful truths” of “religion, science, philosophy and morality”⁵. For Figuier, the building of a scientific understanding of the natural world was the best education because the effort entailed the combination of empirical rigour with poetic wonder.

Similarly, the appropriate style is one that avoids artificial embellishment: the historian of Life should stick to “the serious and concise style of a lecturer” focusing on “clarity” and “simplicity”, and leaving aside the rhetorical bravura fashionable in a previous age⁶. In this way, the prosaic directness of the empiricist was raised by Figuier almost to the status of a system of poetics. It was, he wrote, “la poétique à suivre dans l’exposition familière des faits scientifiques”⁷. So right at the heart of the History of Life genre as instigated by Figuier lies the claim that empirical facts objectively recorded suffice to make a story that will be at once informative and engaging – and indeed *poetic*. There is no need to inject fantasy because the facts themselves are marvellous enough.

⁴ Martin J.S. Rudwick, *Scenes from Deep Time: Early Pictorial Representations of the Prehistoric World*, Chicago, University of Chicago Press, 1992, 219

⁵ Louis Figuier, *La Terre avant le déluge*, Paris, Hachette, 1863, v & vii. « Comment s'étonner de l'invasion alternative d'un fanatisme ignorant ou d'un socialisme menaçant ? [...] En s'habituant à regarder, en cherchant à comprendre les spectacles grands et petits de la création, en lisant dans ce livre admirable de la nature, ouvert à tous les yeux et pourtant si peu lu, l'enfant ornera son esprit de connaissances usuelles et pratiques, [...] il mettra son âme en état de recevoir avec efficacité la fructueuse semence de la science, de la religion, de la philosophie et de la morale. »

⁶ Figuier, 1863, x

⁷ *Ibid.*

However, in practice this austere poetics of the purely empirical inevitably proved elusive and impracticable. It was obvious that a mere list of fossil finds, even if suggestively arranged in chronological order, would not communicate much meaning to non-specialists. A History of Life will only come alive if the author is able to interweave into the empirical facts a leavening of narrativity capable of giving shape to the mass. The reader's attention is engaged not so much by the fossils themselves as by the fossils reconstituted as living forms, and by the elaboration of a unified narrative uniting the disparate forms of extinct animals of the various ages into a coherent pattern of successive order. But how is such material to be introduced without undermining the empirical claims upon which the genre is founded? The compromise found by Figuier entailed the separation of his account into twin narrative strands: on the one hand, a fact-based account of the specific fossils associated with each age, carried by descriptive text and diagrams; and beyond this material account, an overarching narrative capable of hinting at the continuity of the sequence of beings as a whole. This second strand was carried largely by a series of illustrations or "Ideal scenes" conceived by Figuier and executed by Édouard Riou, an artist who also produced illustrations for the novels of Jules Verne. Each of these scenes was a 'snapshot' of the world in a given age, starting from before the appearance of the first animals and moving stage by stage all the way up to the ultimate creation of Man. The detail of these scenes was of necessity mostly guesswork, and a far cry from the austere "facts only" style proclaimed by the author. But by hiving the conjectural content off into this series of illustrations, Figuier was able to have it both ways: the Ideal scenes provided his popular account with the narrative backbone that was vital to its imaginative and conceptual functioning, even while leaving the textual content untarnished by the brush of 'fantasy'. So this layered narrative enabled Figuier to maintain the claim to strict prosaic factuality even while simultaneously offering the outline of a vivid and appealing story⁸.

Most subsequent authors of works in the History of Life genre worked with a compromise of a similar kind to that established by Figuier. Although not all were as dogmatic as the French pioneer had been about the necessity of a strictly fact-based approach, the question remained as to the respective roles of factual and conjectural elements, and how a sufficiently engaging narrative might be built without excessive dependency on material that had not been thoroughly substantiated. Many authors used imaginary reconstructed scenes in a similar way to Figuier, and indeed often recycled elements from those original scenes, as Rudwick has shown at length in his *Scenes from Deep Time*.

⁸ I have treated Figuier's narrative techniques more fully in 'L'« Histoire de la Vie » de Louis Figuier : un genre au service de l'(anti)évolutionnisme', in *L'Héritage de Charles Darwin dans les cultures européennes*, éd. Michel Plum & Georges Letissier, Paris, L'Harmattan, 2011.

Both visually and textually, they were all exercised by the need to strike a balance between the prosaic factual standards of scientificity on the one hand, and the more poetic expression of wonderment before the spectacle of nature revealed historically on the other.

The work of Henry Knipe constitutes an interesting exception to this methodological norm. Rather than attempt to balance these two opposing tendencies in one work, he chose to produce two works in distinct modes. His first History of Life, *Nebula to Man* (1905), told the story of creation purely as a story, and did so in 220 pages of heroic rhyming couplets; seven years later, *Evolution in the Past* (1912) told the whole story all over again, but this time in the dry prose of the fact-gatherer. In this paper, we will look at how these two accounts work together, and ask what Knipe might have hoped to gain by moving away from the Figuerian ‘compromise’ approach. His unusual twin-voiced strategy provides a unique platform from which to consider writerly strategies for dealing with the credibility-readability tension that lay at the heart of the History of Life genre, and indeed of popular science writing in general. We will inquire first into the degree to which the distinct modes of Knipe’s books had a substantial impact upon the story told, before moving on to the more general question of why the strategy ultimately failed, and had no noticeable influence on the subsequent development of the genre.

Henry Knipe’s twin-voiced project

Details of Henry Knipe’s life and works are not easy to come by. Although he became a fellow of both the Linnean and Geological Societies, he does not seem to have made any notable scientific contribution in any field of the natural sciences. His name does not appear in the *Dictionary of National Biography*. After his death in 1918, brief obituaries appeared in the *Geological Magazine* and *Nature*, running to 16 and 13 lines respectively, in which the only other work mentioned apart from his two rather obscure popular science titles is an even more obscure piece of local history on the Sussex town of Tunbridge Wells. Both obituarists seem to have been more impressed by the visual impact of the illustrations contained in his popular science books than by their textual content. In what sounds like a rather desperate attempt to identify a meritorious contribution to the common good, the *Geological Magazine’s* obituarist commended his subject for “sparing no expense” in “employ[ing] the most skilled artists to carry out his plans⁹”. So it seems likely that Henry Knipe was a gentleman of independent means who devoted a part

⁹ Anon. *Geological Magazine*, Decade VI, Vol 5, N° 9, September 1918, 432.

of his fortune to the production of these lavish volumes, without paying too much heed to their marketability.

The books themselves were rather imposing objects. *Nebula to Man* (hereafter “NM”) was a large quarto size, with generous margins and a large type face. It featured 70 plates, of which 13 were in colour. At a price of 21s, it was something of a luxury item. *Evolution in the Past* (hereafter “EP”) was a little smaller and only carried 56 plates, none coloured; and though more modestly priced at 12s6d, it was perhaps still too dear to be likely to reach a mass market. In the event, neither book made it even to a second edition, far less a cheap one. Knipe is therefore interesting to us not at all for his legacy, which is effectively nil, but for having made a bold experiment that failed.

Bearing in mind the success of Figuier’s ‘compromise’ approach that attempted to marry ‘sublime’ and prosaic layers of narrative within a single text, it is hard to see what considerations might have prompted the later British author to abandon this scheme. What reasons might Knipe have had for preferring to disaggregate Figuier’s narrative into its constituent parts, and to give each ingredient a separate manifestation? Knipe’s most positive reviewer approved the choice, suggesting that there was space for different kinds of accounts catering for the needs of different audiences:

There is a small, but increasing section of the reading public to whom the purely popular or the purely technical treatment of a subject alike give little satisfaction. And on some subjects, on which palæontology might perhaps be included, literature can hardly be found outside these two extremes; therefore a debt of gratitude is certainly owed to Mr. Knipe for so ably supplying a distinctly felt want¹⁰.

So EP – the book under review here – was designed to occupy a middle space between purely technical and purely popular scientific writing, targeting an emergent readership of well-informed non-specialists. It was the identification of this separate group with its specific needs that apparently prompted Knipe to write two separate accounts. Both his accounts were ‘popular’, but one was directed at the pure neophyte, and the other at the more advanced and more technically-minded student. In this context, the choice of distinct modes is revealing. The logic seems to be that prose is the necessary vehicle for the more serious account, since this is the best way to communicate facts; while verse is well fitted to the popular version, since this mode is best equipped to charm, delight and elevate.

However, the fact that NM was thus specifically conceived for an audience of neophytes did not imply that its status as an accurate and valuable

¹⁰ Anon. *Geological Magazine*, Decade V, Vol 9, N° 6, June 1912, 269.

presentation of scientific knowledge would be compromised. Indeed in the preface, Knipe presented his verse project in purely scientific terms:

Nebula to Man is an attempt to present a sketch of the evolution of the Earth on the Nebular Hypothesis; to note also subsequent sea and land movements, and successive appearances of life, as revealed by the geological strata. The geological record of past life remains very imperfect; still many additions [...] have been made in recent years; and, studied in the light of Evolution, its revelations have become much more intelligible¹¹.

This statement is very similar to the equivalent passage near the end of the introductory chapter of EP: “The following pages are mainly occupied with an attempt to give a sketch of life, founded on discoveries made in the geological strata. The record is certainly defective, but there is the consolation of knowing that we are face to face with facts¹².” So both accounts were meant to be built on the same factual foundations, differing only in their handling of the material.

Knipe’s scientific ambitions were thus at least as strong in NM as they were in EP; indeed in one sense, they were perhaps stronger. We thus find the author hinting in the preface to the first book that verse would in fact provide the best way into the inner truths of nature’s story: “However severely scientific in some of its aspects, the story of Geology is truly the most enchanting story in the world; and rhyme may well be regarded as an appropriate form in which to present it¹³.” The verse treatment of the Story of Life was a way of asserting its dignity. Knipe seems to have felt that the ‘sublime’ lessons of the story would be better carried in a fully-realised poetic register; that it was only by separating out this version from the empirical constraints of a more scientific and prosy account that the proper elevation of Nature’s story could be hinted at.

In an unfortunate moment of affected modesty, Knipe then went so far as to proclaim the theme “fit [...] for presentation in a much higher form than this”, and to hope that “some day it will be taken in hand by some great poetic genius¹⁴”. This attempted apologia for the expression of scientific truths in poetic form of course laid the author open to the sarcasms of those less enamoured of the beauties of the epic verse form, and especially to those not convinced by his own performance. The reviewer in *Nature* was particularly blunt:

¹¹ Henry R. Knipe, *Nebula to Man*, London: J.M. Dent & Co., 1905, v.

¹² Henry R. Knipe, *Evolution in the Past*, London, Herbert and Daniel, 1912, 6.

¹³ NM, v.

¹⁴ *Ibid.*

Why the author should imagine that to describe in rhyme the history of our planet and its inhabitants [...] would render the subject simpler and more attractive to the general reader it is hard to imagine; but still, precedents are not wanting [...]. We fully agree with him that the theme is deserving of a much higher form of treatment, and that someday a great poetic genius may take it in hand. We cannot help feeling, however, that prose would have best befitted the aim of the present work¹⁵.

But of course there was no inherent reason why Knipe should not attempt to turn to his profit the general expectation that the verse form might permit and even encourage a particularly interiorised view of things. Certainly among his potential readers few would have been surprised to find the author using that form as a pretext to give an intimate voice to Nature itself, and thus to attempt to express not only its material but also its more 'sublime' truths.

What about more concrete considerations? What material impact did the difference of mode have upon the treatment of the History of Life in the two versions? The main convergences and divergences are clearly displayed from the start in the choice of meta-textual material accompanying the respective introductions. On the one hand, the table of contents of each book is almost identical, its role in both cases being to summarise the main chronological stages of the geological story to come. In its main outline at least, the story itself is thus meant to be identical in both cases. But the remaining meta-textual elements, on the other hand, take markedly differing forms. In EP we find a table entitled "the chronology of the earth" that lists the geological ages and periods, and offers an estimate as to the duration of each in millions of years; while in NM Knipe preferred to feature an epigrammatic poem addressed "To Nature". As might be expected, this poem invites the reader to anticipate a story; a story whose hero is Life itself, or indeed Nature personified. "How fair, O Nature, are thy looks / In these thy matron days: / And with what a light heart thou seem'st / To tread thy thorny ways. / Man sees thee joying in thy life, / So full, so fresh, so free, / As if thy toil in ages past / Had nothing been to thee¹⁶." The presence of this epigram – especially when contrasted with the purely empirical equivalent item in EP – hints at the poem's ambition to go beyond the mere facts of the case, and to lay bare to the reader's understanding the moral underpinnings of the system of nature as a whole. In NM, Knipe would not only tell the story of Life, he would spell out the morality of the tale too.

¹⁵ Anon. *Nature*, Vol 73, N° 1893, 8 February 1906, 73.

¹⁶ NM, ix.

The detail of the story: comparative examples

In theory, then, EP and NM tell ‘the same story’ in two different modes or voices; the one focusing merely on the facts of the case, and the other highlighting the underlying plottedness of the sequence of events. But despite this attempt to distinguish between ‘facts’ and ‘plot’, and to house them in separate containers, both versions of the story would in fact need to manage an interaction between the two levels. By looking at the detail of some equivalent passages in the two books, we will attempt to examine more closely the reality of Knipe’s twin-track method, and to ask just how independent each track really was from the other. More specifically, we will be interested in the one case to see how the facts were handled in the verse setting, and how far the author was able to create at least an impression of empirical sufficiency in an account that focuses primarily on narrative; and in the other case, we will ask how far and by what methods the author of the prose version was able to achieve the opposite effect of infusing a texture of plottedness into an account that allegedly limited itself to the merely empirical treatment of the facts.

The specific orientation of each text is made plain right from the start, even in the choice of titles. By calling his verse rendition “Nebula to Man”, Knipe situated this version of the story within Nature’s own developmental dynamic. The poem would apparently follow Nature as it matured, so to speak, retracing the stages of its personal history: this is the narrative of Life itself, objectively rendered, but experienced almost subjectively in its sequentiality. In contrast, the title chosen for the subsequent prose version situates the text quite differently in relation to the subject-matter. “Evolution in the Past” suggests not a narrative followed from within but a pattern studied from without. The author puts himself in the place of the empirical investigator rooted in the present using his scientific acumen to reconstruct the scraps of the past to which the palæontological evidence allows him access. So the one account was presented as a telling of ‘the story itself’, while the other disengaged itself from all such first-hand narrativity, and limited itself to a kind of mapping of the material evidence. The distinct role for narrative is what justifies the divergent formal preferences. NM was written in verse because the specific task of this version was to tell a story.

Moving on now to the detail of each text, one of the most obvious systematic differences of register is to be seen in the choice of names used for the various groups of animals and plants. As is only to be expected, EP tends to use the technical names, whereas NM prefers to foreground generic labels close to those that apply to the living things of the modern world. If we take for example the first ‘scene’ of the story in which appreciable numbers of living

things appear – the Cambrian period – we find that in NM the main groups identified are evoked in terms that make them seem familiar¹⁷. There are sea-weeds, sea-sponges, jellyfish, sea-worms, lamp-shells, “sea-snail gastropods” (l.44), “leaf-footed shrimp forms” (l.50), “one-eyed water fleas” (l.53) and king crabs. Where such identification is not possible and a technical name must be used, Knipe tends to include a comparative or descriptive dimension in the naming process: “Corals are here; and fleshy graptolites – / Small trunks of life, with flower-like polypites” (ll.35-36). Most of these rather vague descriptions are in fact pinned down to specific names in the nineteen pages of notes at the end of the volume, thus providing at least the possibility of full technical identification for the more ambitious reader¹⁸. On the other hand, there are no signs in the text signalling the existence of these notes, a fact which means that they are easily ignored. In EP, of course, the technical names appear in the main text¹⁹. It is interesting to note that the accompanying illustration is also marked by a similar distinction in the choice of names. The illustrations for the Cambrian are very similar, having been executed by the same artist, Alice Woodward; and in both cases the specimens depicted are named in the margin surrounding the illustration. In the NM illustration, generic terms are preferred, as one would expect, though in some cases, the technical name of the particular specimen depicted is mentioned too, as for example the “shrimplike form (*hymenocaris*)²⁰”. In EP, on the other hand, only the word “*hymenocaris*” appears²¹. Similarly, the general “trilobites” of NM is divided into two specific varieties, “Trilobote (*Paradoxides*)” and “Trilobite (*Olenellus*)”. The “*Byrograptus*” is also signalled here, but not in the NM version of the illustration, despite the fact that this name was evoked in the poem’s notes. Knipe’s terminological preferences in NM obviously flow from the fact that he is concerned here to build up a strong narrative rather than to be precise about the factual detail. And yet, the aspiration to factual adequacy is maintained by the systematic referencing contained in the notes.

The relative absence of technical terminology, along with a willingness strongly to condense the descriptive detail accorded to each type, facilitated the depiction in NM of the series of animal types as a kind of progressive sequence. Thus the Cambrian scene, already evoked, moves rapidly from the description of the geological particularities of the period to its lowest life forms

¹⁷ NM, 12-13

¹⁸ For example, the note for line 35, just quoted, reads: “Corals (*Archeaeocythus* and others). Graptolites (*Bryograptus*).”

¹⁹ For the equivalent passage, see EP, 17.

²⁰ NM, facing 11.

²¹ EP, facing 19.

and then the higher ones. The following extracts will give a feeling for the pace of this movement.

About the globe the ever restless sea
Retains o'er land its great supremacy.
Europa's grounds, that will in time appear,
Show but some heights as islands here and there²².

Forefathers of a great posterity,
Sea-weeds abound where shallow flows the sea.
Clinging to mud and rock sponges grow,
Fed by the ocean's ingathered flow.
Jellyfish translucent are floating past,
With phosphorous gleaming through the watery waste²³.

But life in higher forms is in the throng:
Leaf-footed shrimp forms crawl and swim along;
Active with jointed limbs about the sand,
And sea-weed beds that fringe the ocean strand.
Here too are one-eyed water-fleas,
Shielded in shell against their enemies²⁴.

At the end of this brief survey of the living forms associated with the Cambrian period, the author of NM is already willing and able to tell us what it all means.

Thus through the brine life manifold proceeds,
Impelled to higher states by growing needs.
And all these early life-types in the seas
Will branch in time to many species;
And some, amid conditions too severe,
Must, after stress and struggle, disappear²⁵.

The order of treatment of the animal types is clearly significant. The series of beings presented by Knipe is in fact structured typologically, but the narrative framing of the account means that the typological series is easily taken for a chronological sequence. In reality typological patterns are clearly not logically equivalent to historical derivation, but it is relatively easy to deploy narrative dynamics to efface the distinction. By telling the story of the succession of types *as a story*, the expectation of plottedness – of one event

²² NM, 11; ll. 5-8.

²³ NM, 12; ll. 29-34.

²⁴ NM, 13, ll. 49-54.

²⁵ NM, 14; ll. 85-90.

leading to another – effectively naturalises a relationship of causality between the types; that is, a relationship of derivation or descent. Knipe, following the example of earlier popularisers of a similar outlook, was using the plottedness of his story to create the expectation of a developmental tendency in nature. It was a discrete but highly effective way of naturalising the theory of evolution²⁶.

But what about the empirically oriented EP? Knipe's empirical aspirations in EP are perhaps most clearly displayed by the decision to use running titles in the margins to signal the movement in the text from the treatment of one kind of living thing to another. This presentation was probably meant to enhance the book's standing as a quasi-encyclopaedic treatment of all the varieties of living things through all the ages; at any rate, one of Knipe's reviewers congratulated the author for his use of these "marginal headings", remarking that they "will be found of great assistance when employing this as a work of reference"²⁷ So at one level EP was packaged as a repository of information; and as this reviewer's remark shows, it was indeed capable of coming across as such. However, another reviewer saw something quite different, and enthusiastically described the work as "one of the most fascinating and readable books of the year" and "an excellent holiday companion"²⁸ – a rare endorsement which apparently failed to produce any notable popular response.

The challenge for Knipe in his attempt to achieve such a texture of readability in EP lay mainly in the sheer volume of empirical material that had to be covered. It was not merely a matter of the actual numbers of classes and species of living things, but more particularly the *density* of information pertaining to each age. In Histories of Life that present themselves as empirical surveys, it is common practice to present the orders of living things in ascendant typological order, especially when the author wishes to hint at an underlying narrative of evolutionary development in the movement from one chapter to the next; but one unintended consequence of this arrangement is that the opening sections of each successive chapter come to seem wearisomely repetitive of ground that has already been covered. With each new chapter in the story of Life, the empirical and systematic author who has structured his account on the typological series is obliged to 'go back to the beginning' all over again, and offer yet another survey of the lowest forms of living things in the various guises that they have adopted at this new stage of the story.

²⁶ For a more detailed study of this strategy, see my article 'Arabella Buckley and the Feminisation of Evolution as a Communication Strategy', *Nineteenth Century Gender Studies*, Special issue: "Women Writing the Natural World", summer 2011.

²⁷ *Geological Magazine*, 1912, 271.

²⁸ Anon. *Nature* Vol 89, N° 2215, 11 April 1912: 137.

Consider the example of the Jurassic period, associated of course with the first appearance of dinosaurs, those virile reptilian forms that would always be favourites with any author looking for popular appeal. Knipe's self-conscious standards of empiricism in EP meant that when he reached the Jurassic, he struggled to foreground the 'appearance of the dinosaurs' as the defining feature of the period. Here as elsewhere, his typological methodology obliged him to work his way up from the bottom of the pile starting in just the same way as all the others had done so far, with sponges, corals and sea-lilies. The reader has to plough through half of the chapter's sixteen pages before finishing with the boring old life forms that already existed in the earlier stages of the story, and finally making it to the all-new dinosaurs. Furthermore, this impression of redundancy will only get worse and worse as the story continues and the primitive material comes to occupy an increasingly large part of each chapter. Only the appearance of Man in the final stages of the story will allow a change of direction significant enough to overturn this tendency for the narrative to run into the clogging sands of off-message empirical information.

This problem did not apply to the verse rendition, where information could more readily be tailored to the needs of the narrative. Not only could the poet cut out vast tracts of unwelcome information, but he could also include ample signposting along the way as to the underlying plot directions of his grand narrative. We might take as an example Knipe's handling of the appearance of the vertebrates in the Silurian period. In NM, Knipe could foreground the typological innovation as a key 'transitional moment'; that is, a key 'event' in the 'plot' of his story, and speculate at the same time as to the significance of this development.

Within our range as yet the waters through,
Invertebrates alone have come in view:
Holding the scene through deep and shallow seas,
In classes, orders, genera, species.
But now backboned life has ceased to be,
Wide though its ranks, sole tenant of the sea.
Creatures of sterner build are now abroad,
Whose bodies, furnished with notochord,
Or with developed column vertebrate,
Proclaim Life risen to a higher state.

Whence came these fish-like creatures, who can say?
Doubtless in forms of lower life there lay
The power to rise to this. Sea-squirts and worms
Perchance were the first in front, or some such forms.
Still be what may their doubtful pedigree,

Creatures of fish-like build now swim the sea²⁹.

In EP, by contrast, Knipe was obliged at least initially simply to note the appearance of vertebrate fishes. Even the marginal titles on the page in question do not betray the significance of the moment: “SCORPIONS”, “OSTRACODS”, “AMPHIPODS”, “OSTRACODERMS”. The reader would have to be a fairly competent naturalist to realise that the ostracoderms include shark-like fish, and that in passing to them from the amphipods, Knipe had made his first transition from the world of invertebrates to the world of vertebrates. In between his treatment of the two groups, this brief paragraph appears: “Through the greater part of the Silurian there is no satisfactory evidence of any animals other than invertebrates; but towards the close of the Period there is little doubt that animals with at least rudimentary backbones had emerged from invertebrate ranks³⁰.” A far cry from the triumphal moment in NM, proclaiming “Life risen to a higher state.”

It is not until the final page of the chapter on the Silurean period that Knipe allows himself to step outside the empirical task of the listing of types. Here, at last, he briefly looks back over the material covered in the chapter, in order to identify its marking ‘moment’ and to indulge in a touch of explicit grand-narrative construction.

The appearance of fishes attested the rise of a new power in the sea; and, as after-events proved, it was not to be a marine power only, but had wonderful destinies beyond its native element.

Long had the waters embraced sponges, corals, sea-lilies, molluscs, and creatures in crusty armour variously wrought; and now they nursed a life higher and more resourceful than any of these³¹.

The reader must find his way through nearly ten pages of fairly dense information, presented in typological order but without any further grand-narrative signposting, before finally reaching this marker right at the end of the chapter. It is interesting to note that the significance of the passage is effectively signalled by a shift to a distinctly poetic register, in particular a sudden unleashing of a series flamboyant metaphorical comparisons: crustaceans are “creatures in crusty armour variously wrought”, and life in general is being “nursed” in the seas. This last maternal metaphor brings to the surface for a moment the underlying narrative dynamic of Nature’s story, and bestows upon it a nurturing attitude suggestive of a generally progressive tendency. In the meantime, the attitude required of living things is distinctly

²⁹ NM, 17; ll. 51-66.

³⁰ EP, 35.

³¹ EP, 37.

more masculine and active: the varieties of sea animals are specimens of “marine power”, and they go forth to battle against their rivals in “armour”, an attitude redolent of the prowess of the epic hero. The implication is that it is this virility that drives the motor of material progress in the narrative of generic advance from lower to higher types.

Given that the book’s balance thus seems rather weighted in favour of the empirical material and given also that the occasion for narrative signposting are fairly thin on the ground, it seems at least possible that the marginal titles in EP might have served not only the avowed purpose of signalling the empirical content to diligent readers looking for specific information, but also the less avowable purpose of helping the common run of readers find their way past the dull technicalities to the purple passages that would tell them more directly what they really wanted to know. The constant problem of the prosaic account is how to get beyond the mere facts to the story proper.

A variety of other more or less localised devices were also used by Knipe as a way of incorporating a measure of narrative leavening even into the apparently purely descriptive passages of EP. These devices were essentially humorous, ranging from gratuitous Shakespearean references to suggestive metaphors and personification, and taking in facetious characterisation somewhere in between. Some of these devices seem to have been used only in the hope of making the reader smile for a moment as he persevered through the mass of facts; but others had a more definite narrative-building role to play. A few examples will serve to show how the process worked.

It was in the choice of nomenclature that Knipe faced the most serious problems of information overload. We have already noted a foregrounding of technical names in EP, in contrast to the more homely naming policy of NM; yet even here he maintained the habit of using picturesque or evocative names especially when talking about large groups of beings. For example, rather than referring to the family of “the fishes”, Knipe often prefers to speak of the “finny tribes”; and when it comes to elephants, he has an unaccountable fondness for the epithet of “trunky life”. This sort of language may have entertained readers, but, more importantly, it also encouraged them to envisage the world of living things in terms of categories of anatomical design – thereby opening the way to a narrative of derivation. However, the practice was clearly vulnerable to criticism, if not ridicule, as methodologically unsound. The reviewer in *The Geological Magazine* found the tendency “aggravating to the reader”, who “would be similarly affected if in reading a History of England, for instance, the author were to refer to Alfred the Great as ‘Alf’³²”.

³² *Geological Magazine*, 1912, 271.

Knipe sometimes went much further, and amplified the curious epithets so far as to give them the form of full-blown personification. At one stage, for instance, the Cephalopods are described as “the intellectuals of the mollusc world³³”, thus anticipating a narrative of progress to come, while a variety of Crinoid whose anatomical structure features a pipe that keeps waste materials away from the mouth is repeatedly called a “sanitary reformer”. The posture of early land animals is also treated in a humorously anticipatory manner, the first among them to walk without dragging the belly being roundly congratulated for “an achievement of which a reptile might well be proud³⁴”. Such personifying epithets could also be used for pushing species off the progressive narrative mainstream, as for instance when a distinction is made between “orthodox” varieties of Miocene pig on the one hand and the “uncanonical” and “heretical” on the other³⁵.

The mass of local personifications in turn helped to build up the weight of the text’s leading metaphor, that of the family and family relations. In this metaphor’s simpler manifestations, there was sometimes room for doubt as to whether the terminology was used technically or familiarly: “Brachiopods continued to decline [in the Jurassic period], but several old families maintained a stubborn front against ‘the slings and arrows’ of fortune³⁶.” Here, the reader may at first think that “family” is used in a taxonomical sense; but the fact that these are “old families” alerts us to the metaphor of aristocratic descent. Just as the fortunes of noble families wax and wane in their various branches, so to do the various types of living things live on or die out in derivative forms. Knipe apparently liked the metaphor so much that it became a sort of key-note to his prose account, appearing over and over again in one form or another, and for all varieties of living things, great or small. So we learn for example that carnivorous reptiles are “deeply imbued with family traditions³⁷”, an attitude which perhaps did them a disservice in later times when we find that “the old reptile nobility, unable to march with the times, had been swept away³⁸”. And earlier on, the extended Trilobite family had gone through similar trials, with once again only the more modest and unpretentious branches proving “sound” in the long run:

Old families were dying out, or becoming seriously impoverished; and no new families were arising to fill the vacancies. Desperate efforts were being made in some quarters to keep pace with the times; and the body armour was assuming fligid and

³³ EP, 73

³⁴ EP, 62

³⁵ EP, 159-160

³⁶ EP, 84

³⁷ EP, 77.

³⁸ EP, 116.

fantastic characters (*Terataspis grandis*, etc.) But it was all to no purpose. There was no true energy behind it: and one is reminded of the wildness of Gothic architecture as it passed into decline. The soundest family on the scene appears to have been one dating from the Ordovician Period, consisting of small creatures with well-developed heads, and clad in armour of simple character (*Proëtus*)³⁹.

Curiously enough, the floweriness of Knipe's metaphors is if anything *more* pronounced in the prose setting of EP than it had been in NM's verse. Although there is no shortage in NM of epithets of the "finny tribe" variety, there are if anything rather fewer facetious departures into extended family metaphors. When such names are used, they are often less baroque than the EP equivalent. So, for instance, where Knipe refers in EP to the early forms of pig as "porcine patriarchs"⁴⁰, the equivalent passage in NM contents itself with the almost banal "porcine fathers"⁴¹.

The role of illustrations

We noted earlier, in considering Figuiet's founding work in the History of Life genre, just how important visual reconstructions of the geological past might be in injecting a degree of narrativity into a text whose factual massiveness might otherwise make it impervious to that tendency. As the examples just quoted can serve to demonstrate, Knipe was a considerably less austere stylist than his French forebear, yet he too relied heavily on illustrations for their capacity to flesh out the underlying narrativity of his account. It will be particularly interesting to compare the choice of illustrations to accompany the verse and the prose versions of Knipe's story, bearing in mind that some of the illustrations used in NM were recycled for a second usage in EP, and others were modified only in relatively minor details.

Comparing the illustrations that were changed, it is immediately striking that the scenes in NM were *less* likely to be conceived in a form that suggested a snapshot of a real moment of prehistoric time, often functioning instead more like simple specimen showcases. It was in fact in EP that the illustrations took on a more life-like and dynamic form. This systematic difference is plain to see in the series of analogous scenes juxtaposed below (figures 1-6).

³⁹ EP, 42.

⁴⁰ EP, 125.

⁴¹ NM, 109.



Fig. 1: "A Triassic Ichthyosaur", (NM, facing 54)
Fig. 2: "Flying Dragons" (Pterodactyls), (NM, facing 67)
Fig. 3: "Hipparion", (NM, facing 154)

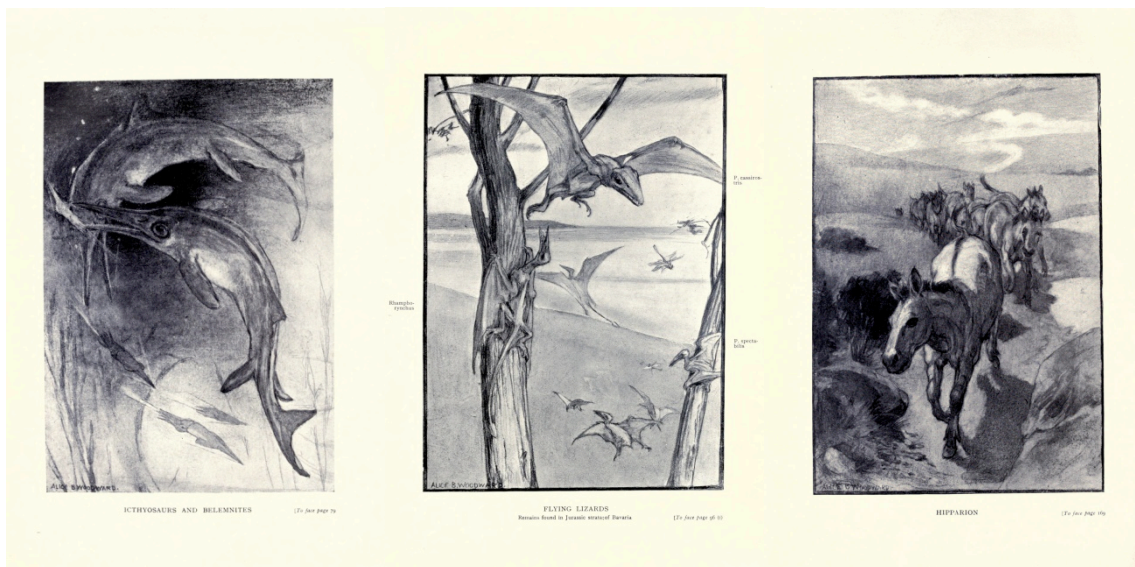


Fig. 4: "Ichthyosaurs and Belemnites", (EP, facing 79)
Fig. 5 "Flying lizards" (Pterodactyls), (EP, facing 96)
Fig. 6: "Hipparion", (EP, facing 169)

A further remark might be made about the third scene of this series, in which an early horse or "hipparon" is depicted (figs. 3 & 6). The EP version of this scene is not only far more dynamic and life-like than the NM equivalent, but that very dynamism, taking the form of an internal movement traversing the frame and approaching the viewer, manages to convey a sense of an underlying grand narrative of progress in the natural course of things. It may be that, having less scope for developing narrative in the empirical body of the EP text, Knipe sought to compensate here by exaggerating the narrative-carrying aspects of his otherwise fact-oriented language, and by pushing the accompanying illustrations in a similar direction, away from the mere task of

specimen representation and towards a more fully accomplished narrative of naturalistic becoming.

The finale

Any popular story needs to end with a bang, and the popular History of Life is no exception. The closing pages almost inevitably find the author musing over the meaning of the story as a whole, and perhaps even speculating as to its future tendency. However carefully empirical the coverage of the main stages may have been, the author's views as to the general tendency of historical process will tend to come to the surface at the close. Unsurprisingly, the closing section of NM is far more flamboyant and far-ranging than that of EP. At the end of his verse epic, Knipe announces the final geological development of the story – the separation of the British Isles from the continent – and treats the event as preparing the way for the triumph of English values, soon to be spread across the surface of the globe thanks to a movement apparently as beneficent and as ineluctable as the processes of nature herself:

Ah! Chosen land, girt by a guardian sea,
Small though thou art, grand will thy history be.
Upon thy scenes will rise a people proud,
Welded to strength, and rich with gifts endowed:–
Gifts not alone to them to be confined,
But by them freely used to raise mankind:
And from thy shores to lands far o'er the sea
Will spread their empire, light, and liberty⁴².

Such socio-political speculation of course had no place in EP; so here we find Knipe sticking more closely to the history of mankind as a species, a career that follows the familiar pattern of gradual transition from simian to human form. This pathway is followed through named species, each of which is carefully described. We start with the Pliopithecus, which is compared to the modern Gibbon; later we discover the Pithecanthropus, described as a mixed being, a “stock in which anthropoids and men had existed as intermixed possibilities⁴³”. Finally we encounter Mousterian Man, a being human enough to compare favourably to modern savages. The general tendency of this empirically established sequence is clear enough, with its transparent suggestion that there is something inherently superior about the human to the

⁴² NM, 218-219; ll. 300-307.

⁴³ EP, 188.

simian form. But it is not until the closing pages that Knipe allows himself to hint at the intimate nature of the progressive dynamic that he sees underpinning nature's story. This final section, carrying the revealing marginal heading "Decline of Brute-Life", tells the reader about the future to expect for life on earth, and does so in terms that attempt to maintain the appearance of an empirically sanctioned claim as opposed to mere speculation. Knipe explains that "the helplessness of wild-brute life has been forcibly brought out of late", partly because of "climatic changes and disease", but more significantly because of the action of man⁴⁴. Such change is not a diversion but a continuation of Nature's logic, and Man rightly shapes the future of living things according to his own needs. For example, the elephant and rhinoceros families, though similarly reduced in size in comparison to their ancestral forms, are nevertheless due to face very different futures. Since the elephant family "has shown itself willing enough and able to co-operate with man, the majestic old line may long continue", while the rhinoceroses, on the other hand, are "bound to diminish, for the animals have no stomach for civilisation, and are never likely to be seen drawing the plough, or otherwise toiling in man's service⁴⁵". Many other types are similarly on their way out, including the "ferocious carnivores", but also less dangerous beasts such as the tapirs and wild horses. Even primates, apart from the gibbons, are "ending their days in strict retirement⁴⁶". In the midst of all this desolation, "Man [...] has made a wonderful progress"; by gaining "no small control over the blind forces that rule the universe [...] he has travelled far from a purely animal condition." There is still work to be done, however, for he has not yet "gained complete mastery of the brute passions and impulses which he has inherited from a remote past"; "the achievement of this, as far as can be seen, is an immediate purpose in his further evolution⁴⁷". Knipe thus presents progress as a process of purification, an elimination of the clogging savage remainder that might hold back the advent of civilisation. The author easily elides natural and cultural progress into a unified narrative of imperial conquest: Nature had seen to the dissemination of intelligence; now it is up to Humanity to see to the dissemination of civilisation.

If this closing passage constitutes a relatively discrete statement of Knipe's understanding of the underlying tendency of the dynamics of nature, the same cannot be said for the book's frontispiece which offers in visual terms a starkly unambiguous statement of the case. A naked boy-like human figure appears in the centre of the scene, striding over a mountain pass towards the rising sun in

⁴⁴ EP, 214.

⁴⁵ *Ibid.*

⁴⁶ EP, 215.

⁴⁷ *Ibid.*

the distance (fig. 7). He clutches a tool or a weapon resembling a tomahawk in one hand, an object that seems oddly out of keeping with his otherwise entirely modern and distinctly European body. The path he has trodden is marked out with a series of animals arranged to suggest the chronological course of life across the ages: a snake, a pair of ravens, a large feline of some sort and a group of monkeys. The gesture of one of the monkeys and the cunning glance of the crouching feline both hint at the snares of bestial resurgence that might hold Mankind back, or distract him from his aspirational onward course.

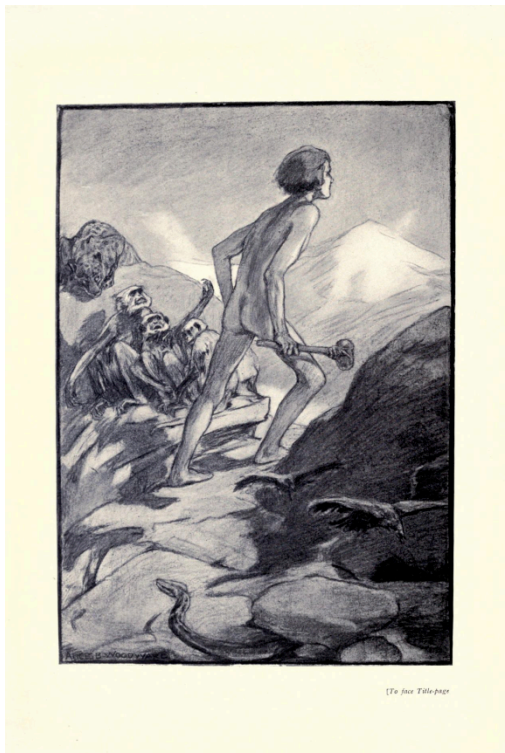


Fig 7: EP frontispiece

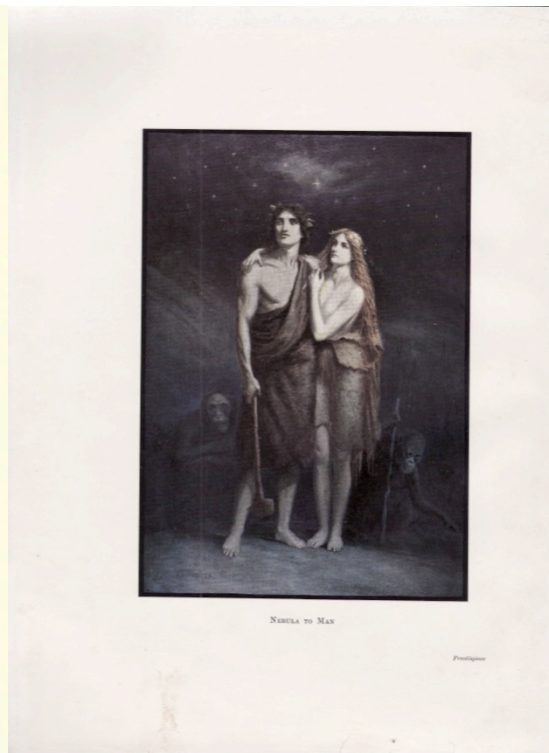


Fig 8: NM frontispiece

In contrast, the frontispiece of NM is a much less dynamic affair (fig. 8). There is of course an implied narrative in the juxtaposition of stars, shadowy monkeys in the background – one of whom is trying to walk upright with the aid of a stick – and the upwardly-gazing human couple; nevertheless the image focuses more on the mystery of the human condition than on the actual dynamic of nature's narrative. On the other hand, the fact that these human savages are dressed in what looks like animal skins perhaps makes them slightly less absurdly out of place than the Aryan man-child of the EP frontispiece, suggesting a greater effort to attain empirical referentiality. Arguably, then, each frontispiece was meant to complete the story on offer in the associated text: in NM, we find a static and quasi-naturalistic attempt to

capture the mystery of the narrative contained in the text; while in EP there is a thoroughly stylised representation of the narrative dynamic that could only be hinted at in the text.

Assessment

A fairly clear pattern thus emerges from our survey of narrative and visual devices in the two texts. Although EP was presented as a purely empirical study, and thus radically distinct from its poetic and story-telling counterpart, we have seen that the distinction in styles turns out to be far less marked in practice than might be expected. The 'narrative turn' is far from absent in the prosaic fact-based study; indeed in some specific localised practices, the effect is *more* emphatic in EP than in NM. An analogous reversal is also observable in the accompanying illustrations, those in NM being austere static, while the equivalent scenes in EP seem to strive for maximal dynamic effect, using the visual setting in the Figuerian mould as a way of discretely importing narrativity into the account as a whole without thereby undermining the empirical status of the text itself. In these ways, Knipe compensated for a narrative-poor formal framework by importing localised nuggets of narrativity whose cumulative impact was forceful enough to overcome the effect of those formal constraints.

Meanwhile, if NM provided a space suffused with narrativity, it was in fact in EP that Knipe's characteristic views about the nature of progress found their most explicit expression. The epic verse form naturally leant itself to a formulaic paean to progress as imperial expansion, but it was not well-equipped for theorising the detail of the dynamic of natural change. Conversely, however, the prose setting was not ideal for moral impact, so here Knipe was obliged to situate his ideological message in the work's poetic margins, either piecemeal in the extended metaphors that were used to build up family relations between the actors in the story, or else in the illustrations and particularly the frontispiece, this last option offering the only space in which the attempt to capture the theory as a whole might legitimately be made.

All of this suggests that the distinction between Knipe's two versions of the story of Life were not quite as clear-cut as he would have had us believe. NM was not just a more attractive version of 'the same story' as that which had been told in technical terms in EP. On the contrary, each version had a specific but interrelated role to play in the unfolding of Knipe's specific conception of the evolutionary process. In principle, as we know, EP was supposed to contain the factual database, while NM carried the plot. The prose form of the first was meant to bring empirical credibility to the project, while the verse form of the

second brought the appropriate grandeur of tone. But neither version was as 'pure' as this mapping of prose to facts and of verse to narrative would suggest. We have seen that each text had to find its own compromise position somewhere between the two extremes, the narrative élan of NM being balanced by a grounding in relatively sober naming and illustration policy, and the mass of technical information in EP animated by a spark of implicit narrativity. NM and EP do not inhabit poetic and prosaic extremes but a greyer zone of interaction between these two poles.

Knipe probably believed he was constructing an intellectual edifice that would be all the stronger for standing on twin pillars: the pillar of material history on the one hand, and the pillar of spiritual history on the other. By giving each of those pillars its own expression in a characteristic mode, he no doubt hoped to consolidate the shared central message. The claim was not in fact just about his own story, but about Science itself. In the Victorian and Edwardian context, it was important for popularisers to find ways of suggesting that science was important not only because it was materially true, but also because it was morally improving: by telling the story of Life in verse, Knipe was not only foregrounding the inherent narrativity of Nature but further drawing it into the space of the traditional narrative of spiritual redemption. The particular elevation of a pure verse rendition of a scientific story would enhance the credibility of this attempted fusion.

So in the interaction between NM and EP we find a rather more complex interaction of empirical and narrative orientations than the formal division suggests. We find, notably, a distinct admixture of narrativity in the empirical account, an adjunct that allows Knipe to give voice to his purely speculative theory of progress as a process of purification. Meanwhile, we also find that the task of the verse account is not merely to offer readability to a class of non-specialist readers, but also to build up the spiritual credentials of his theory and of the domain as a whole. These are not so much two versions of the same story as two interlocking facets of a claim about Nature, nature's processes, and the social value of the science that had decoded the mystery.

Why then was the project a failure? There was undoubtedly a market for popular defenders of the morality of science, as numerous other contemporary authors were able to show. Knipe's particular approach, with its apparently clear-cut separation of the empirical basis and the spiritual implications of natural science might seem tailor-made for a wary audience of bourgeois Edwardians; but it was not to be. The most obvious reason for this failure is simply that, in trying to please everybody, Knipe in fact satisfied nobody. The distinction he made between pure beginners and advanced non-specialists perhaps tuned out to be illusory, the underlying reality being that all non-

specialists actually wanted the same thing: a scientifically-sanctioned good read. EP was too turgid to be an easy read, and NM suffered on both fronts: too stilted to be a good read, and too weird to be credible science.

Perhaps Knipe's fundamental problem was simply that he had chosen the wrong poetics. His choice was probably influenced by the perceived need to defend the aptitude of the natural sciences to provide lessons of *moral* as well as material value. In a rather literal-minded way, Knipe seems to have decided that a story carrying a message of moral exaltation needed to be conveyed in a language of appropriate elevation. Hence the choice of the epic form and the heroic rhyming couplets. But there was something faintly absurd, and more than faintly outmoded, about this choice. It had been possible in the eighteenth century to write scientific verse in this vein, but at the outset of the twentieth century, the choice was poetically unfashionable and scientifically inappropriate. It also flew in the face of the existing tradition of the History of Life genre as established over forty years earlier by Louis Figuier.

The defining characteristic of Figuier's founding text, as we have already seen, was its capacity to meld into a single text the twin strands of empirical credibility and narrative readability. We briefly saw how Figuier's text maintained a balance between a detailed localised account of the palæontological facts and an overarching global narrative capable of outlining the grand historical processes of nature. In this way, Figuier was able to satisfy both needs at the same time; and to give his readers the impression of gaining specific knowledge even while they followed an engaging story. The success of Figuier's account depended largely upon a naturalistic poetic. Nature's story did not need embellishing because it was wondrous enough in itself to anyone who adequately understood it. For him, it was nature that was the poet, not the historian⁴⁸.

Knipe's decision to ignore this well-established tradition can only have been prompted by the hope that an alternative method might have alternative advantages. We have already suggested that those advantages had more to do with promotional than narrational considerations; that Knipe was thinking as much about the public respectability of natural science as about the readability of his versions of the story of Life. His revival of an outmoded verse form for

⁴⁸ It is worth noting that there had been smaller-scale attempts to work out a similar compromise at an earlier date, for example in the works of the Scottish geologist and populariser, Hugh Miller. In a passage from the 1847 *Footprints of the Creator*, for example, Miller used an imaginary voyage by ship to represent a journey back into geological time, and the vagaries of the navigation to hint at the difficulties of palæontological interpretation; the same journey also served to demonstrate the errors of the developmental hypothesis. Occurring in a text primarily concerned to present material findings relating to specific fossil species, this passage comes across as a rather timid attempt to combine empirical and narrative material within the same account. (Hugh Miller, *Footprints of the Creator, the Asterolepis of Stromness*. Eleventh edition, Edinburgh, William P. Nimmo, 1869, 197-198).

the purposes of a story that had shown itself to be suited to a newer and simpler aesthetics suggests a rather touching but ultimately misguided faith in the capacity of the traditional conventions of exaltation to continue to exalt. Knipe failed to recognise that the novelties associated with the discovery of the deep past were not merely factual but conceptual; that the popularisation of the field could best be attempted not by the redeployment of an existing aesthetics of exaltation as a state of mind, but by the formulation of a more prosaic aesthetic that finds an apparently humble variety of exaltation in the actual state of the material world, and especially in the accumulation of locally insignificant events finally adding up to a far more significant and beautiful result than the inspection of any particular piece of the process would have led us to anticipate. In failing to make the shift from sublime to naturalistic exaltation, Knipe precluded himself from the possibility of benefitting from the structural possibilities inherent in the field itself. To keep the prose and verse treatments of the History of Life apart was to maintain the attitude that scientific understanding and moral feeling had to be worked on as separate aptitudes. The most successful popularisers of palæontology did just the opposite: they showed how the apparently prosaic local detail of the story of life could add up in long run to a marvellous and unexpectedly harmonious overview of a bigger and more spiritual reality. The wonder came from the mysterious hiatus between the apparently random specifics of the system on the one hand, and its supremely ordered overall dynamics when the whole is perceived from a sufficient distance and with sufficient understanding.

If Knipe had hoped to be the poet of nature, he turned out in the event to be little more than a publicist of limited imagination who used a conservative aesthetic to promote moral platitudes. His strategy had little to do with the poetics of narrative and rather more to do with the pious hope that the conspicuous adoption of a posture of formal conventionality would earn for the natural sciences an analogous reputation for philosophical orthodoxy. The failure of the enterprise was not a disaster for scientific verse; rather a vindication of the common sense of the readers of popular science. The core quality of an effective History of Life is its capacity to match the formal poetics of its mode of expression to the thematic poetics of the natural processes that the story theorises. This is as true of an account in prose as it is of an account in verse.

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19th-20th century • History of Life genre • Henry Knipe • narrative strategies
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Biography

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