



REVIEW

# The story of a largely unknown evolution – Germ theory hoax

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Received 26 March 2011; accepted 7 June 2011

Available online 12 July 2011

## KEYWORDS

Scientific forgery;  
Piltdown Man;  
Alfred Russel Wallace;  
History of evolution;  
History of the germ theory

**Abstract** The Piltdown Man debacle provides us with the most infamous forgery in science. However, another equally intriguing story exists concerning a document by a Bostonian called George Sleeper, which purported to be a pre-Darwin–Wallace anticipation of evolution and an equally convincing account of the germ theory published before Louis Pasteur’s famous studies on this subject. The story involves two giants in the world of evolutionary theory, Alfred Russel Wallace and E.B. Poulton. While Wallace was convinced that the Sleeper document was genuine, Poulton’s detailed investigations showed that it was a fake and a hoax. Despite this conclusion, doubts still exist about the authenticity of the Sleeper document.

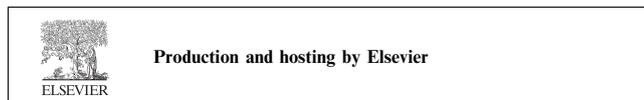
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## Contents

1. Introduction . . . . .	312
(a) Origin of life. . . . .	313
(b) Natural selection. . . . .	313
(c) Recapitulation . . . . .	313
2. Apparent confirmation of the hoax . . . . .	314

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3. Who did it? . . . . .	314
4. An early germ theory or an elaborate hoax? . . . . .	315
References . . . . .	316

## 1. Introduction

Most biologists know of the most famous hoax in the history of science, the so-called Piltdown forgery. What follows is the story of another evolution hoax that is surprisingly largely unknown. Two eminent evolutionists appear in this story, and both initially believed that an unknown American had originated the theory of natural selection before Darwin and Wallace to natural selection and beaten Pasteur to the germ theory.

Anyone reading the prestigious science magazine, *Nature* on January 22nd, 1914, would have come across an article entitled, *A Remarkable Anticipation of Darwin* (Anon, 1914). Here, it was said, two of the most eminent evolutionists of the day, Alfred Russell Wallace and E.B. Poulton were supporting the authenticity of a pamphlet describing work apparently having priority over Darwin and Wallace on the theory of evolution by the agency of natural selection (Poulton, 1913). Of the two naturalists, Wallace was particularly impressed and commented:

Supposing the work to be genuine, I doubt whether so much of pregnant thought and penetrating imagination has ever before been recorded in so small a compass.

As well as providing a theory of evolution, the pamphlet also provided an early account of the germ theory which clearly had priority over that provided by Louis Pasteur. The first notable point about the pamphlet is its publication date (1849) that is some ten years before the publication of the Darwin and Wallace papers on natural election, and some twenty years before the generally accepted date of the establishment of the germ theory.

Reference to the source of the pamphlet is given by Wallace as follows (Wallace, 1913a):

My Dear Poulton, Dorset April, 2, 1913

About two months ago an American sent me the enclosed booklet, which he had been told was very rare and contained an anticipation of Darwinism. This it certainly does, but the writer was highly imaginative, and, like all other anticipators of Darwin did not perceive the whole scope of his idea. His anticipation, however, of diverging lines of descent from the common ancestor and of the transmission of disease germs by means of insects are perfectly clear and striking. As you yourself made known one of the anticipators of Darwin, whom he himself overlooked, you are the right person to make this known in any way you think proper. As you have recently been in America you might perhaps ascertain from the Librarian of the Public Library in Boston or from some of your biological friends there what is known of the writer and of his subsequent history. If the house at Down is ever dedicated to Darwin's memory it would seem best to preserve this little book there; if not you can dispose of it as think best.

In a subsequent letter to Poulton (Wallace, 1913b), Wallace clearly wanting to defend the pamphlet's veracity, commented:

My dear Poulton, – I am very glad you have changed your view about the “Sleeper” lectures being a fake. The writer was too earnest, and too clear a thinker, to descend to any such trick. And for what? Agnostic is not in Shakespeare, but it may well have been used by someone before Huxley.

The pamphlet in question was written by a certain Bostonian called George Washington Sleeper and was entitled, *Shall We Have Common Sense-Some Recent Lectures*. The title page bears the name of the printer W.M. Bense, and is dated Boston, 1849.

The pamphlet, a mere thirty six pages in length, was forwarded to Alfred Russel Wallace by an American called Mr R.B. Miller; Wallace then passed it on to his fellow evolutionist, E.B. Poulton for scrutiny. Although the *Nature* article casts passing doubt on the date the pamphlet was published, it comes to the conclusion that the work is probably genuine.

What then was so remarkable about the Sleeper pamphlet (or “Sleeper Document” as it later became known)? As has already been mentioned, it is divided into two halves, one devoted to evolution and the other to the germ theory. An excellent summary of the half devoted to evolution is given in the *Nature* paper:

The clear grasp shown by the author of the Darwinian principles of the struggle for life, and the origin of fresh species by the persistence of germinal characters by the preservation of those forms best adapted for the environment, his advocacy of the persistence of germinal characters.

The *Nature* article details the following evolutionary principles described in the pamphlet: (a) Life owes its primal beginning to primal germs, everywhere about us we see waged the pitiless battles for life...the useless perish, the useful live and improve, (b) Man and the Ape are co-descended from some primary type, and finally (c) the life germ resident in Man, transmitted by his descendants, goes on existing indefinitely.

No wonder the pamphlet caused a mixture of excitement and disbelief. Poulton was one of the leading evolutionists of the day and was noted for his work on butterfly mimicry. It is clear that he felt duty-bound to use his own and the skill's of others to get to the bottom of this enigma, and at the outset appeared keen to quash the claim that the pamphlet had appeared some ten years before the Darwin-Wallace papers, given at the Linnaean Society meeting in 1859. Although William Sleeper was dead before Poulton ever saw the pamphlet, his son, J.F. Sleeper, was still alive and was more than willing to provide details to Poulton about his father's life and work.

Before considering the evidence and making a decision on the authenticity of the pamphlet we need to know something about its author,

George Washington Sleeper was born in Baltimore on October 15th, 1826. In his youth he moved to Boston. Here

where he later opened a tea store (another similar emporium was opened in Providence) and prospered until the Civil War, when his business fell into decline; his as a business failures doubtless owed much to his unpopular political and religious views, which he did nothing to hide from his customers. After leaving New York, Sleeper then went to Jersey City New York, where he died in 1903. He married in 1858 and a son, John F. Sleeper, was born in 1864. Sleeper was a vocal atheist and something of a rabble rouser and was often disliked to the point of hatred wherever he went; as a result, he had few friends and was continually at odds with his neighbours.

It is clear that Sleeper was a historical figure, but what did he have to say? As we have seen, Alfred Russell Wallace was obviously impressed with Sleeper's pamphlet, since, in addition to the quote given above, he replied to Miller, the American source of the document with the following words:

I have read it with much interest, as the writer was evidently a man of thought and talent. The first lecture certainly gives an approach to Darwin's theory, perhaps nearer than any other, as he almost implies "the survival of the fittest" and the cause of progressive modification, but his language is imaginative and obscure.

After commenting on the section devoted to the germ theory Wallace then continued:

But he is so anti-clerical and anti-Biblical that it is no wonder he could not get a hearing in Boston in the mid – 1800s.

Wallace was sufficiently impressed by the pamphlet to suggest to Poulton that:

If the home at Down is ever dedicated to Darwin's memory then it would seem best to preserve this little book there.

On June 3, 1913 Wallace again wrote to Poulton stating how delighted he was that he agreed that the Sleeper document was not a fake.

A glaring problem with the document soon came to light, however, which would need to be addressed before it could ever be declared genuine. At first sight this problem appears somewhat esoteric since it relates to the presence in the Sleeper document of a single word, namely *agnostic*. This term is generally believed to have been coined by Thomas Huxley (often referred to as Darwin's Bulldog) in 1869, yet here it was appearing in a pamphlet dated 1849.

Perhaps this problem can be solved by assuming that Sleeper was referring to a meaning for the word *agnostic*, different to that used by Huxley. It is possible, for example, that Sleeper was using the word *Agnostic* (given a capital "A" by the way) in relation to the New Testament, in which Paul (Acts 1.23) speaks mystically of the altar to the unknown God (*agnostic theos*), i.e., the idea that God must by necessity be unknowable to the human mind.

Poulton however, was convinced that Sleeper used *Agnostic* in the same sense as did Huxley and he began to get suspicious. The inclusion of *Agnostic* does obviously point to the likelihood that the pamphlet is a forgery, but why would a forger make such an elementary mistake? Forgeries do of course fall down because of simple errors. However, since it could be argued that *Agnostic* could have been used by Sleeper in a different sense, on its own the presence of the word does not prove

that the document must have post-dated Huxley's alternative use of the word.

The following reference to Sleeper's specific evolutionary points shows how convincing his work appears at first sight:

#### (a) *Origin of life*

Sleeper speculates on the origin of life as follows:

... Life owes its faint beginning to primal germs. These germs I hold to be infinitesimally minute living atoms pervading the entire terrestrial atmosphere; and perhaps, the entity of the Cosmos. Perishable themselves, each is the common carrier of the principle of Life which is indestructible and eternal.

Sleeper is here allying himself with the early panspermists who believed that life spread throughout the cosmos; they also believed that life, rather than originating on Earth or elsewhere, had always been present, i.e., life is eternal.

#### (b) *Natural selection*

- (1) Primal matter to zoophyte to crustacean, to fish to saurian, to mammals and Man! The inferior forms disappearing when their allotted work was done and the improved era no longer warranted their inutile existence just as the platysoma of the Old Red Sandstone vanished in the Magnesium Limestone: or else becoming dwarfing modified previous to extinction: similarly to the diminution of the seventy foot iguanodon into the four foot and perishing iguana which has outlived the age and the environment which called its giant ancestor into being.
- (2) In this ever recurring disappearance of, or modification, of animal and vegetable forms there is nothing strange. Everywhere about us, we see waged the pitiless battle for life of which it is an inevitable outcome. So there is a continual process of elimination and substitution going on in the great laboratories of Nature; the useless perish, the useful live and improve, although our conception of what is useful and improving is often opposed to Nature's.
- (3) All Geology indicates assured program by its presentation of higher and higher generations of exalting forms, each remarkably suited to the peculiar age in which it appeared at its best.

#### (c) *Recapitulation*

Man in the womb passes through all the embryo forms of the types of the known divisions of animated Nature: first but a germ, he then resembles molluscs, fish, reptile, bird, rodent, ruminant, and batrach (presumably a printing error for batrach, the belief that the human foetal face looks like that of a frog), finally assuming unmistakable features of the human animal. Thus we see a significant panorama of the momentous changes which occur in the course of the ages displayed in the short space of nine months in the mysterious womb.

Sleeper then muses on the antiquity of Man and origin from a common ancestor:

- (1) Man and the Ape are co-descended from some primary type.

- (2) We have never found any living or fossil to from a chain between Man and the Ape... I doubt that any such creature will be discovered; to my mind there never occasion for its existence: more likely a some relic of an, at present unknown, animal proving to be the forerunner of both species, will be exhumed out of the debris of an age immediately antecedent to both.

Sleeper then distinguishes Man from Simians (monkeys) on the basis that Man possesses progressive, deductible and inventive reason; the acquirement of “extensible and transmittable speech and finally, the use of tools. Remarkably, he then comments on the germinal origin of characters:

For nothing is lost in the vast economy of Nature: all things suffer but a transient change of form: thus the life germ resident in Man transmitted to his descendants, goes on existing, indefinably throughout all Time’s infinitude of years; just as his Thoughts... continue to live on ages after the transitory has moulded away into the dust of the long ago and thus and only thus is immortal: in the transition of his germ life unfinished.

It is easy then to agree with Wallace’s view, initially shared by Poulton, that the Sleeper pamphlet was a remarkable document. It is interesting to note that Wallace, despite sharing publication priority on theory with Darwin did not seem to regard Sleeper’s pamphlet as a threat to his, or, Darwin’s position. Some might argue that Wallace being so close to death had little interest in questions of priority. On the other hand, his defence of the Sleeper document illustrates his typical, life-long, generosity on such matters

As Wallace, noted, Sleeper was highly critical of religion; spiritualism, he says, “plays no part in the great drama of this life.” The fact that the people of Boston clearly regarded Sleeper as being anti-Church is referred to in the document’s Introduction where he complains bitterly about the responses of the public and, notably, the clergy to his ideas. He also claimed that it was impossible for him to gain a hearing in Boston when he lectured and he regarded his audience as being “little better than savages”. Sleeper mocked the biblical idea that Man and animals appeared on a single day, and claimed that geology proves such a creation could not possibly have taken place some six thousand years ago. It is also not difficult to see then why Sleeper annoyed the faithful, especially when he describes the biblical account of the creation as “one of the most audacious Insults ever offered to the human intellect.”

Even though his preliminary statement to the Linnaean Society, on Sleeper’s work was broadly supportive, Poulton soon began having doubts about the Sleeper pamphlet’s authenticity. By the time he returned to the subject during July of 1914, his researches had led him to conclude that Sleeper’s document was an out and out fake. By July the 14th of 1914, *Nature* informed the scientific world that Poulton had changed his mind. In a second article entitled *Forged Anticipation of Modern Scientific Ideas*, Poulton now regarded the pamphlet as an obvious forgery. What then made him change his mind? How did a pamphlet, which he initially regarded as being “remarkable”, evolve into an obvious hoax?

Let us now look at the evidence which Poulton and his associates discovered which convinced them that Sleeper hoaxed his remarkable document.

Reading between the lines, it is immediately clear that E.B. Poulton, the man charged with determining the authenticity of the pamphlet, was upset to have before him a work which appeared to deny Charles Darwin the priority on the theory of natural selection. By 1914, Darwin’s theory was just emerging from a period of neglect, so any claim that Darwin had been beaten to the Theory would have been unwelcome. Add to this, the fact that the usurper was an American and one can see why, in a time of intense national rivalry, Poulton would have been keen to show that the Sleeper pamphlet was a forgery.

## 2. Apparent confirmation of the hoax

Poulton’s initial suspicions concerning the Sleeper Document appear to have been born out by subsequent investigations which employed the skills of some of the leading manuscript experts of the day. One of the main pointers to it being a hoax was the fact that there was something amiss with the type used on the title page. It simply was not a variety of type that was used in the 1840s and an expert from the American Type Founders Company concluded that “it is impossible that the title-page could have been set at the date claimed for it.” In addition the contract form the printers, which seemed to prove that the pamphlet was published in the 1840s, bore a forged printers signature. More damning evidence was to surface. For example, the paper used in the pamphlet was found by experts to bear a forged paper mark, making it appear to have been produced at an earlier date. To cap it all, the manuscript was apparently aged with the aid of coffee stains. As a result, based on the testimony of various experts, there is strong evidence to show that the Sleeper document is a forgery. The question then is who did it, who was the person, or persons, who went to considerable lengths to forge the pamphlet.

## 3. Who did it?

The obvious forger of the Sleeper document was of course Sleeper himself. It was claimed that Sleeper had, at one time, been a printer; if was true, he would obviously have had the skills needed to forge the pamphlet. Sleeper’s son, however, claimed that this was a lie and that his father had never been a printer. The pamphlet was described by experts as having been crudely printed, especially considering the qualities of printing in Boston at the time; why one wonders, if Sleeper had been a printer, would he produce such a shoddy document? There is some evidence to suggest that the document was printed in 1870–1880s, although it could have been printed later, possibly after Sleeper’s death.

What about motive? Clearly Sleeper, or a friend or relative, may have felt aggrieved at being treated so badly by his fellow Bostonians. Maybe someone tried to get one up on them by demonstrating Sleeper’s true genius and prescience. But why, having gone to the trouble of producing the document was it not widely disseminated. No other copies of the Sleeper pamphlet have surfaced, so if the aim was to gain widespread credit for Sleeper then surely a single document would never have done the trick. Possibly someone hoaxed the first pamphlet, but then had second thoughts and the single pamphlet just happened to surface some-

time later. Perhaps a large number of pamphlets were circulated, but if so, why has only one survived?

There seems no doubt that Sleeper's son did everything he could to help, Poulton with his enquiries and happily provided any documents he possessed on request; would he have been so helpful had he been involved in the forgery? We are left then with one other suspect, R.G B. Miller, the American who forwarded the document to Wallace. Miller claimed to have acquired the pamphlet in a book shop in Cincinnati, but subsequent investigations showed that no such bookshop existed in the city at that time. Since nothing else is known about Miller, he becomes a shadowy figure who might have perpetrated the hoax, but for what motive? Again, why would Miller have chosen an unknown, Boston, coffee shop owner to foist on him the mantle of genius who was well ahead of his time?

It has been suggested that the Piltdown forgery was perpetrated by someone who hoped to debunk the theory of evolution, or to embarrass the scientists of the day by showing the world that they were not as competent as they claimed to be. Maybe Miller had the same motives, but what would he have hoped to have achieved by such an elaborate hoax?

It is fortunate that Wallace's sent the pamphlet to Poulton. Wallace was close to death at the time and it seems unlikely that he would have spent as much time, as Poulton did, investigating on the pamphlet; this is especially the case, since Wallace was clearly convinced that the pamphlet was authentic. Without Poulton's intervention then, the Sleeper document might have been accepted as genuine, and like the Piltdown forgery only demonstrated to be a hoax many years later.

What if, however, all these experts are wrong and the Sleeper pamphlet is genuine and Sleeper came up with a remarkable pre Darwin-Wallace account of both natural selection, as well as an early view on the germ theory.

No one reading Sleeper's document could argue with Wallace's opinion that it is indeed remarkable, but was it a hoax? We can only assume that Poulton's appointed experts did a good job and that the evidence against the Sleeper document having been published in 1847 is indeed overwhelming. However, no matter when it was written, the Sleeper document is the product of a highly knowledgeable and perceptive mind. It may indeed have been written after the fact, but it nevertheless contains some remarkable insights. Sleeper's views on panspermia (a word he avoids) are, for example very interesting. The Sleeper document states

...life owes its faint beginning to primal germs. These germs I hold to be infinitesimally small, minute living atoms pervading the entire terrestrial atmosphere, and perhaps the entirety of the Cosmos.

Like Wallace, Sleeper takes a teleological approach to Man (perhaps that is why Wallace was so willing to be convinced of the document's authenticity), considering him to be the ultimate product of Nature. Interestingly, Sleeper pays attention to denying spiritualism, doubting that extra mechanistic forces play a role (refuting intelligent design and religion); spiritualism was by the way very much in vogue in 1848 around the time when the document was said to have been written. He also includes echoes of the selfish gene view and even memes when he states:

...thus the life germ resident in An transmitted to his descendants, goes on existing indefinitely throughout all Times infinitude of years, just as his Thoughts, those Genii

of children of his prolific brain continue to live on ages and ages after that transitory organ has moulded away into dust of the long ago; and thus and only thus, is Man immortal; in the transmission of his germ life and the eternal perpetuation of his Original thought.

We can also read in the Sleeper document a paragraph that implies the so-called "anthropic principle", the apparent fine tuning of the universe to consciousness:

Of all such forms Man would seem to be the masterpiece of nature on this globe, and we cannot fail to be impressed by a conviction that whatever Nature may have accomplished on other planets, all her energies upon this have evidently been asserted through the medium of Education, to shape, to instruct and to perfect the Human Race.

Finally re-iterating Sleeper's views on natural selection, he gives us:

So there is a continual process of elimination and substitution going on in the great laboratories of Nature; the useless perish and the useful live and improve, although our conception of what is useful and improving is often opposed to Natures.

#### 4. An early germ theory or an elaborate hoax?

The second part of the Sleeper document, entitled *The Dangers of the Unseen* is no less amazing than the first, since it appears to be an early enunciation of the germ theory. By the early 1840s, the likes of Sir John Goodsir, Sir Henry Holland, Gideon Algenon Mantell and others in England, and elsewhere, had concluded that animalcules cause disease (Wainwright, 2003), but the Sleeper pamphlet goes much further. Of microbes Sleeper says:

I have concluded that the earth, air and water are replete with multitudinous, infinitesimal, ever active creatures, probably many of which are too minute for our best microscopes to reveal to the sense of sight. ...they infect, or disinfect the air, alter the nature of soil, and cleanse or contaminate water.

Sleeper also maintained that germs:

...obtain mastery over our weakened bodies and it is surely their malevolent effects that we behold in the horrid virulence of smallpox the dreadful malignancies of cancer and the melancholy ravages of consumption.

He then goes on to claim that these minute organism cause King's Evil (scrofula), catarrh, malaria, scarlet fever, measles, the putrid sore throat and gangrene:

The drop of water we sip, the breath of air that we breathe, the particles of dust that finds its insidious entrance to our bodies, may be the terrible precursor of disease.

Next, Sleeper claims that we can resist these diseases and goes on to invoke the idea that microbes originate from space, referring to them as these "Ishmael-like roamers through the universe." He even notes the ability of one microbe to antagonise the growth of others:

...so other living germs, antagonistic to the evil kinds may oppose the latter in undebilitated systems and wage war upon the humours in our blood.

Sleeper is doggedly opposed to spontaneous generation and claims that the causal microbe of putrid throat can be isolated using the common calves foot jelly covered with a bell jar standing in quicksilver, all being strongly heated beforehand in order to exclude other germs.

Finally, he claims that blood can kill germs and that germs are not isolated from people not suffering disease. Insects such as gnats, bees, flies and wasps, he claims, act as vectors and transmit disease. As to malaria, he asserts that:

I have never known a person to suffer from malarial fever that had not at one time or other been stung by Gnats or been the resident of a region containing these pests.

Amazingly, he suggests that microbes may be used to kill vermin and pests, and he assigns the fertility of soils to the action of microbes, asserting that diseases are spread by microorganisms in water.

Here then Sleeper provides a full summary of the germ theory. However, since most of the ideas it contains had been stated between 1880 and 1900, there is nothing here to suggest that this comprehensive account of this new science could not have been forged between these dates.

The fact that many of Sleeper's ideas on disease were not original can be demonstrated by examining the work of Joseph Comstock of Lebanon Connecticut who wrote an article called "On the Animal Origin of Fevers" which was communicated to the *Boston Medical and Surgical Journal* of 1835. Comstock stated that fevers are of microscopic animal origin and originate from the effluvia of the congregated mass of workers and maintains that:

no-one disputes the animal origin of contagion". All contagious disease, as before intimated, are past all controversy, of animal origin. No one ever dreamed of smallpox, or syphilis or measles or psora being generated by vegetable putrefaction. Those diseases therefore, whose causes are positively and indisputably known, are of animal origin.

Comstock is clearly talking about animalcules which he says can be seen in drops of water by using the "hydro-oxygen microscope", which is lit by the intense bright light produced by burning oxygen and hydrogen on a surface of lime.

Nowhere does Sleeper see the hand of God; he concludes his pamphlet with the following words:

But rather the astonishing strange uncomprehended workings of some mightier power in almighty Nature infinitely beyond the weak, puny, priest-aborted rudiments of perception, dawning in the infant brain of Man: carrying out a grand design of unfathomable profundity, in which an atom is as mighty as a second as significant as a thousand years, and the smallest being in the universe of as much importance in the stupendous scheme as lordly Man, himself, with all his presumption, arrogance and self conceit thick upon him.

One final point, throughout the Sleeper document the author liberally sprinkles the names of scientists and authors who were active before, or around, 1849. Mention is made

of Lamarck, Thomas Paine, Leeuwenhoek, Edward Jenner, and the pre-Pasteur authorities and experimenters on spontaneous generation, Spallzani, Redi and Swammerdam and Schwann. Sleeper also mentions Frankenstein, the *Vestiges of Creation* and the literary figures, Munchhausen, and Brothers Grim. One name he mentions which I had to check on Google was a certain Ponce de Leon, who, it turns out, was one of Columbus' sailors who stayed on in the Americas to search for the fountain of youth, and eventually landed in Florida.

Poulton's excellent detective work seems to point to the seemingly unarguable conclusion that the Sleeper pamphlet is a forgery. Yet, the document is well-written and full of facts about both evolution and microbes. Although it appears to be a hoax, forged sometime towards the end of the 1800s, it contains numerous indications that the hoaxer is a considerable thinker and not one who is content merely to plagiarise other people's ideas. For example, as we have seen, the emphasis it places throughout on panspermia, the idea that life pervades the universe, is somewhat novel for this period. Paradoxically, had the author of the Sleeper document dated his pamphlet when it was written, in say 1900, he or she, might have come across as a truly original summarizer of the science of the time, and a far sighted thinker, rather than a mischievous hoaxer.

One final pointer to the likelihood that the Sleeper document is a forgery comes from the fact that the New England medical journals of the mid-nineteenth century were a rich source of medical gossip and criticism of any originator of new ideas. Had the Sleeper pamphlet been around in 1849, the editors and pundits on the staff of these journals would have mercilessly attacked it for its speculation on evolution, its implicit attack on the miasma theory, and for its stark atheistic sentiments.

In conclusion then, the Sleeper Document appears to be a hoax, one which can take its place alongside the more well known Piltdown Man forgery as an example of the lengths to which some people will go to deceive the scientific establishment and through them the public at large.

## References

- Anon, 1914. A remarkable anticipation of Darwin. *Nature* 93, 588–589.
- Poulton, E.B., 1913. A remarkable American work upon evolution and the germ theory of disease. Address Delivered at the Anniversary Meeting of the Linnaean Society of London, 24th May 1913 and 25th May, 1913, Boston. Harvard University Press, Taylor and Francis.
- Wainwright, M., 2003. An alternative history of microbiology. *Advances in Applied Microbiology* 52, 333–335.
- Wallace, A.R., 1913a. Letter from Wallace to Poulton, April 2. In: Marchant, J. (Ed.), *Alfred Russel Wallace Letters and Reminiscences*, vol. 2. Harper, New York, p. 109.
- Wallace, A.R., 1913b. Letter from Wallace to Poulton, June 3, 1913. In: Marchant, J. (Ed.), *Alfred Russel Wallace Letters and Reminiscences*, vol. 2. Harper, New York, p. 110.