



CHICAGO JOURNALS



History
of
Science
Society

Alfred Russel Wallace, the Origin of Man, and Spiritualism

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Source: *Isis*, Vol. 65, No. 2 (Jun., 1974), pp. 144-192

Published by: [The University of Chicago Press](#) on behalf of [The History of Science Society](#)

Stable URL: <http://www.jstor.org/stable/229369>

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Alfred Russel Wallace, the Origin of Man, and Spiritualism

By Malcolm Jay Kottler*

INTRODUCTION

IT HAS BEEN FORGOTTEN, ignored, or perhaps never known by historians of science that in the second half of the nineteenth century a considerable number of renowned scientists were favorably disposed toward such psychical phenomena as telepathy, clairvoyance, precognition, levitation, slate writing, spirit communication, spirit materialization, and spirit photography. Among the confirmed believers in the reality of these phenomena was Alfred Russel Wallace. Wallace's belief in psychical phenomena and their spiritualist interpretation should be especially interesting to the historian of biology, because it deeply influenced his evolutionary thought.

A study of Wallace's involvement with spiritualism has revealed the true origin of his well-known divergence from Darwin on the origin of man. In published papers concerning the origin of man Wallace never included among the troubling facts his or others' spiritualist experiences, yet his own conviction that natural selection was insufficient to explain the origin of man and that man's origin required the action of higher intelligences guiding the laws of organic development "in definite directions and for special ends" arose from his experiences at seances beginning in July 1865. By November 1866 he was fully convinced of the reality of psychical phenomena and for several years tried, unsuccessfully, to interest fellow scientists in joining him at seances to further investigate the phenomena. Having failed to persuade them of the validity and meaning of this new evidence concerning the nature and, indirectly, the origin of man, Wallace was forced to exclude it from his discussion of man, from the time of his first public announcement of doubts about the sufficiency of natural selection in the origin of man (1869) through the next two decades and the publication of his monumental work *Darwinism* (1889). Despite this restriction on his argument, Wallace presented a formidable case, based on considerations of utility only, against the action of natural selection alone in man's development. Only then did he introduce spiritualism into his published papers, as an explanation for those features of man found inexplicable by natural selection.

Wilma George in her biography of Wallace has made a valuable beginning in the treatment of Wallace's belief in spiritualism and its effect upon his views on the origin of man. But her discussion is incomplete, especially with regard to Wallace's published papers on the origin of man and Wallace's attempts to interest fellow scientists in

Received July 1972; revised/accepted Dec. 1973.

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necticut 06520. I thank Professor F. L. Holmes for his criticism of the first draft of this paper.



Spirit manifestation witnessed at a seance by Alfred Russel Wallace, who testified in court to his belief in it (The Sketch, May 1, 1907, p. 65).

seance phenomena and to counter their skepticism.¹ Therefore in this paper I wish to discuss Wallace's published contributions on the origin of man through *Darwinism* as well as his concern with spiritualism in the critical period 1865–1869. During this period Wallace formed his lifelong belief that Darwin's, and his own, principle of natural selection, though sufficient in the origin of *other* species,² was inadequate for the origin of man. Lastly I wish to consider the high points of Wallace's involvement with spiritualism from 1870 through his death in 1913.

WALLACE AND THE ORIGIN OF MAN (1857–1889)

About one year after he had begun his correspondence with Darwin (1857), Wallace raised the question of the origin of man. In his reply to Wallace, Darwin wrote, "You ask whether I shall discuss Man: I think I shall avoid the whole subject, as so surrounded with prejudices, though I fully admit that it is the highest and most interesting problem for the naturalist."³ H. L. McKinney has persuasively argued that Wallace was led to his belief in species transformation by means of natural selection through his interest in ethnology and the origin of man.⁴ Therefore it seems safe to conclude that in 1858, when papers on natural selection by Darwin and Wallace were jointly presented to the Linnaean Society, Wallace considered man's origin to have been by descent with modification by means of natural selection only.

¹ Wilma George, *Biologist Philosopher: A Study of the Life and Writings of Alfred Russel Wallace* (New York: Abelard-Schuman, 1964), pp. 8, 72–74, 93–94, 120, 157, 235–250, 277–278, 282, 284. James Marchant, *Alfred Russel Wallace: Letters and Reminiscences* (London: Cassel, 1916), Vol. II, pp. 181–186. The most complete discussion of Wallace's views on natural selection and the origin of man, but with little reference to his belief in spiritualism, is Loren Eiseley, *Darwin's Century* (Garden City: Anchor, 1961), pp. 287–324. Brief accounts of Wallace's involvement with spiritualism are S. Smith, "Alfred R. Wallace—Scientific Enthusiast," *Tomorrow*, 1960, 8:95–104, and N. Fodor, "Dr. Alfred Russel Wallace," in *Encyclopedia of Psychic Science* (London: Arthurs, 1933). Two invaluable treatments of psychical phenomena and research in the nineteenth century, with great relevance to Wallace's spiritualist experiences, are A. Gauld, *The Founders of Psychical Research* (New York: Schocken, 1968) and R. G. Medhurst and K. M. Goldney, "William Crookes and the Physical Phenomena of Mediumship," *Proceedings of the Society for Psychical Research*, 1964, 54:25–157. Since my paper was completed I have learned of two recent, detailed studies of Wallace's belief in spiritualism and its relationship to his views on the origin of man: F. M. Turner, "Between Science and Religion: The Reaction to Scientific Naturalism in Late Victorian England" (Ph.D. Dissertation, Yale University, 1971), pp. 79–122,

and R. Smith, "Alfred Russel Wallace: Philosophy of Nature and Man," *The British Journal for the History of Science*, 1972, 6:177–199.

² Besides the origin of man, Wallace made one other interesting exception to the all-sufficiency of natural selection. He was converted by the highly controversial experimental work of H. C. Bastian to a belief in abiogenesis and heterogenesis which acted, in lieu of natural selection, in the origin of the lower forms of life. The rate of evolution by means of natural selection was considered a function of the complexity of interactions between species, and consequently the development of the early, lower forms of life had been thought exceedingly slow. However, recent calculations of the physicists had vastly reduced the amount of time available for the evolution of *all* forms of life on earth. If natural selection alone had acted, the development of the lower forms of life would have consumed most of the time available. Wallace welcomed abiogenesis and heterogenesis because they accelerated the evolution of these lower forms and thereby freed most of the available time for the evolution of the multitude of higher forms of life. A. R. Wallace, "The Beginnings of Life," *Nature*, 1872, 6:302–303. Marchant, *Wallace*, Vol. I, pp. 273–278. Eiseley, *Darwin's Century*, pp. 233–244.

³ Marchant, *Wallace*, Vol. I, p. 133.

⁴ H. Lewis McKinney, *Wallace and Natural Selection* (New Haven: Yale University Press, 1972), pp. 80–96.

Natural selection and the mind of man, 1864

Wallace first expressed his views on the origin of man in public and in print six years later (1864). Peter Vorzimmer feels that Lyell's *Antiquity of Man* (1863) was the indirect stimulus to Wallace, while Lyell's presidential address to the summer meeting of the British Association for the Advancement of Science (BAAS) in 1864 was the direct stimulus. In preparation for his address, Lyell wrote to Wallace "as to the division of the Malay Archipelago into two regions, and the relation of this division to the races of man. . . ."⁵ Wallace rather quickly gathered together his ideas on the origin of man, for he presented a paper to the Anthropological Society of London on March 1, 1864.⁶ Wallace himself cited Herbert Spencer's *Social Statics* as the stimulus for his new ideas about man's development. Confusion surrounds the contents of this paper, because Wallace reprinted it with brief though significant modifications in a collection of essays published in 1870. Thus Vorzimmer has mistakenly dated Wallace's belief in the insufficiency of natural selection, and the necessity for divine intervention, in the origin of man to 1864 and this paper. But Eiseley, De Beer, and George have correctly noted that nowhere in the original 1864 paper did Wallace invoke anything remotely non-natural to explain man's origin. Wallace no doubt contributed to the confusion by stating, incorrectly, in his autobiography that his divergence from Darwin respecting the origin of man was "first intimated" in this 1864 paper.⁷

In the 1864 paper Wallace's leading idea was that man's mind—specifically his intellectual and moral nature—had "shielded" his body from the action of natural selection and thereby put an end to his structural change. This new cause in man's development effectively solved two major problems surrounding the origin of man: (1) did the races of man belong to one species or was each race a species in itself? and (2) why did man's body, with the exception of his skull, so closely resemble the bodies of extant apes, while his skull and mental capacities so widely diverged from those of the same apes?

The strongest evidence put forward by the so-called polygenists in answer to the first question was that remains from ancient Egyptian tombs, about five thousand years old, indicated as much difference *then* between the Negro and Semitic races as *now*. This seemingly contradicted the monogenist hypothesis that the further back in time one went the more alike the different races became until, finally, one reached the point at which man began his existence as a species on this earth and there was only one race. This contradiction was especially marked the more one restricted the age of the earth and the age of man on it. The Egyptian tomb evidence carried little weight with Wallace for two reasons. He believed that man's antiquity far antedated five thousand years and that at some distant time prior to ancient Egypt racial divergence had come

⁵ A. R. Wallace, *My Life: A Record of Events and Opinions* (London: Chapman and Hall, 1905), Vol. I, p. 417.

⁶ A. R. Wallace, "The Origin of Human Races and the Antiquity of Man Deduced from the Theory of 'Natural Selection,'" *Journal of the Anthropological Society of London*, 1864, 2: clviii–clxx. Wallace's own summary of the paper appeared in *Natural History Review*, 1864, II. 4: 328–336. John C. Greene, *The Death of Adam*

(New York: Mentor, 1961), pp. 311–315. Eiseley, *Darwin's Century*, pp. 304–309.

⁷ Wallace, *My Life*, Vol. I, p. 418 and Vol. II, p. 17. Marchant, *Wallace*, Vol. I, p. 240 and Vol. II, pp. 183–184. P. J. Vorzimmer, *Charles Darwin: The Years of Controversy* (Philadelphia: Temple University, 1970), p. 190. Gavin De Beer, *Charles Darwin: A Scientific Biography* (Garden City: Anchor, 1965), p. 214. George, *Biologist Philosopher*, pp. 71, 241.

to an end, as had nearly all structural modification in all men, because of the operation of the new cause—the mind of man. Therefore it was fully possible for the differences between human races to have remained unchanged over five thousand years but to have been increasingly smaller in earlier and earlier periods. Similarly, man's body would be only slightly different from an ape's body if this new cause, putting an end to structural change in man, had begun to act at an early stage in man's development.

Wallace illustrated the manner in which this new cause acted to suspend the influence of natural selection on man's body by comparing the survival responses of animals and man to important environmental changes. A change in climate might require a thicker fur or a layer of fat for an animal's survival. Man, in contrast, could survive by means of warmer clothing or shelter without undergoing bodily change. A change in abundance of the food species might require a change in diet and corresponding changes in bodily weaponry (claws, teeth) and internal digestive anatomy for an animal's survival. Man in an early period could survive by means of a better weapon or trap or by hunting in a (larger) group without undergoing bodily change. At the same time his possession of fire enabled him to render many different food species palatable and thereby increase the natural food supply available. Man in a later period would be independent of natural fluctuations in the abundance of a potential food species, because agriculture and domestication of animals provided him with a sure, ready food supply. Thus by means of intellect alone, man, with an unchanged body, could maintain his harmony with a changing universe and survive. Natural selection acted so powerfully on animals because the individual was isolated, on its own. With a slight injury or weakness, an individual might not survive. But man's social and sympathetic feelings checked the action of natural selection in eliminating the weaker among men. Thus by his moral nature alone, man, with an unchanged body, could survive the harsh standard imposed by natural selection on the body of every individual of an animal species.⁸

This stage in man's development having been reached, the focus of natural selection's operation shifted from man's bodily nature to his intellectual and moral nature:

. . . every slight variation in his mental and moral nature which should enable him better to guard against adverse circumstances, and combine for mutual comfort and protection, would be preserved and accumulated.⁹

The more intellectual and moral races displaced the lower and more degraded. Natural selection acted on man's mental organization and led "to the more perfect adaptation of man's higher faculties to the conditions of surrounding nature and to the exigencies of the social state."¹⁰

Quite clearly Wallace explained by natural selection the further development of man's intellectual and moral nature once it had reached a "fairly developed" stage. In the paper he did not consider the cause of the development up to the "fairly developed" stage, but in the discussion that followed presentation of the paper, Wallace expressed the belief that animals possessed an intellect, too, and argued that unless they did, one

⁸ Wallace, "Origin of Human Races," pp. clviii-clxiv, clxvi, clxix.

⁹ *Ibid.*, p. clxiv.

¹⁰ *Ibid.*, p. clxix.

faced “immense difficulty.”¹¹ In other words, Wallace sought the origin of man’s intellectual and moral nature in man’s nonhuman ancestors and considered its development to the “fairly developed” stage—at which point it became the new cause in man’s development—to have been the result of natural selection.

Wallace noted an interesting corollary of this position. If the totality of man were the product of natural selection, then the large increase in brain size in man, as compared to the apes, had to have occurred slowly, just as any other large change effected by natural selection. Since early man—that is, man whose body was still subject to natural selection—had arisen before this increase in brain size had proceeded very far, Wallace felt that traces of early man should be found in the Miocene period “when not a single mammal possessed the same form as any existing species.” If man arose in a later period—when mammals were already very similar to extant species—then man would have altered in bodily structure (for example, attained his erect posture) while animal species remained virtually constant. Yet Wallace’s entire theory held that man’s bodily structure had been constant while the bodies of animal species had changed and not *vice versa*. There was no evidence of man at such an early geological period, but the incompleteness of the fossil record from the appropriate part of the world could explain that.¹²

Wallace sent a copy of his paper to Darwin. The “Anthropologicals” had not appreciated it much, but Wallace hoped Darwin would be able to agree with him. Indeed, Darwin was: in his letter of May 28, 1864, he praised Wallace for his new “great leading idea.”¹³ However, Darwin was concerned with the prospect of another priority dispute with Wallace. Until receipt of Wallace’s paper, Darwin had not realized that once again the two of them were thinking about the same problem—this time the origin of man. Nevertheless, Darwin made an offer to Wallace of his notes on man. Wallace, in fact, had no immediate plans to write more about man and declined Darwin’s offer.¹⁴ According to Vorzimmer, Darwin was most afraid Wallace would “scoop” him on sexual selection, which Darwin had only briefly discussed in the *Origin* (1859). In his May 28, 1864, letter Darwin expressed his view that “a sort of sexual selection has been the most powerful means of changing the races of man.” And in his *Descent* (1871) he used sexual selection extensively to account for interracial differences. Wallace initially accepted the action of sexual selection in nature but, in time, rejected it. Even in May 1864 he made clear to Darwin his opinion that sexual selection had not been very important in human evolution.¹⁵ Wallace also received

¹¹ The discussion is printed in the *J. Anthropol. Soc. London*, 1864, 2: clxx–clxxxvii.

¹² Wallace, “Origin of Human Races,” pp. clxvi–clxvii; *My Life*, Vol. I, pp. 419–420. Marchant, *Wallace*, Vol. I, pp. 157–158.

¹³ Marchant, *Wallace*, Vol. I, pp. 152–155. Darwin also praised Wallace in a letter to J. D. Hooker. Greene is clearly exaggerating when he claims Darwin was “disturbed” by Wallace’s views. Darwin had qualms about minor points only and made some suggestions which Wallace

agreed to. F. Darwin and A. C. Seward, eds., *More Letters of Charles Darwin* (London: John Murray, 1903), Vol. II, pp. 31–32. Marchant, *Wallace*, Vol. I, pp. 155–158. Greene, *Death of Adam*, pp. 315–316. Kentwood D. Wells, “William Charles Wells and the Races of Man,” *Isis*, 1973, 64: 223–224. Turner, “Between Science and Religion,” p. 89.

¹⁴ Marchant, *Wallace*, Vol. I, pp. 155, 158.

¹⁵ *Ibid.*, pp. 154–155, 157. Vorzimmer, *Darwin*, pp. 191–202. Wallace, *My Life*, Vol. II, pp. 17–20.

praise from Lyell and Spencer for his leading idea, though Lyell had doubts about Wallace's inferred Miocene antiquity for man.¹⁶ So matters stood—so Wallace's friends thought—for five years.

Higher intelligences and the inadequacy of natural selection, 1869–1870

In March 1869 Wallace must have given Darwin a hint that his mind had changed about man. For on March 27, 1869, Darwin wrote to Wallace, "I shall be intensely curious to read the *Quarterly*: I hope you have not murdered too completely your own and my child."¹⁷ The *Quarterly* referred to was the forthcoming April 1869 issue in which Wallace reviewed new editions of two books by Lyell.¹⁸ At the end of his review Wallace took the opportunity to reveal his new thoughts on the origin of man. They were presented as ostensibly the result of a utilitarian analysis of man's unique features. Darwin had emphasized in the *Origin* that natural selection was a principle of utility. Natural selection could not preserve a harmful structure; indeed, the presence of such a structure in a species would be "fatal" to his theory. Furthermore, natural selection was a principle of present utility and relative perfection only; it could not provide for future use. A structure was not preserved by natural selection because it would be valuable in future generations if in the present it was valueless. In addition, there could be no accumulation of favorable variations by natural selection to provide a more efficient (perfect) structure if a less efficient structure was sufficient in the present struggle for existence.¹⁹

Wallace, in his review, considered some facts about prehistoric and savage races of man which natural selection as a principle of present utility and relative perfection was unable to explain. One such fact, characteristic of all animals (including man), was consciousness. The origin of consciousness was inexplicable to Wallace by evolution, much less natural selection. Wallace delayed treatment of this problem until 1870. The origin of man's intellectual and moral nature appeared to be as unique an event as the origin of consciousness and therefore equally inexplicable by natural selection. The development of this nature had been the direct result of the development of man's brain. Wallace's belief in phrenology left no doubt about this relationship.

Thus the large brain size in prehistoric and savage races could not be explained by natural selection, nor could three other physical features: the hand, the external form, and the organs of speech. Natural selection could not account for these four physical features, because each one was present in prehistoric and savage races in a more highly developed state than was required in the struggle for existence. As a principle of relative perfection only, natural selection could not explain these highly developed states. At least one feature (the hairlessness of man's external form) was actually

¹⁶ Marchant, *Wallace*, Vol. I, p. 158 and Vol. II, pp. 18–19. Wallace, *My Life*, Vol. I, pp. 418–419. Eiseley has noted the very favorable reception accorded Wallace's new idea by Spencer, C. Wright, J. McCosh, E. S. Morse, E. R. Lankester, and J. Fiske (*Darwin's Century*, p. 313).

¹⁷ Marchant, *Wallace*, Vol. I, p. 241.

¹⁸ A. R. Wallace, "Geological Climates and the Origin of Species," *London Quarterly Review* (American ed.), 1869, 126:187–205. R. Hooykaas, *The Principle of Uniformity in Geology, Biology*

and Theology (Leiden: E. J. Brill, 1963), pp. 115–117, 174. W. Irvine, *Apes, Angels, & Victorians* (New York: McGraw-Hill, 1955), pp. 186–187. Eiseley, *Darwin's Century*, pp. 310–312. De Beer, *Darwin: A Scientific Biography*, p. 214. George, *Biologist Philosopher*, pp. 242–246. Greene, *Death of Adam*, p. 316. The two books by Lyell were *Principles of Geology* (10th ed.) and *Elements of Geology* (6th ed.).

¹⁹ Charles Darwin, *On the Origin of Species* (London: John Murray, 1859), pp. 199–201, 204.

harmful to man and therefore could not have resulted from natural selection. Furthermore, all four features were useful to civilized man; in fact they were prerequisites for the civilized state. Therefore their presence in early man, to whom they were useless in such highly developed states, bespoke provision for future use and thus could not have been due to natural selection.

1. Brain size

Wallace believed that the brain was the organ of mind and that brain size was a sound measure of intellectual and moral capacities. Prehistoric and savage races possessed brains almost as large as those of civilized man. But the higher moral faculties, pure intellect, and refined emotions—all made possible by such a large brain—were useless to prehistoric and savage races because they bore no relation to wants, desires, or welfare. Nevertheless, these capabilities were latent because occasionally they were manifested by savage men; given enough time in civilization, these latent capabilities would become patent in living savages. But taking into account the savage's actual needs, Wallace felt natural selection could have provided a brain just "a little superior to that of an ape." There could be no doubt that man's highly developed intellectual and moral nature was useful, indeed necessary, to him in the civilized state, and so the possession by the prehistoric and savage races of the same nature, of no use to them, meant there had been provision for mankind's future. Such provision was impossible by the action of natural selection.

2. Hand

Just as the prehistoric and savage races had the same large brain as civilized man, they had the same perfect hand. But the savage had no need for such perfection and was incapable of fully using his perfect hand, so natural selection could not have provided man with his hand. (Wallace recognized that this argument extended beyond the savage to the *Quadrumana*. Apes, for example, also possessed a hand more perfect than required.) Since man's arts and sciences ultimately depended on his marvelous hand, and since these were among the chief characteristics of civilization, civilization required man's hand. Again provision for civilized man's future was apparent in the hand of the prehistoric and savage races of man.

3. External form

Wallace envisioned five aspects of external form which could not be explained by natural selection: erect posture; delicate, expressive features; marvelous beauty of form; symmetry of form; and smooth, naked skin. All were useless to prehistoric and savage man—the last positively harmful. Natural selection, consequently, could account for none. But all were essential for civilized existence. Expressiveness of face and beauty of form were essential for civilized man's refined emotions and aesthetic ideas. Naked skin, though harmful to prehistoric and savage man, was most useful to civilized man: it stimulated his inventive and constructive faculties to devise clothing and shelter and helped develop feelings of modesty and thereby contributed to man's moral nature. There was a clear sign of provision for the future in man's external form.

4. Organs of speech

Wallace had no doubt that savages were as vocally able as higher races, but the lowest savage had no use for speech. Needless to say, civilization depended absolutely

on man's power of speech. The conclusion was the same as before: natural selection could not account for the presence of the organs of speech.

If natural selection failed so completely to explain these four physical attributes of man, what explanation did exist for them? Wallace's answer was a startling one: there existed some power guiding the action of the "great laws of organic development" in definite directions, for special ends. Man's own guidance of nature for his own ends was a model for this power. Wheat, the seedless banana, breadfruit, the Guernsey milk cow, and the London dray horse—all products of artificial selection—were so like the unaided productions of nature that Wallace felt sure some

. . . being who had mastered the laws of development of organic forms through past ages [would refuse] to believe that any new power had been concerned in their production and scornfully [reject] the theory that in these few cases a distinct intelligence had directed the action of the laws of variation, multiplication, and survival for his own purposes.

Continuity with respect to effects would be observed despite a discontinuity with respect to causes. Wallace asserted that a Higher Intelligence guiding the laws of organic development for nobler ends in the case of human development was in perfect harmony with science. This was especially so because a strict utilitarian analysis of certain features of man had shown the inadequacy of natural selection to explain them.²⁰

Darwin's response was rapid and incredulous:

If you had not told me I should have thought that they had been added by someone else. As you expected, I differ grievously from you, and I am very sorry for it. I can see no necessity for calling in an additional and proximate cause in regard to Man.

Darwin marked his copy of the review with "a triply underlined 'No' and with a shower of notes of exclamation." He also wrote quickly to Lyell of his disappointment in Wallace.²¹

Wallace understood such a response, for he felt he himself would have reacted similarly to such ideas a few years before. But he was not swayed by Darwin's adverse opinion. In what he later called the most extreme statement of his position, Wallace wrote to Lyell (April 28, 1869):

It seems to me that if we once admit the necessity of *any* action beyond 'natural selection' in developing man, we have no reason whatever for confining that agency to his brain. On the mere doctrine of chances it seems to me in the highest degree improbable that so many points of structure, all tending to favour his mental development, should concur in man alone of all animals. If the erect posture, the freedom of the anterior limbs from purposes of locomotion, the powerful and opposable thumb, the naked skin, the great symmetry of form, the perfect organs of speech, and, in his mental faculties, calculation of numbers, ideas of symmetry, of justice, of abstract reasoning, of the infinite, of a future state, and many others, cannot be shown to be each and all *useful* to man in the very lowest state of civilization—how are we to explain their co-existence in him alone of the whole series of organized beings? Years ago I saw in London a bushman boy and girl, and the girl played very nicely on the piano. Blind Tom, the half-idiot negro slave, had a 'musical ear' or brain, superior, perhaps, to that of the best living musicians.

²⁰ Wallace, "Geological Climates," pp. 204–205.

²¹ Marchant, *Wallace*, Vol. I, pp. 240, 243.

F. Darwin, ed., *The Life and Letters of Charles Darwin* (London: John Murray, 1887), Vol. III, p. 117.

Unless Darwin can show me how this latent musical faculty in the lowest races can have been developed through *survival* of the fittest, can have been of *use* to the individual or the race, so as to cause those who possessed it in a fractionally greater degree than others to win in the struggle for life, I must believe that some other power (than natural selection) caused that development. It seems to me that the *onus probandi* will lie with those who maintain that man, body and mind, could have been developed from a quadrumanous animal by 'natural selection.'²²

Wallace's transformation was discussed at the summer meeting of the BAAS and reported with approval in the religious popular press.²³ In the following year (1870) Wallace elaborated on his position in two essays inserted at the conclusion of a collection of ten essays.²⁴ One of Wallace's reasons for publishing the collection was his knowledge that Darwin's *Descent* was about to appear (1871) and that on certain matters to be discussed in the *Descent* he differed from Darwin. The first of the two essays ("IX. The Development of Human Races under the Law of Natural Selection") was a reprint of the 1864 paper, for the most part unchanged. The significant change appeared at the end of the essay. In the original version Wallace had concluded with a utopian vision of the future of mankind as natural selection continued to act on man's intellectual and moral nature to produce finer and finer men:

While his external form will probably ever remain unchanged, except in the development of that perfect beauty which results from a healthy and well organized body, refined and ennobled by the highest intellectual faculties and sympathetic emotions, his mental constitution may continue to advance and improve till the world is again inhabited by a single homogeneous race, no individual of which will be inferior to the noblest specimens of existing humanity. Each one will then work out his own happiness in relation to that of his fellows; perfect freedom of action will be maintained, since the well balanced moral faculties will never permit any one to transgress on the equal freedom of others; restrictive laws will not be wanted, for each man will be guided by the best of laws; a thorough appreciation of the rights, and a perfect sympathy with the feelings, of all about him; compulsory government will have died away as unnecessary (for every man will know how to govern himself), and will be replaced by voluntary associations for all beneficial public purposes; the passions and animal propensities will be restrained within those limits which most conduce to happiness; and mankind will have at length discovered that it was only required of them to develop the capacities of their higher nature, in order to convert this earth, which had so long been the theatre of their unbridled passions, and the scene of unimaginable misery, into as bright a paradise as ever haunted the dreams of seer or poet.²⁵

²² Marchant, *Wallace*, Vol. I, pp. 243–244. Wallace, *My Life*, Vol. I, pp. 427–428. Lyell was pleased with Wallace's new position, even though he was not particularly impressed with Wallace's argument against natural selection from bodily structures. He wrote to Darwin: "I rather hail Wallace's suggestion that there may be a Supreme Will and Power which may not abdicate its function of interference but may guide the forces and laws of Nature." K. Lyell, ed., *Life, Letters and Journal of Sir Charles Lyell* (London: John Murray, 1881), Vol. II, p. 442. Hooykaas, *Principles of Uniformity*, p. 117.

²³ A. Ellegard, "Darwin and the General Reader," *Acta Universitatis Gothoburgensis*, 1958, 7:84.

²⁴ A. R. Wallace, *Contributions to the Theory of Natural Selection* (London: Macmillan, 1870). Reprinted in A. R. Wallace, *Natural Selection and Tropical Nature: Essays on Descriptive and Theoretical Biology* (London: Macmillan, 1891).

²⁵ Wallace, "Origin of Human Races," pp. clxix–clxx. See "Mr. Wallace on Natural Selection Applied to Anthropology," *The Anthropological Review*, 1867, 5:103–105.

By 1870 Wallace was doubtful about natural selection's ability to produce such a future. The mediocre were, after all, the ones who reproduced most prolifically in civilized nations despite the fact that there was an indubitable advance, "on the whole a steady and a permanent one—both in the influence on public opinion of a high morality, and in the general desire for intellectual elevation." Wallace was led to invoke an

. . . inherent progressive power of those glorious qualities which raise us so immeasurably above our fellow animals, and at the same time afford us the surest proof that there are other and higher existences than ourselves, from whom these qualities may have been derived, and towards whom we may be ever tending.²⁶

The only other relevant change in the essay was Wallace's inclusion of the words "from some unknown cause" to explain the development of man's mind from its near-animal condition to the point at which it began to shield man's body from natural selection. Therefore this essay in its new form was contradictory. It still included passages describing natural selection's accumulation of slight variations in man's intellectual and moral nature leading to ever-higher human types. But in its final paragraph it referred to an inherent progressive power of development in man's intellectual and moral nature handed down from on high. With such an inherent power, man's intellectual and moral nature was independent of external conditions and the "chance" appearance of favorable variations. Therefore it was independent of and inexplicable by natural selection.

The final essay ("X. The Limits of Natural Selection as Applied to Man") was newly written, and so it lacked the contradictions of the previous essay. In the review of Lyell's books Wallace had mentioned two fundamentally new aspects of life which natural selection could not explain. He had discussed only the origin of man in the 1869 review. In this 1870 essay he discussed both the origin of man and the origin of consciousness. Whereas Wallace had laid greatest stress in the review on physical structures of man which could not be accounted for by natural selection, he chose in the essay to emphasize man's higher intellectual and moral nature and the problems it posed for natural selection. But Wallace still believed there were physical structures, aside from the large brain which was the necessary substratum of man's intellectual and moral nature, which were not due to natural selection. Man's hairlessness was the physical feature most strongly indicative of the action of a power other than natural selection, because hairlessness was actually harmful to prehistoric and savage man. Hair in mammals protected against severe climates and was most plentiful on the back, yet the most hairless part of man's body was his back. The savage coped with his climate by covering his back, though he might not cover any other part of his body. The unmistakable conclusion Wallace drew was that the savage "missed" his hairy back and that his naked skin was detrimental to him.

Wallace could imagine some objections to this argument, but he dismissed them all. Perhaps man did not really need a hairy back because of his erect posture. Aside from leaving unexplained why man then covered his back, the objection failed to consider man's stooped posture, which exposed the back to the elements. Perhaps hair had been useful but had nevertheless been eliminated because it had been correlated

²⁶ Wallace, *Contributions*, pp. 330–331.

with a very harmful structure which natural selection had eliminated. "Correlation of growth" was one of Darwin's ways to explain the persistence of useless structures. They were physiologically linked to useful ones and thereby preserved by natural selection. Wallace in imagining this objection considered the correlation of useful and very harmful structures with the resultant elimination of both. But Wallace found it hard to believe that in man alone a correlation between hair and a harmful structure had arisen. Furthermore, even if hair had been eliminated because of correlation of growth, why did not one observe reversion to a hairy condition in colder climates once the harmful structure had been eliminated?²⁷

Certain mental and moral features of man were even more difficult to account for by natural selection. Wallace selected five: mathematical ability, ability to form abstract ideas, ability to perform complex trains of reasoning, aesthetic qualities, and moral qualities. In all cases savages possessed latent capabilities, but in no case did their needs require these capabilities. In only rare instances were these capabilities ever used. The savage did not need to form or use abstract ideas, because his language contained no words for them. The savage did not reason on any subject not appealing immediately to the senses; nor did he need to foresee beyond the simplest necessities. Six years earlier Wallace had emphasized the shielding effects of man's mind. He did not have to develop larger claws or teeth to cope with a larger prey animal; he could adapt by means of his intellect—by constructing a better spear. There was no denying that savages made and used weapons, but, in 1870, Wallace wondered if they "exhibited more mind in using them than do many lower animals." The savage seemed to function generally on the level of animal intellect. The jaguar was as ingenious and thoughtful in the capture of fish as any savage. Various behavioral traits in the wolf, jackal, fox, antelope, monkey, field mouse, beaver, and orang-utan were also indicative of as much "care and forethought bestowed by many savages in similar circumstances."²⁸

There seemed to be simply no question about the uselessness of many latent mental faculties in savages. There was no use for

. . . the capacity to form ideal conceptions of space and time, of eternity and infinity—the capacity for intense artistic feelings of pleasure, in form, colour, and composition—and for those abstract notions of form and number which render geometry and arithmetic possible.

Wallace was even doubtful that civilized man had fully employed these capabilities, so they appeared more appropriate to civilized man's future, not only the future of prehistoric man. Lastly, man's moral sense—his conscience—was utterly inexplicable on grounds of utility. The *practice* of honesty might be understandable on such grounds. But man's moral sense included the feeling of sanctity for such things as honesty. How could this feeling arise from considerations of utility? In the case of honesty it was even hard to argue that its practice resulted from its utility.

The utilitarian sanction for truthfulness is by no means very powerful or universal. Few laws enforce it. No very severe reprobation follows untruthfulness. In all ages and countries, falsehood has been thought allowable in love, and laudable in war; while, at the

²⁷ *Ibid.*, pp. 344–349. Vorzimmer, *Darwin*, p. 214. Eiseley, *Darwin's Century*, p. 314.

²⁸ Wallace, *Contributions*, pp. 340–343.

present day it is held to be venial by the majority of mankind, in trade, commerce, and speculation. A certain amount of untruthfulness is a necessary part of politeness in the east and west alike, while even severe moralists have held a lie justifiable, to elude an enemy or prevent a crime.

Wallace's conclusion was that a feeling of right or wrong in man was antecedent to any experience of utility. This feeling was then attached to certain "acts of universal utility or self-sacrifice." Therefore such a feeling, preceding experience of utility, could not be accounted for by natural selection.²⁹

A consideration of all these facts led inescapably to the conclusion of the 1869 review that some higher intelligences had been necessary for man's development. The most objectionable aspect to Wallace of this inescapable conclusion was that the laws governing the rest of the universe were then insufficient to produce the "ultimate aim and outcome of all organized existence—intellectual, ever-advancing, spiritual man." The solution, Wallace surmised, lay in the probability that these laws were also under "the controlling action of such higher intelligences."³⁰

The remainder of the essay dealt with the origin of consciousness. Wallace took issue with Huxley's belief that thoughts were the result of molecular change in protoplasm. If molecules themselves lacked consciousness, then complex arrangements of them could not produce consciousness. It is interesting in this regard to note Wallace's belief that the origin of life could be explained by complex arrangements of lifeless molecules. The difference between the two cases lay in our ability to conceive a transition from inert to vital by means of "a specific combination and co-ordination of the matter and the forces that compose the universe . . ." as contrasted to our inability to conceive such a transition from unconscious to conscious. (Wallace did not insist, though, that life had arisen in a purely physical manner; see the discussion below.) There had to be conscious beings "outside of, and independent of" matter. The addition of such beings to unconscious matter resulted in consciousness. Wallace philosophized further. Matter was an impossibility; it was really just a manifestation of force. Force, in turn, could be of two sorts: natural force and will force. The latter was apparent in the power of the will to direct natural forces in the body. A power to direct implied the exertion of force by the will. Wallace speculated that all force was really will force. If so, the universe was the will of higher intelligences or one Supreme Intelligence.³¹

Several months before the essays were published, Wallace informed Darwin of the nature of their contents. Darwin began his lament before he had a chance to read. "But I groan over Man—you write like a metamorphosed (in retrograde direction) naturalist, and you the author of the best paper that ever appeared in the *Anthropological Review*! Eheu! Eheu! Eheu!—Your miserable friend," and several weeks later, "I must add that I have just re-read your article in the *Anthropological Review* and I defy you to upset your own doctrine."³²

²⁹ *Ibid.*, pp. 351–354.

³⁰ *Ibid.*, pp. 359–360.

³¹ *Ibid.*, pp. 362, 365–368, 372 A–C. Pearson

considered Wallace's ideas a "singularly feeble contribution." K. Pearson, *The Grammar of Science* (London: J. M. Dent, 1937), p. 342.

³² Marchant, *Wallace*, Vol. I, pp. 250–251.

Wallace's critics

Instead of attempting to be complete in my survey of the critical reaction of evolutionists to Wallace's new ideas on the origin of man, I will offer a representative sampling of the nature and tone of the responses. The reviewers of Wallace's *Contributions* were very hostile to the concluding essay. Several did not bother to dispute Wallace's facts; they simply rejected outright his repugnant conclusions. The Saturday Reviewer, in fact, almost admitted that natural selection was not "a universal solvent for all the mysteries of organized being" and included among the mysteries "the stages of man's intellectual and moral progress." Nevertheless, the introduction of "some occult or spiritual agency or force in nature and man, prior and superior to all law, and exterior to the unity of cosmical order" was "parting company with science."³³

But other reviewers did criticize Wallace's facts as well as his conclusions. They denied his claim that nakedness was harmful. Both E. Claparède and A. Dohrn suggested the possibility that man had begun clothing himself before he lost his hair. Thereafter hair had become useless and was lost. Darwin in his *Descent* even tried to find utility in hairlessness: hair was harmful in the tropics where man originated, or possibly hair was harmful because it hosted ticks and other infestations. But eventually Darwin did acknowledge the strength of Wallace's case for the harmfulness of man's naked skin and finally settled on sexual selection as the cause of hairlessness, especially in females. C. Wright, contrary to Claparède and Dohrn, agreed with Wallace that nakedness preceded clothing and admitted the uselessness of man's hairless skin, but he felt this was compatible with natural selection. Wallace had overlooked the possible correlation of hairlessness with brain size and the resultant preservation of both because of the great value of increased brain size.³⁴

Huxley and Darwin differed from Wallace as to the value of a large brain to prehistoric and savage races. Huxley even quoted from another essay by Wallace in the *Contributions* to show the great mental challenges in a savage's daily life. He concluded that "in complexity and difficulty . . . the intellectual labor of a 'good hunter or warrior' considerably exceeds that of an ordinary Englishman." Wright did not deny that the savage possessed many unneeded and unused latent mental capabilities, but he wondered if the mere possession of language did not require the large brain of the savage. Dohrn's critique was rather ironic. To demonstrate the utility of a large brain to a savage, and thereby make possible its origin by natural selection, Dohrn invoked one of the supplementary hypotheses to natural selection—the inherited effect of the use and disuse of parts. He argued that if the brain were not used, it would degenerate. Since it had not degenerated, it must have been used.³⁵

Wright disputed Wallace's assertion that the practice of honesty could not have

³³ *Saturday Review*, 1870, 29:710. *Westminster Review*, 1870, 94:195. *Nature*, 1870, 2:472–473.

³⁴ E. Claparède, "Remarques à propos de l'ouvrage de M. Alfred Russel Wallace sur la Théorie de la Sélection Naturelle," *Bibliothèque Universelle de Genève*, 1870, 38:186. A. Dohrn, *The Academy*, 1871, 2:160. Charles Darwin, *The Descent of Man and Selection in Relation to Sex* (New York:Appleton, 1871), Vol. I, pp. 143–144 and Vol. II, pp. 359–362. Darwin, *The Descent* (2nd ed., New York:A. L. Burt, 1874), pp. 64–65.

C. Wright, *North American Review*, 1870, 111:292. Wallace was not impressed by Darwin's counterarguments. Marchant, *Wallace*, Vol. II, p. 31.

³⁵ T. H. Huxley, "Mr. Darwin's Critics," *The Contemporary Review*, 1871, 18:470–471. Darwin, *The Descent*, Vol. I, p. 132. L. Huxley, ed., *Life and Letters of Sir Joseph Dalton Hooker* (New York:Appleton, 1918), Vol. I, p. 130. Wright, *loc. cit.*, pp. 295–297. Dohrn, *loc. cit.*, p. 159.

arisen from experiences of utility. He sought the “uncalculating, uncompromising moral imperative” in what was good for the race, rather than in an individual’s own experience of utility. The bee sting was analogous: it was good for the species but disadvantageous (even fatal) to the individual. Nevertheless the bee sting was clearly, to Wright, within the province of natural selection. Darwin’s explanation of man’s moral nature followed the same lines. Considerations of utility to the group accounted for its origin. Man’s moral nature ultimately derived from his social instinct. Acts in the best interest of the tribe were approved and held moral, whereas acts contrary to that interest were disapproved and held immoral. Man’s conscience arose from the mental struggle which ensued when a self-beneficial act was perceived as injurious to the tribe.³⁶

Having discussed Wallace’s facts and in their own opinions refuted them, these reviewers proceeded to reject his conclusions. But a closer examination of their critiques reveals that they were not entirely satisfied with their own arguments. The next resort was *reductio ad absurdum* and ridicule. Claparède marvelled at Wallace’s inability to explain a hairless man by natural selection, since he could derive by natural selection a *hairy* mammal and a *feathery* bird from a *scaly* reptile. Furthermore, did Wallace intend to explain the hairless mammals (elephant, rhinoceros, hippopotamus, and whale) by some superior force rather than natural selection? Claparède also wondered if Wallace assumed that a higher intelligence was required to produce the singing voice of male birds, since he considered one necessary to produce the musical voices of men and especially women? Was it not more probable that sexual selection had operated in both instances: by female choice in birds and *vice versa* in man? Or as an analogy to the presumably unused but highly developed brain of the savage, Claparède pointed to the well-developed larynx of nonsinging birds and asked if Wallace intended to explain this larynx by the action of a superior force providing for future, singing birds. Was it not more reasonable to conclude that the nonsinging birds had once been singers, had lost the singing habit, but retained the larynx? Similarly, could not the savage have degenerated from a higher form of man who had used his large brain? Wright also suggested the possibility of degeneration (see below).³⁷

Dohrn and Claparède proposed that a large brain did not reflect mental power anyway. A savage could then have a large brain and yet not possess unneeded and unused capabilities. Did Wallace really think an elephant or whale was more intelligent than man? After all, they possessed larger brains than any man. Huxley must not have been entirely sure the savage was so much brighter than the ordinary Englishman, for he admitted the possibility that the savage possessed a bigger brain than his needs required. But he wondered what difference that made, for surely a porpoise possessed a bigger brain than it needed, and more surely a wolf possessed a bigger one than it needed. Would Wallace then conclude that the larger-than-necessary brain of the wolf was provision for the wolf’s future as the more intelligent dog?³⁸

Critics of natural selection like G. Buckle, A. Bennett, and the Dublin Reviewer wrote, not surprisingly, more favorably of Wallace’s new views on the origin of man. But even they had criticisms. Wallace had not gone far enough in questioning the

³⁶ Wright, *loc. cit.*, pp. 299–300. Darwin, *The Descent*, Vol. I, pp. 68–70.

loc. cit., p. 294.

³⁷ Claparède, *loc. cit.*, pp. 184–188; Wright,

³⁸ Dohrn, *loc. cit.*, p. 159. Claparède, *loc. cit.*, pp. 187–188. Huxley, *loc. cit.*, pp. 471–472.

efficacy of natural selection in nature. The clergyman evolutionist C. Kingsley felt the same way and wrote to Wallace to tell him so. Only the Edinburgh Reviewer had unqualified praise for Wallace's argument.³⁹

Wallace did not succumb to his many critics; he enjoyed controversy. He respected the contributions of Darwin and Wright, but he was repelled by Claparède's technique of ridicule, though Darwin in his *Descent* considered Claparède's critique most effective and able. In a letter to *Nature* Wallace rebutted Claparède convincingly, saying that he had failed to point out that the reptile's scales, the bird's feathers, and the mammal's hair were all adaptive. Similarly, the hairless mammals (excluding man) were not harmed in the least by the absence of hair and were protected in other ways—with a thick skin, for example. The problem for the Darwinian with respect to man was the harmfulness of hairlessness. After all, the mammoth and woolly rhino were proof that in cold climates there was reversion to a hairy condition. But this had not happened in man. In his essay Wallace had already discounted the operation of sexual selection in the origin of man's voice. Savage males did not select mates with any consideration for their voices, and savage females did not choose a mate. In the case of both sexes, sexual selection could not have acted. As for the analogy between the complex larynx capable of song in nonsinging birds and the large, unused brain of savage man, Wallace had a ready answer. There was no evidence that this larynx had ever been developed before birds began to sing. So Claparède could be right that whenever nonsingers possessed this larynx it was a sign of degeneracy. But the burden was on Claparède to prove that man's brain had become highly developed only when it had been needed—in other words to prove that prehistoric races had needed and used their large brains even though extant savages did not. Wallace had little difficulty putting his finger squarely on Claparède's main thesis: "the theory of Natural Selection *must* apply equally to man and the rest of Nature, or to neither." Against this all-or-nothing argument, Wallace remarked that Darwin had only claimed that, on analogy, plants and animals had a common origin. Wallace now turned Claparède's logic against him: "Mr. Claparède . . . would, I presume, say that, either all animals or plants must be descended from one common ancestor or, that no two species are thus descended." Despite the cogency of Wallace's refutation, Claparède's aphorism in criticism of Wallace—"man was God's domestic animal"—caught on. In an appendix to the *Contributions* Wallace tried to make clear that intelligences other than God could have been active agents in man's development.⁴⁰

Wallace's only other response to his critics appeared in a review of Darwin's *Descent*. Darwin had argued that man's physical defenselessness had been possible partly because of his large brain (and partly because of his freedom from dangerous enemies—something of a contradiction!). Therefore his brain had gradually increased in size by means of natural selection. Wallace simply could not accept this reasoning.

³⁹ G. Buckle, "Natural Selection Insufficient to the Development of Man," *Popular Science Review*, 1871, 10: 14–24. A. W. Bennett, "The Theory of Natural Selection from a Mathematical Point of View," *Nature*, 1870, 3:32–33. "Evolution and Faith," *Dublin Review*, 1871, N.S. 17:6. His Wife, ed., *Charles Kingsley: His Letters and Memories of his Life* (London:Macmillan, 1902), Vol. IV, p. 77. "Darwin on the *Descent of Man*,"

Edinburgh Review, 1871, 134:195–235. Wallace, *My Life*, Vol. II, pp. 62–63.

⁴⁰ Marchant, *Wallace*, Vol. I, pp. 253–255, 259 and Vol. II, pp. 31–32. Darwin, *The Descent*, Vol. I, p. 132. A. R. Wallace, "Man and Natural Selection," *Nature*, 1870, 3:9. Claparède, *loc. cit.*, p. 182. Wallace, *Contributions*, pp. 372–372A. *Nature*, 1870, 2:472. Pearson, *Grammar of Science*, p. 342.

Many animals had been exposed to the same external dangers as man, yet not one had developed an especially large brain. "Man could have acquired very little of his superiority by a struggle with animals." Darwin had also adopted the leading idea of Wallace's 1864 paper. Brain size increased through intergroup natural selection. But for such selection to occur, two things were required: a large population and a large area. All agreed, according to Wallace, that man's development had been restricted to a small area; otherwise he would have diverged into several species. The real problem was the vast extent of the existing differences between man and animals. In the same tone as he had written to Lyell in 1869 Wallace now concluded,

His absolute erectness of posture, the completeness of his nudity, the harmonious perfection of his hands, the almost infinite capacities of his brain, constitute a series of correlated advances too great to be accounted for by the struggle for existence of an isolated group of apes in a limited area.⁴¹

Wallace's views were well known to all by now. In only one public statement between 1871 and *Darwinism* (1889) did he refine his argument; this statement was his 1876 address to the BAAS as President of the Biology Section.⁴² In the address, Wallace made one interesting concession to his critics, but in doing so he actually strengthened his case against natural selection. Claparède and Wright had suggested that the large brain of the savage could have reflected a prior stage in man's development during which the brain had been used. The savage no longer used it but still possessed it. This deterioration or degeneration theory of the savage was common at the time, especially since it was repugnant to many that European man could have ever passed through a savage stage.⁴³ Wallace suddenly took notice of this theory when he read an address by Albert Mott delivered in 1873. Wallace was completely convinced by Mott's evidence, and a part of the BAAS address was devoted to a presentation of the degeneration theory. Mott's evidence included the works of the Easter Islanders and the American Indians. Wallace added the works of the Egyptian pyramid builders on the basis of Piazzi Smyth's numerology. All represented far greater achievements than anything in the civilizations that succeeded them. Though such a theory removed the problem of the savage's failure to use the latent capabilities of his brain, it in no way damaged Wallace's brain-size argument against the adequacy of natural selection in the origin of man.

It was now clear that man had reached a high point in his intellectual and moral development in the "very remote" past. How much time had man had to reach that point? In his 1864 paper Wallace had noted the necessity of a very great antiquity for man if natural selection alone had acted in his development. St. G. Mivart's work had shown that no one ape was any closer to man than any other ape, therefore the line leading to man must have originated before any divergence had occurred among the apes. Since there was evidence of such divergence in the Miocene, thus, in support of

⁴¹ Darwin, *The Descent*, Vol. I, p. 151. A. R. Wallace, *The Academy*, 1871, 2:182-183. Marchant, *Wallace*, Vol. I, pp. 256-260. Eiseley, *Darwin's Century*, pp. 293-295.

⁴² *Report of the Forty-Sixth Meeting of the British Association for the Advancement of Science held at Glasgow in September 1876, Transactions*, 1876:100-119. Reprinted in full in A. R. Wallace,

Tropical Nature and Other Essays (London: Macmillan, 1878), pp. 249-303. Reprinted in part in Wallace, *Natural Selection and Tropical Nature*, pp. 416-432 and as "Difficulties of Development as Applied to Man," *Popular Science Monthly*, 1876, 10:60-72. Eiseley, *Darwin's Century*, pp. 310, 312.

⁴³ Eiseley, *Darwin's Century*, pp. 297-302.

Wallace's 1864 conclusion, man must have begun his development very early, assuming natural selection alone had acted. In 1864 there was no evidence of this antiquity. Twelve years later, despite extensive explorations, the oldest known crania were still the ones discovered about thirty years before and were from a relatively recent geological period. Since they were nearly as large as modern crania, they could not have belonged to early man. These explorations had failed to unearth older remains or missing links. Wallace's ultimate conclusion was that if such evidence was not discovered, "it will be at least a presumption that [man] came into existence at a much later date, and by a much more rapid process of development." If, indeed, man's origin was more recent than the Miocene, a much shorter period existed than most envisaged for man's evolution. In a relatively short period of time, the brain of prehistoric races had to have attained near-modern size. Natural selection was totally incapable of such a feat.⁴⁴

Wallace's last statement of his belief that natural selection was insufficient to explain the origin of man, in an influential publication, appeared in *Darwinism* (1889).⁴⁵ Vorzimmer believes the timing of the publication of this work—after Darwin's death in 1882—was not an accident. With one exception Wallace had come to be more a Darwinian selectionist than Darwin. Darwin had gradually bowed before many of the criticisms of his adversaries and accordingly supplemented the action of natural selection with other processes such as sexual selection and the inheritance of acquired characters. Wallace, in contrast, had no use for these supplementary hypotheses and refused to restrict the action of natural selection.⁴⁶ The one exception was, of course, man. *Darwinism* presented the curious picture of fourteen chapters of neo-Darwinism followed by a last chapter of anti-Darwinism. In the fifteenth chapter there was one noteworthy change in Wallace's earlier position. Wallace no longer doubted that man's body, except his brain, had developed by natural selection; his disagreement with Darwin was restricted to man's intellectual and moral nature. Wallace was willing to accept Darwin's demonstration of continuity from animal to man with respect to this nature. There were rudiments of man's intellectual and moral nature throughout the animal world, and savages occupied an intermediate position between animals and civilized man. But Wallace denied that continuity proved the operation of natural selection in the origin of man's intellectual and moral nature. In his 1869 review Wallace had used the analogy of artificial selection to demonstrate that continuity of effects did not require a continuity of cause(s). In *Darwinism* he employed a geological analogy. For a long time geologists had considered only two factors modeling the surface of the earth: volcanoes and the elements. Then the action of glaciers became appreciated, an action which was perfectly continuous with that of volcanoes and the elements, but obviously involving a new agency.⁴⁷

In the case of man's intellectual faculties Wallace offered a new and independent proof of natural selection's inability to produce them. Characters developed by

⁴⁴ A. Mott, "On the Origin of Savage Life: Opening Address Read before the Literary and Philosophical Society of Liverpool, October 6th, 1873," *The Academy*, 1874, 5:66. Report, pp. 113–118.

⁴⁵ A. R. Wallace, *Darwinism: An Exposition of the Theory of Natural Selection with Some of its*

Applications (London:Macmillan, 1889). Wallace's last major work, *The World of Life* (1910), in which this belief was fully developed and extended to all of nature, cannot be considered an influential work (see discussion below).

⁴⁶ Vorzimmer, *Darwin*, pp. 210–212.

⁴⁷ Wallace, *Darwinism*, pp. 461–463.

natural selection were present in all individuals of a species and were relatively invariable. All savages had about the same running speed, bodily strength, acuteness of vision. But there were great inequalities concerning intellectual qualities among individuals. Such inequalities were incompatible with the action of natural selection. Wallace was able to draw support from another great neo-Darwinian of the day, August Weismann. Weismann could not envisage any life-or-death value attached to any of man's talents. He rejected their origin in the inherited effects of use and disuse of parts. He could only explain them as "bye-products" of the human mind. In 1870 Wright had made a similar suggestion. Wallace found this vague conception to be no explanation at all, partly because of his phrenological belief that human talents represented distinct mental faculties which corresponded to definable parts of the brain.⁴⁸

The alternative Wallace proposed in 1889 was a more developed expression of his 1869/1870 conclusions. A spiritual essence in man, capable of progressive development, was the most acceptable explanation for man's intellectual and moral nature. The fact that a new cause had acted twice before in the organic world—in the origin of life and the origin of consciousness—made it very likely that a new cause had acted a third time in the origin of man's intellectual and moral nature. There existed an unseen universe, a world of spirit. The degree of spiritual influx determined the state of living matter—unconscious, conscious, or intellectual. Wallace included in this spiritual world gravitation, cohesion, chemical force, radiant force, and electricity in order to achieve the unity he had earlier missed in nature (1870). The purpose of the world was the "development of the human spirit in association with the human body." In fact the whole universe was a "grand, consistent whole adapted in all its parts to the development of spiritual beings capable of indefinite life and perfectibility."⁴⁹

WALLACE AND SPIRITUALISM

In all his publications concerning the origin of man from 1869 through 1889 Wallace conveyed the impression that the facts adduced from a utilitarian analysis of certain unique features of man were the sole grounds for his conclusion that natural selection was inadequate to explain man's development. Wallace's belief in spiritualism had entered these publications only at the end of each as the explanation for those features of man which the utilitarian analysis had demonstrated natural selection could not account for. Wallace never suggested that his belief in spiritualism had been in any way the cause of his doubts about the efficacy of natural selection in the origin of man. But as early as the 1870s, Anton Dohrn, in his short paper "Englische Kritiker und Anti-kritiker über den Darwinismus," felt that the intense religiosity dominant among the English had ultimately been behind Wallace's divergence from Darwin. In Wallace's case this national religious conviction had been expressed through a belief in spiritualism.⁵⁰ I, too, believe that Wallace's spiritualist beliefs were the origin of his

⁴⁸ *Ibid.*, pp. 469–472. A. Weismann, *Essays upon Heredity and Kindred Biological Problems* (Oxford: Clarendon, 1891), Vol. I, pp. 96–99. Wright, *loc. cit.*, pp. 297–298. Pearson, *Grammar of Science*, p. 165.

⁴⁹ Wallace, *Darwinism*, pp. 473–477.

⁵⁰ A. Dohrn, "Englische Kritiker und Anti-kritiker über den Darwinismus," *Das Ausland*, 1871, (Nr. 49):1153–1155. A. R. Wallace, *On Miracles and Modern Spiritualism* (London: James Burns, 1875), p. vi. Wallace, *My Life*, Vol. II, p. 295.

doubts about the ability of natural selection to account for all of man. In the remainder of this paper I will discuss Wallace's involvement with psychical phenomena and spiritualism and examine how it influenced his views on the origin of man in the critical period 1865–1869.

In 1864 Wallace was firmly committed to the action of natural selection alone in the development of man. In 1869 he first expressed publicly his new point of view that natural selection was unable to explain the origin of man and that higher intelligences guiding man's development were required. Something happened between 1864 and 1869 to change his mind: the crucial event was Wallace's conversion to spiritualism. Wallace believed that spiritualism was incompatible with his earlier view (1864) that natural selection alone had acted in the development of man. Indeed, Wallace wrote to Darwin in 1869 that his new view was solely the result of his new belief in spiritualism.

Wallace's first acquaintance with the phenomena of spiritualism occurred in July 1865. Shortly thereafter Wallace began to read extensively in the spiritualist literature. Within a little more than a year (November 1866) he had become convinced of the reality of the phenomena and, not long thereafter, of their spiritualist interpretation. It is important to distinguish Wallace's belief in the reality of psychical phenomena from the spiritualist interpretation of those phenomena, because it was the incompatibility Wallace perceived between spiritualism and the origin of man by means of natural selection alone which led him to his new views on man. The alternative psychic-force interpretation would not necessarily have forced Wallace to reject his 1864 belief in the adequacy of natural selection in the origin of man, for this interpretation held that psychical phenomena resulted from the action of a previously unknown *natural* force. The interpretation was noncommittal about the existence of spirits, or even opposed their existence.⁵¹ On the other hand, according to the spiritualist interpretation, incorporeal intelligences—spirits independent of matter—were the active agents responsible for seance phenomena. Wallace rejected the psychic-force interpretation of psychical phenomena in favor of the spiritualist interpretation once he had become convinced of the reality of spirit communication and spirit manifestation. These phenomena demanded “survival” after bodily death and thereby established the existence of incorporeal intelligences and a duality of “organised spiritual form” and physical body within man. The essence of man was his spirit: “if you leave out the spiritual nature of man you are not studying man at all.” Natural selection could not explain this spirit, which possessed an inherent tendency of progressive development and the ability to interact powerfully with mind and ordinary matter “as must revolutionise [materialist] philosophy.”

Perhaps the strongest clue to the actual origin of Wallace's new views on man is a letter written to Darwin after Darwin had read Wallace's 1869 review.

⁵¹ W. Crookes, *Researches in the Phenomena of Spiritualism*, reprinted in R. G. Medhurst, coll., *Crookes and the Spirit World* (New York: Taplinger, 1972), pp. 128–129. A second valuable source on Crookes' involvement with spiritualism is E. E. Fournier d'Albe, *The Life of Sir William Crookes* (London: T. Fisher Unwin, 1923), pp.

174–239. It appears that Crookes began his formal investigation of seance phenomena as a spiritualist but emerged from the investigation unconvinced of “survival.” Then, late in life, he returned to a belief in spiritualism. Medhurst and Goldney, “Crookes,” pp. 127–133. Medhurst, *Crookes*, pp. 227–248.

My opinions on the subject have been modified solely by the consideration of a series of remarkable phenomena, physical and mental, which I have now had every opportunity of fully testing, and which demonstrate the existence of forces and influences not yet recognised by science. This will, I know, seem to you like some mental hallucination, but as I can assure you from personal communication with them, that Robert Chambers, Dr. Norris of Birmingham, the well-known physiologist, and C. F. Varley, the well-known electrician, who have all investigated the subject for years, agree with me both as to the facts and as to the main inference to be drawn from them, I am in hopes that you will suspend your judgment for a time till we exhibit some corroborative symptoms of insanity.⁵²

The remarkable phenomena referred to Wallace's experiences at seances. The forces and influences referred to the spiritual agencies responsible for the phenomena.

Wallace revealed the same truth twenty years later to another friend and fellow evolutionist while writing *Darwinism*. Wallace asked E. B. Poulton to read the proofs of the chapter on man. In his obituaries of Wallace, Poulton included Wallace's reply to his criticisms of that chapter.

Many thanks for your kindness in looking over my proofs. I will not trouble you with the last sheet, which would only horrify you still more. I am quite aware my views as to Man will be—as they have been—criticized. I have referred to Weismann's opinion further on; but I doubt if his view or yours will really account for the facts. Of course we look at the question from different viewpoints. I (think I) *know* that non-human intelligences exist—that there are *minds* disconnected from a physical brain—that there *is*, therefore, a *spiritual world*. This is not, for me, a *belief* merely, but *knowledge* founded on the long-continued observation of facts—and such *knowledge* must modify my views as to the origin and nature of human faculty.⁵³

In the two years 1867–1868 Wallace tried to interest Huxley, W. B. Carpenter, Tyndall, and G. H. Lewes in psychical phenomena but failed. Though he received encouragement from other scientist friends (H. Bates, E. B. Tylor, A. De Morgan, and R. Chambers) and willingly gave advice to interested scientists when they approached him (St. G. Mivart, and a decade later, G. J. Romanes), Wallace abandoned the role of missionary and the hope of introducing spiritualist evidence into his scientific discussions of the origin of man.

Was Dohrn right that Wallace's belief in spiritualism grew from religious prejudice? Wallace's own answer was a decided no. At the age of fourteen, after an orthodox childhood, he had become a complete materialist under the influence of two freethinking brothers. His agnosticism had grown during the course of his scientific development. At the time of his first spiritualist experiences he was "so thorough and confirmed a materialist that [he] could not at that time find a place in [his] mind for the conception of spiritual existence, or for any other agencies in the universe than matter and force."⁵⁴ But Wallace's materialism did not preclude an interest in the nature of the human mind, an interest which went back almost as far in his life as his conversion to materialism.

Mesmerism and phrenology

Wallace's fascination with the human mind began in 1844 when he was twenty-one and a teacher at a school for boys in Leicester. A Mr. Spencer Hall gave some lectures,

⁵² Marchant, *Wallace*, Vol. I, p. 244.

Society of London, 1924, 95B: xxviii.

⁵³ E. B. Poulton, *The Zoologist*, 1913, ser. 4., 17:470–471 and *Proceedings of the Royal*

⁵⁴ Wallace, *Miracles*, pp. vi–vii, 125; *My Life*, Vol. I, pp. 226–228.

with demonstrations, on mesmerism in Leicester which Wallace attended with some students. Hall assured his audience that most people could mesmerize some others. The boys took Hall at his word, tried mesmerizing each other, and once they had succeeded, invited Wallace to watch. Wallace was convinced of their success and proceeded to try out his own mesmeric powers. He, too, succeeded. Having previously read works of George Combe on phrenology, he investigated phreno-mesmerism, a lesser-known phenomenon in which the mesmerized subject responded according to the phrenological organ of the brain touched by the mesmerizer but not seen by the subject. Wallace eliminated the possibility of suggestion by keeping himself unaware of the part of the head he was touching, yet the mesmerized subject still showed the emotions and movements corresponding to the part touched. For example, Wallace's touching the organ of veneration on the head induced the mesmerized subject to drop to his knees and assume the posture of religious devotion.

Wallace got permission from the headmaster to continue his work and even gave demonstrations to his friends. His holidays were spent in London, where he took full opportunity of the multitude of public lectures on mesmerism. Wallace had no doubts about the reality of the phenomena. "Knowing by my own experience that it is quite unnecessary to resort to trickery to produce the phenomena, I was relieved from that haunting idea of imposture which possesses most people who first see them. . . ." He rightly emphasized the great personal importance of his experiments in 1844:

The importance of these experiments to me was that they convinced me, once for all, that the antecedently incredible may nevertheless be true; and, further, that the accusations of imposture by scientific men should have no weight whatever against the detailed observations and statements of other men, presumably as sane and sensible as their opponents, who had witnessed and tested the phenomena, as I had done myself in the case of some of them.⁵⁵

It should be remembered that by the mid-1840s both phrenology and mesmerism had become "heretical" to scientists. Phrenology had enjoyed success earlier in the century, but by the time of Wallace's first experiences it was no longer favorably viewed. It was Wallace's later opinion that phrenology had declined as a result of theological and metaphysical objections, the proliferation of quacks, and the association with the even more controversial subject, mesmerism. Wallace made only brief mention of physiological experiments.⁵⁶ Mesmerism was being fiercely debated at this very time, primarily because of its use in surgery. Prominent physicians were unwilling to accept the facts of mesmerism, much less the explanation of those facts by animal magnetism. Almost equally disputed were the claims of clairvoyance displayed in the mesmeric trance. Later in the century when the facts of mesmerism were widely accepted, Wallace never ceased to point out how long physicians had held out against them.

Three years after his first experiences Wallace underwent phrenological examinations by E. T. Hicks and J. Q. Rumball. Rumball had examined Herbert Spencer's head five years before (1842), but since Wallace could not afford complete studies, he settled for sketches. Nearly sixty years later he still possessed the sketches and looked back on them to check their accuracy. They were "so curiously exact in so many

⁵⁵ Wallace, *My Life*, Vol. I, pp. 232-236, 262. York: Dodd, Mead, 1899), pp. 177-181.

⁵⁶ A. R. Wallace, *The Wonderful Century* (New

distinct points as to demonstrate a large amount of truth—both in the principle and in the details—of the method by which they were produced.” The phrenologists had correctly diagnosed Wallace’s close attention to facts and his readiness to theorize upon them; his fondness for argument and slowness to be convinced; his lack of wit and of mathematical ability; his love of music, but lack of ear and sense of time; his lack of self-confidence, despite some vanity and more ambition; and his possession of concentrative powers but lack of verbal memory. The first two “combined with large *Ideality* and *Wonder* (as indicated by both phrenologists) giving a strong love of the beauties and the mysteries of nature, [furnished] the explanation of [his] whole scientific work and writings.”⁵⁷ Thus at an early age, prior to his life in science, Wallace had become acquainted with and committed to two heresies, solely on the basis of personal experience.

A year later (1848) Wallace embarked on his first voyage (South America) and was gone four years. In 1854 he was off again (to the Far East) and was gone eight more years. During this second voyage Wallace discovered the principle of natural selection, independently of Darwin. Wallace had continued to practice mesmerism on the Indians of South America during his first voyage, while during the second voyage he began to hear of the phenomena of spiritualism.⁵⁸

The beginnings of modern spiritualism are traced back to upstate New York in 1848 when mysterious rapping noises occurred in the presence of some of the children of the Fox family of Hydesville. By means of code, these raps were able to communicate intelligently and apparently about matters unknown to anyone present. The spiritualist movement spread rapidly in America and within a few years had begun to grow in England. From 1852 to 1854, when Wallace was back in England between voyages, the first American mediums were making visits to England. But spiritualism in England suffered a temporary setback in 1853 and only fully revived in 1859 when Wallace was already in the East. This setback was the work of scientists, especially Faraday, who investigated table turning, one of the most frequently observed physical phenomena of seances. In at least one instance Faraday successfully demonstrated that the motive force for the turning had come from the sitters: unconscious muscular movements from hands placed on the table had produced the turning the sitters had expected and desired. In the same year W. B. Carpenter explained the mental phenomena of seances (for example, intelligent raps) by the medium’s ability to detect unconscious muscular movements by the sitters (so-called muscle reading) when the medium was on the right track in an inquiry. Another “exposure” from this year was the clever work of G. H. Lewes, who obtained the rapped reply “Y-E-S” from the medium Mrs. Hayden to the written, but unspoken, question: “Is Mrs. Hayden an impostor?”⁵⁹

Wallace’s reaction while in the East to news of spiritualist phenomena was highly skeptical:

⁵⁷ *Ibid.*, pp. 174–177. Wallace, *My Life*, Vol. I, pp. 257–262. H. Spencer, *An Autobiography* (New York: Appleton, 1904), Vol. I, pp. 227–231.

⁵⁸ Wallace, *My Life*, Vol. II, pp. 275–276; *Miracles*, p. 124.

⁵⁹ Gauld, *Founders*, pp. 3–31, 66–87. Michael Faraday, “Experimental Investigations of Table-

Turning,” *The Athenaeum*, 1853, pp. 801–803. B. Jones, ed., *The Life and Letters of Michael Faraday* (Philadelphia: Lippincott, 1870), Vol. II, pp. 307–308. W. B. Carpenter, “Electrobiology and Mesmerism,” *London Q. Rev.*, 1853, 93: 501–557. G. H. Lewes, “The Rappites Exposed,” *The Leader*, 1853, 4:261–263.

During my eight years' travels in the East I heard occasionally, through the newspapers, of the strange doings of the spiritualists in America and England, some of which seemed to me too wild and *outré* to be anything but the ravings of madmen. Others, however, appeared to be so well authenticated that I could not at all understand them, but concluded, as most people do at first, that such things *must* be either imposture or delusion.⁶⁰

Shortly after his return to England in 1862 Wallace paid a visit, with his friend Bates, to Herbert Spencer. Both had read Spencer and were hopeful he could give some clue to the origin of life—a problem left unsolved by Darwin. They were quite disappointed by Spencer, who believed the problem

was too fundamental . . . to even think of solving at present. We did not yet know enough of matter in its essential constitution nor of the various forces of nature; and all [we] could say was that everything pointed to its having been a development out of matter—a phase of that continuous process of evolution by which the whole universe had been brought to its present condition.⁶¹

One recent biographer of Wallace has concluded that Wallace then turned to mediums and spiritualism for answers to this and other fundamental questions.⁶² It is true that eventually he found his answers in spiritualism, but from 1862 to 1865 there is no evidence of any interest by Wallace in spiritualism.

Conversion to spiritualism, 1865–1869

Nevertheless, the things he had heard intrigued him. “Being aware, from my own knowledge of Mesmerism, that there were mysteries connected with the human mind which modern science ignored because it could not explain, I determined to seize the first opportunity on my return home to examine into these matters.” The opportunity came in July 1865 when Wallace attended his first seances at the home of a skeptical lawyer friend. Only Wallace, the friend, and the friend’s family were present. There was no medium. Wallace’s notes from the time described the phenomena:

Sat with my friend, his wife, and two daughters, at a large loo table, by daylight. In about half an hour some faint motions were perceived, and some faint taps heard. They gradually increased; the taps became very distinct, and the table moved considerably, obliging us all to shift our chairs. Then a curious vibratory motion of the table commenced, almost like the shivering of a living animal. I could feel it up to my elbows. These phenomena were variously repeated for two hours. On trying afterwards, we found the table could not be voluntarily moved in the same manner without a great exertion of force, and we could discover no possible way of producing the taps while our hands were upon the table.

Wallace continued to attend seances with these friends, making “experiments” all the time to elucidate the phenomena. Wallace required one after another to leave the table. The raps continued, until finally Wallace was alone at the table and there were still “two dull taps or blows, as with a fist on the pillar or foot of the table, the vibration of which I could feel as well as hear.” Wallace was convinced there had been no deception. His notes ended, “These experiments have satisfied me that there is an unknown power developed from the bodies of a number of persons placed in connection by sitting round a table with all their hands upon it.”⁶³

⁶⁰ Wallace, *My Life*, Vol. II, p. 276; *Miracles*, p. 124.

⁶¹ Wallace, *My Life*, Vol. II, pp. 23–24.

⁶² A. Williams-Ellis, *Darwin’s Moon* (London: Blackie, 1966), pp. 183–184.

⁶³ Wallace, *Miracles*, pp. 124–127.

Wallace's first seances with a medium followed just two months later. The medium was Mrs. Marshall, the most renowned British medium from 1858 to 1868. Wallace went with skeptical friends. He now encountered mental as well as physical phenomena: the physical phenomena included table levitation and the movement of other objects in defiance of gravity; the mental phenomena included the communication of names, ages, and other particulars of the relatives of those present at the seance, presumably totally unknown to the medium. The communication was accomplished just as it had been in 1848. The letters of the alphabet were indicated and raps sounded at the correct letters to spell out the name and place of death of one of Wallace's brothers, as well as the name of the last mutual friend to see the brother. Wallace also witnessed a combined physical/mental phenomenon, a prelude to slate writing (see below). A piece of paper and a pencil were placed under the center foot of a table, and after some raps sounded, the paper was removed and a name was found written on it.

Wallace was aware of the possibility of deception and accordingly performed tests to rule it out. In the case of the table movements he investigated the furniture in advance of the seance and assured himself that they were ordinary pieces. Then he placed them wherever he pleased prior to the seance. In the case of the communications by raps, Wallace knew the capability of certain persons to detect slight, even unconscious, movements made by interested parties during the indication of letters of the alphabet. Thus he made every effort to avoid such movements. Since in one instance the medium, through the raps, spelled out the sought-for name backwards, Wallace was convinced she could not have been muscle reading. Finally, in the case of the paper and pencil, Wallace secretly marked the paper, so he knew there had been no substitution of a paper with a name written on it for the blank paper put under the table foot.⁶⁴

About this time Wallace began reading the spiritualist literature extensively and discovered to his surprise that the most reputable persons had become convinced of the reality of seance phenomena. He decided to bring together their testimony in a magazine article entitled "The Scientific Aspect of the Supernatural," which was also privately printed as a pamphlet (1866). Wallace omitted his own experiences from this piece, because he had yet to obtain evidence for the phenomena in his own home. But such evidence was not long in coming. At first the phenomena were not very impressive, but Wallace was still inclined to believe they were not produced by the efforts of those present at the seance.⁶⁵ Only in November 1866 did he and friends succeed in finding, among their numbers and in Wallace's own home, someone in whose presence conclusive phenomena occurred. The discovery of this new medium, Miss Nichol, was actually made by Wallace's sister.⁶⁶ Raps, table tilting and levitation, the production of musical sounds, and most remarkable of all the production of flowers and fruit (so-called apports) were witnessed. The most elaborate test Wallace ever instigated to rule out deception occurred with Miss Nichol at this time. To ensure that table levita-

⁶⁴ Gauld, *Founders*, pp. 71–72. Fodor, *op. cit.*, "Mrs. Mary Marshall." Wallace, *Miracles*, pp. 128–131; *My Life*, Vol. II, p. 277. At a later seance with Mrs. Marshall (1867) Wallace actually spoke to the medium's "spirit controls," the ubiquitous John and Katie King, even while the medium was out of the room. B. Coleman,

"Passing Events—The Spread of Spiritualism," *The Spiritual Magazine*, 1867, II. 2:349–350. Medhurst and Goldney, "Crookes," pp. 33–34.

⁶⁵ Wallace, *Miracles*, pp. 119, 131–132.

⁶⁶ F. Sims, "A New Medium," *Spiritual Mag.*, 1867, II. 2:49–51.

tion was not the simple result of the medium's foot lifting up the table, Wallace

. . . prepared the table before [the] second trial without telling any one, by stretching some thin tissue paper between the feet an inch or two from the bottom of the pillar, in such a manner that any attempt to insert the foot must crush and tear the paper. The table rose as before, resisted pressure downwards, as if it was resting on the back of some animal, sunk to the floor, and in a short time rose again, and then dropped suddenly down. [Wallace] now with some anxiety turned up the table, and, to the surprise of all present, showed them the delicate tissue stretched across altogether uninjured! Finding that this test was troublesome as the paper or threads had to be renewed every time, and were liable to be broken accidentally before the experiment began, [Wallace] constructed a cylinder of hoops and laths, covered with canvas. The table was placed within this as in a well, and, as it was about eighteen inches high, it effectually kept feet and ladies' dresses from the table.⁶⁷

Again the table levitated.

The apport of flowers was so marvelous that Wallace preserved the flowers and "attached to them the attestation of all present that they had no share, as far as they knew, in bringing the flowers into the room." Wallace wrote a short description of this December 1866 seance, which was published in the *Spiritual Magazine*: in all there were "15 chrysanthemums, 6 variegated anemones, 4 tulips, 5 orange berried solanums, 6 ferns, of two sorts, 1 *Auricula sinensis*, with 9 flowers—37 stalks in all." The freshness, coldness, and dewiness of the flowers precluded the possibility that they had been brought into the room by any member of the party, for over an hour had passed in a warm room before the production of the flowers. There was only one entrance to the seance room, and there was no sound of an outsider bringing in the flowers at the time of their appearance. There was some "very diffused light" which made the table visible, so any outsider should have been seen as well as heard. None was.⁶⁸

After the experiences with Miss Nichol in late 1866 and the first half of 1867, Wallace was sure of the reality of the phenomena and inclined toward their explanation on spiritualist grounds. Facts had "beaten" him.⁶⁹ He felt the same facts would affect fellow scientists similarly. The zeal with which Wallace tried in the next two years to interest scientist friends in observing the phenomena is clear evidence of the completeness of his conversion to spiritualism by 1867. I feel that Wallace's omission of the facts of spiritualism from his discussions of the origin of man was the direct result of his total failure to interest such friends. Thus it is worth examining Wallace's "missionary" efforts.

Wallace sent his 1866 pamphlet to Huxley and invited him to the weekly Friday seance Wallace held with Miss Nichol and his friends (November 1866). He felt sure Huxley would be shocked by Wallace's interest in this "new branch of Anthropology," but he wanted Huxley to see the phenomena for himself "before finally deciding that we are all mad." Huxley replied that he was not shocked; nor was he "disposed to issue a Commission of Lunacy" against Wallace. He even thought Wallace might be right. But Huxley was just not interested.

⁶⁷ Wallace, *Miracles*, pp. 133–134, 162–163.

⁶⁸ A. R. Wallace, "A Postscript to 'A New Medium'," *Spiritual Mag.*, 1867, II. 2:52. For other seances Wallace attended with Miss Nichol, see Coleman, *op. cit.*, pp. 254–255, 349; Wallace,

My Life, Vol. II, p. 292; *Miracles*, pp. 134–136, 163–164. Fodor, *op. cit.*, "Apports" and "Mrs. Samuel Guppy II."

⁶⁹ Wallace, *Miracles*, pp. vii, 125.

I never cared for gossip in my life, and disembodied gossip, such as these worthy ghosts supply their friends with, is not more interesting to me than any other. As for investigating the matter, I have half-a-dozen investigations of infinitely greater interest to me to which any spare time I may have will be devoted. I give it up for the same reason I abstain from chess—it's too amusing to be fair work, and too hard work to be amusing.

Needless to say, Wallace objected to Huxley's characterization of all seance phenomena as "gossip."

As for the "gossip" you speak of, I care for it as little as you can do, but what I do feel an intense interest in is the exhibition of *force* where force has been declared *impossible*, and of *intelligence* from a source the very mention of which has been deemed an *absurdity*. Faraday has declared (apropos of this subject) that he who can prove the existence or exertion of force, if but the lifting of a single ounce, by a power not yet recognised by science, will deserve and assuredly receive applause and gratitude. . . . I believe I can now show such a force, and I trust some of the physicists may be found to admit its importance and examine into it.⁷⁰

But Huxley never attended a seance with Wallace.

However, Huxley had previously attended seances with others and after Wallace's (rejected) invitation he attended some seances as well. At some time before 1863 he had investigated the medium Mrs. Hayden whom Lewes had "exposed" in 1853. Despite the fact that Huxley and Lewes were convinced Mrs. Hayden was a fraud, Augustus De Morgan was converted to spiritualism by her.⁷¹ In 1870 William Crookes publicly announced his intention to investigate spiritualism and a year later (1871) began to publish the results of his experiments on the new psychic force. Over twenty years before, Darwin had expressed disgust for such matters as mesmerism and clairvoyance, but after reading one of Crookes' articles he was very perplexed. He wrote: "Nothing is so difficult to decide as where to draw a just line between scepticism and credulity." Now he hoped G. G. Stokes would accept Crookes' offer to jointly investigate the phenomena.⁷²

The next year (1872) Darwin's cousin Francis Galton participated in several seances with the mediums D. D. Home and Kate Fox (one of the Fox children in 1848), which were part of Crookes' investigation of spiritualism. Galton approached spiritualism as "rubbish"; however, he was confounded and staggered by the phenomena he observed and was "very disinclined to discredit them." Galton was "convinced the affair [was] no matter of vulgar legerdemain and [believed] it well worth going into. . . ." In addition to the usual seance phenomena Galton had the opportunity to witness something totally new and "confidential." In a letter to Darwin,

⁷⁰ Marchant, *Wallace*, Vol. II, pp. 187–188. Wallace, *Miracles*, pp. 214–217. M. Faraday, "Observations on Mental Education," 1854, in E. R. Lankester, ed., *Science and Education* (London: Heinemann, 1917), pp. 39–74.

⁷¹ L. Huxley, ed., *The Life and Letters of Thomas Henry Huxley* (New York: Appleton, 1901), Vol. I, p. 451. S. E. De Morgan, ed., *Memoirs of Augustus De Morgan* (London: Longmans, Green, 1882), pp. 221–222. Wallace, *Miracles*, pp. 83–84. Fodor, *op. cit.*, "Dr. Robert Chambers" and "Mrs. W. R. Hayden." Gauld, *Founders*, pp. 67–68.

⁷² Francis Darwin, ed., *The Life and Letters of Charles Darwin*, Vol. I, pp. 373–374. Darwin and Seward, eds., *More Letters of Charles Darwin*, Vol. II, p. 443. Medhurst, *Crookes*, pp. 41–42. The date of Darwin's letter to Lady Derby is probably Oct. 1871 rather than 1874 as suggested by Darwin and Seward. In Jan. 1872 Darwin wrote to Galton, "Have you seen Mr. Crookes? I hope to Heaven you have, as I for one should feel entire confidence in your conclusion." K. Pearson, ed., *The Life, Letters and Labours of Francis Galton* (Cambridge: Cambridge University Press, 1924), Vol. II, p. 147.

Galton wrote

What will interest you very much, is that Crookes has needles (of some material not yet divulged) which he hangs *in vacuo* in little bulbs of glass. When the finger is *approached* the needle moves, sometimes (?) by attraction, sometimes by repulsion. It is not affected at all when the operator is jaded but it moves most rapidly when he is bright and warm and comfortable after dinner. Now different people have different power over the needle and Miss F. [medium] has extraordinary power. I moved it myself and saw Crookes move it, but I did not see Miss F. (*even* the warmth of the hand cannot radiate through glass). Crookes believes he has hold of quite a grand discovery. . . .

This discovery was Crookes' radiometer. Judging from Galton's comment that the medium had the most power over the needle, it would seem as if Crookes and Galton initially considered the motion of the radiometer needle as evidence of a psychic force. Galton hoped that Darwin would join him in an investigation of psychical phenomena in which just the two of them and the medium Home would be present. The investigation never took place.⁷³

Darwin finally did attend a seance in January 1874 with the medium C. Williams, at the home of one of his sons. Lewes and his wife (George Eliot) were present along with Darwin's cousins Hensleigh Wedgwood (a spiritualist) and Galton. After a while Darwin became hot and tired, and so he left to rest before the astounding phenomena took place. All sorts of objects jumped about the room (Galton called it a good seance). Afterwards, Darwin "came downstairs, and saw all the chairs, &c., on the table, which had been lifted over the heads of those sitting round it." Darwin was puzzled; nevertheless he declared, "The Lord have mercy on us all, if we have to believe in such rubbish." About a week later a smaller, more carefully organized seance was held with Williams. Huxley attended incognito, and though he did not publicly expose the medium to the other sitters, he and George Darwin were completely satisfied Williams was a cheat and imposter. Darwin was pleased and relieved by Huxley's account. "Now to my mind an enormous weight of evidence would be requisite to make one believe in anything beyond mere trickery. . . ."⁷⁴

After Huxley's refusal Wallace invited W. B. Carpenter to a seance. Wallace could not guarantee anything on the first visit, and so he hoped Carpenter would come at least six times. Carpenter did come once to a seance with Miss Nichol at which there were some weak raps but nothing else. Carpenter was passive throughout the seance and never returned.⁷⁵

Wallace turned next to Tyndall. In 1864 Tyndall had attended his first seance after Faraday, besieged by spiritualists since 1853, had refused an invitation but then transferred it to Tyndall. Tyndall's account of the seance is very amusing and, if reliable (Wallace had doubts), illustrates the extreme credulity of some nineteenth-

⁷³ Pearson, ed., *Life of Galton*, Vol. II, pp. 63–65; also pp. 53, 66. Medhurst and Goldney, "Crookes," p. 95.

⁷⁴ F. Darwin, ed., *Life of Darwin*, Vol. III, pp. 186–188. L. Huxley, ed., *Life of Huxley*, Vol. I, pp. 452–456. H. Litchfield, ed., *Emma Darwin, A Century of Family Letters 1792–1896* (London: John Murray, 1915), Vol. II, pp. 216–217. Marchant, *Wallace*, Vol. II, p. 198.

⁷⁵ Wallace, *My Life*, Vol. II, p. 278; *Miracles*, p. 225. Carpenter had attended one seance about a year before (Dec. 1865) with Wallace at the home of Mr. Marshman. Samuel Butler, who was also present, thought it was "transparent humbug." He noted Wallace swallowed everything, while Carpenter was properly contemptuous. H. F. Jones, *Samuel Butler: Author of Erewhon* (London: Macmillan, 1919), Vol. I, pp. 126–127, 316–318. Wallace, *My Life*, Vol. II, pp. 296–298.

century seance sitters.⁷⁶ Tyndall's response to Wallace's pamphlet was not promising: he read it with "deep disappointment" and continued,

I see the usual keen powers of your mind displayed in the treatment of this question. But mental power may show itself, whether its material be facts or fictions. It is not lack of logic that I see in your book, but a willingness that I deplore to accept data which are unworthy of your attention. This is frank—is it not?

Tyndall replied to Wallace's seance invitation by asking permission to investigate the phenomena just as he would "in other departments of nature." Wallace gave his permission but asked Tyndall to sit passively for two or three seances with Miss Nichol and *then* apply whatever tests he chose. Tyndall came but ignored Wallace's requests. He insisted on sitting at a distance from the table and joked with the fun-loving Miss Nichol. There were raps, but Tyndall wanted something more remarkable. Nothing more happened and Tyndall, like Carpenter, never returned.⁷⁷

Wallace's last try was Lewes, to whom he also sent his pamphlet. Lewes was very busy and, because of his previous negative experience, incredulous. But he reluctantly agreed to come if he could fully investigate and bring someone like Spencer. As with Tyndall, Wallace agreed to these conditions as long as Lewes sat passively at the first seance. Lewes never came at all.⁷⁸

Wilma George has commented that Wallace's insistence on passivity at the first few seances played into the hands of (fraudulent) mediums who tried to determine the attitudes and critical powers of the seance sitters before engaging in any trickery. Once a medium discovered an investigative nonbeliever at the seance, the phenomena presumably stopped to avoid exposure. It is true that such practices existed among mediums. But Wallace's request was not completely unreasonable. Galton concurred, "I really believe the truth of what they [mediums] allege, that people who come as men of science are usually so disagreeable, opinionated and obstructive and have so little patience, that the seances rarely succeed with them." The refusal of Wallace's scientist friends to abide by his request reflected their a priori skepticism or disbelief more than an objective desire to freely investigate.⁷⁹

In May 1868 Tyndall wrote to the *Pall Mall Gazette* about the medium Home, the most famous medium of modern times. Home had never been exposed. Tyndall claimed that Home had only escaped exposure by avoiding investigations by scientists. In 1861 Faraday had agreed to attend seances with Home. The seances were never held, because, according to Tyndall, Home had refused to participate. Tyndall's charge precipitated a month-long interchange between spiritualists, including Home, and skeptics. Home, in fact, had never been aware of the proposition. Faraday had agreed to investigate, but only if Home would agree to certain conditions such as

7. If the effects are miracles, or the work of spirits, does he [Home] admit the utterly contemptible character, both of them and their results, up to the present time, in respect either of yielding information or instruction, or supplying any force or action of the least value to mankind?

⁷⁶ J. Tyndall, "Science and the 'Spirits'," *Fragments of Science for Unscientific People* (New York: Appleton, 1871), pp. 402–409. Wallace, *Miracles*, pp. 144–145. F. Podmore, *Modern Spiritualism* (London: Methuen, 1902), Vol. II, p. 147. Fodor, *op. cit.*, "Mrs. Newton Crosland."

⁷⁷ Wallace, *My Life*, Vol. II, pp. 278–281; *Miracles*, p. 225.

⁷⁸ Wallace, *My Life*, Vol. II, p. 281.

⁷⁹ George, *Biologist Philosopher*, p. 248. Pearson, ed., *Life of Galton*, Vol. II, pp. 64–65.

Robert Bell, who, through Emerson Tennent, had made the proposal to Faraday, then broke off negotiations since Faraday was not approaching the matter with the proper attitude. Tyndall proceeded to make an offer to investigate Home under the same conditions Faraday had. Lewes eventually joined the correspondence, claiming that mediums evaded investigations by scientists because scientists had successfully demonstrated how tables were turned, raps were sounded, and ropes were untied, in perfectly normal ways. Lewes suggested that Tyndall sit with any medium one time and propose three questions to decide the whole matter.⁸⁰

Wallace was quite upset by the letters from Tyndall and Lewes, because he had invited them to investigate Miss Nichol the preceding year. They, not the medium, had been guilty of evasion. Wallace wrote to the *Pall Mall Gazette* stating that one reputable scientist, Cromwell Varley, had already investigated Home and satisfied himself of the absence of fraud. Seeking to put an end to the correspondence, the editor of the *Pall Mall Gazette* refused to publish Wallace's letter. Wallace promptly castigated Lewes for publishing in a journal which refused critical replies. In the end Tyndall did learn through Wallace of Varley's investigations. During the *Pall Mall Gazette* dispute Tyndall had written to Wallace about the possibility of Varley's performing some tests at a seance. Wallace forwarded Tyndall's letter to Varley but questioned rightly the decisiveness of a single test, positive or negative, as proposed by Tyndall and Lewes. Wallace recognized that no single case was conclusive, but he insisted that many cases had survived scrutiny.

During the last two years I have witnessed a great variety of phenomena under such varied conditions that each objection as it arose was answered by other phenomena. The further I inquire, and the more I see, the more impossible becomes the theory of imposture or delusion. I *know* that the facts are real natural phenomena, just as certainly as I know any other curious facts in nature.⁸¹

The reaction of scientists to Crookes' investigations in the early 1870s confirmed Wallace's skepticism about Tyndall's sincerity.

When Mr. Crookes . . . first announced that he was going to investigate so-called spiritual phenomena, many public writers were all approval; for the complaint had long been that men of science were not permitted by mediums to inquire too scrupulously into the facts. One expressed "profound satisfaction that the subject was about to be investigated by a man so well qualified;"—another was "gratified to learn that the matter is now receiving the attention of cool and clear-headed men of recognised position in science;"—while a third declared that "no one could doubt Mr. Crookes' ability to conduct the investigation with rigid philosophical impartiality." But these expressions were evidently insincere—were only meant to apply, in case the result was in accordance with the writers' notions of what it ought to be. . . . But when the judge, after a patient

⁸⁰ The correspondence in the *Pall Mall Gazette* extended from May 5 through May 25, 1868. Letters from Tyndall appeared on May 5, 7, 9, 18, and 25; from Home on May 6 and 11; from others on May 12, 16, 19 (Lewes), 20, 21, and 22 (editorial). Most of the correspondence was reprinted in *Spiritual Mag.*, 1868, II. 3:254–228, 325–332, 380–382.

⁸¹ Wallace, *My Life*, Vol. II, pp. 282–283, 291–293. Having received Tyndall's letter via Wallace,

Varley wrote to Tyndall describing in detail his 1860 and 1864 seances with Home. Later Varley visited Tyndall and told him that he [Tyndall] threw seance phenomena into confusion as if he were a great magnet. Crookes agreed. *Spiritual Mag.*, 1868, II. 3: 273–278. *Report on Spiritualism of the Committee of the London Dialectical Society* (London: Longmans, Green, Reader, and Dyer, 1871), p. 265. Fournier d'Albe, *op. cit.*, pp. 209–210.

trial lasting several years, decided against them, and their accepted prophet blessed the hated thing as an undoubted truth, their tone changed; and they began to suspect the judge's ability, and to pick holes in the evidence on which he founded his judgment.⁸²

Wallace's inability to interest Huxley, Carpenter, Tyndall, and Lewes in seance phenomena put a damper on his missionary zeal, but these failures in no way diminished his own interest. For his abilities as a keen observer and theoretician, plus his scientific reputation, Wallace was invited to join, in January 1869, the Committee of the London Dialectical Society to investigate the phenomena alleged to be spiritual manifestations. The committee also tried to interest Huxley, Carpenter, Tyndall, and Lewes in the investigation but fared no better than Wallace had. Huxley's letter rejecting the invitation of the committee to participate is a classic example of his sarcastic wit, style, and attitude toward spiritualism:

I regret that I am unable to accept the invitation of the Council of the Dialectical Society to cooperate with a Committee for the investigation of 'Spiritualism'; and for two reasons. . . . In the second place, I take no interest in the subject. The only case of 'Spiritualism' I have had the opportunity of examining into for myself [the mediumship of Mrs. Hayden], was as gross an imposture as ever came under my notice. But supposing the phenomena to be genuine—they do not interest me. If any body would endow me with the faculty of listening to the chatter of old women and curates in the nearest cathedral town, I should decline the privilege, having better things to do. And if the folk in the spiritual world do not talk more wisely and sensibly than their friends report them to do, I put them in the same category. The only good I can see in a demonstration of the truth of 'Spiritualism' is to furnish an additional argument against suicide. Better live a crossing-sweeper than die and be made to talk twaddle by a 'medium' hired at a guinea a seance.

In the report of the committee (1871) part of a paper delivered by Wallace to the entire society on various arguments against the occurrence of miracles was included. Wallace was one of the editors of the report and asked questions at the examination of some witnesses. He also witnessed many seance phenomena under test conditions when no paid mediums were present.⁸³

The critical period 1865–1869 ended with Wallace's participation on the committee. Wallace continued to demonstrate a great interest in spiritualism in the years after 1870, and I will conclude my discussion with some of the forms that interest took during the rest of Wallace's life. The years 1865–1869 prove that Wallace's belief in spiritualism was certainly not a quirk of his last years;⁸⁴ the decade of the 1870s is further testimony to that fact.

The confirmed spiritualist, 1870–1913

In 1871 Wallace attended his first seance with Home, unquestionably the most celebrated psychical medium of modern spiritualism. The year before, Crookes had begun his investigation of Home and seance phenomena, and Wallace was invited to one of these seances which occurred at the home of Miss Douglas, to whom Wallace had been introduced by R. Chambers in 1869. Since Wallace was the only one present

⁸² Wallace, *Miracles*, pp. 174–175. Cf. Medhurst, *Crookes*, pp. 35–36.

⁸³ Wallace, *My Life*, Vol. II, p. 276. *Report on Spiritualism*, pp. vi, 82–90, 183, 210, 225, 227;

229–230, 278–279 (Huxley), 266 (Carpenter), 265 (Tyndall), 230, 263–265 (Lewes). Wallace, *Miracles*, p. 214. Fodor, *op. cit.*, "Dialectical Society."

⁸⁴ Eiseley, *Darwin's Century*, p. 296.

who had never sat with Home before, he was given every opportunity to examine the phenomena. While the table levitated, Wallace personally looked underneath with a candle to be sure Home's feet were distant from any part of the table. Similarly, while Home held the top end of an accordion with one hand (placing the other hand in full view on top of the table), Wallace requested the playing of "Home Sweet Home" and observed the accordion playing a few bars of this air by itself, "a shadowy yet defined hand on the keys" at the bottom end of the accordion.⁸⁵

In 1874 Wallace was invited to contribute an article on spiritualism to the *Fortnightly Review*, a periodical founded in the 1860s by Lewes to acquaint the educated public with scientific rationalism.⁸⁶ After the publication of "A Defence of Modern Spiritualism" Wallace received invitations to seances with the well-known mediums K. Cook, W. Eglinton, and F. Monck. At these he finally began to experience the more advanced phenomena of spiritualism, including spirit manifestations.⁸⁷

The full-form materialization or manifestation of a spirit was a new seance phenomenon in the 1870s. It so happened that Mrs. Guppy (formerly Miss Nichol) whom Wallace had discovered was the first to introduce such materializations. In order to accumulate enough "energy" for the materialization of a full figure, the medium was confined to a small enclosure, the cabinet. Furthermore, since light presumably interfered with the materialization, the enclosure was kept totally dark. Eventually full figures became visible (materialized) outside the cabinet and often persisted for long periods of time, touching and conversing with the seance sitters.⁸⁸ Critics of spiritualism charged that the manifested spirits were the mediums themselves who, under the cover of total darkness, had left the enclosure to roam among the gullible sitters outside. By changing their clothes, among other things, these mediums succeeded in tricking the sitters into believing spirits had materialized from thin air. However, Wallace convinced himself that the spirits he had observed could not possibly have been the mediums in disguise. Cook had pierced ears, but the spirit materializing during her seances did not. Haxby had a shorter foot and a shorter body than his spirit, the Indian Abdullah. In Eglinton's case, a thorough and impromptu search of the medium and the room after the seance failed to produce the clothing of the spirit which Eglinton would have had to wear had the medium been the spirit.

The most amazing materializations were those few which actually occurred in light with both the medium and the materialized figure in full view together. At a seance with Monck in 1877 Wallace did indeed witness a complete materialization in daylight during which Monck and the materialized figure gradually separated to a distance of six feet before the figure was slowly reabsorbed by the medium. Though such a phenomenon no doubt appeared to others to be "midsummer madness," Wallace was convinced that under such circumstances the medium could not have been guilty of fraud. In fact, thirty years later (1907) Wallace testified in court on Monck's behalf.

Archdeacon Colley had participated in 1876 in the exposure of the medium Eglinton who, like Monck, specialized in materializations. In the same year others claimed to have exposed Monck as well, but Colley defended Monck's mediumship. Many years

⁸⁵ Marchant, *Wallace*, Vol. II, pp. 189–190. Wallace, *My Life*, Vol. II, pp. 286–287. Medhurst, *Crookes*, pp. 169–171.

⁸⁶ A. R. Wallace, "A Defence of Modern Spiritualism," *The Fortnightly Review*, 1874, *N.S.*,

15: 630–657, 785–807. Wallace, *My Life*, Vol. II, p. 295. Gauld, *Founders*, p. 63.

⁸⁷ Wallace, *My Life*, Vol. II, pp. 327–331. Marchant, *Wallace*, Vol. II, pp. 193–195.

⁸⁸ Gauld, *Founders*, pp. 79–83.

later, in 1906, Colley challenged the magician J. N. Maskelyne to duplicate Monck's materialization in good light. Maskelyne was well known for his claim that he could imitate, by trickery, all seance phenomena. Maskelyne proceeded to make good his claim on stage, but Colley was not satisfied with the performance and refused to pay Maskelyne the one thousand pounds promised in the challenge. In the lawsuit that

followed, Wallace testified that he had experienced the same phenomena described by Colley. Besides, he had seen Maskelyne's imitation and characterized it as "perfectly ludicrous" and an "absurd travesty." The court decided in Colley's favor, largely because of Wallace's support.⁸⁹ (See Fig. 1.)

Spirit photography was also a new phenomenon of mediumship in the 1870s and a development clearly related to materializations. Thus it is not surprising that the first spirit photograph taken in England, like the first materialization, occurred in the presence of Mrs. Guppy. At this time such photographs were not pictures taken of spirits visible to sitters at seances; rather, when a picture was taken in the presence of a medium, faces (even full forms) that had not been visible appeared on the photographic plates. In 1874 Wallace accompanied Mrs. Guppy to the photographer after raps at a seance alerted Wallace to the possibility of obtaining a spirit photograph of his deceased mother. The raps were prophetic, since Wallace did obtain a spirit photograph which a brother, hostile to spiritualism, agreed resembled their mother. Wallace's

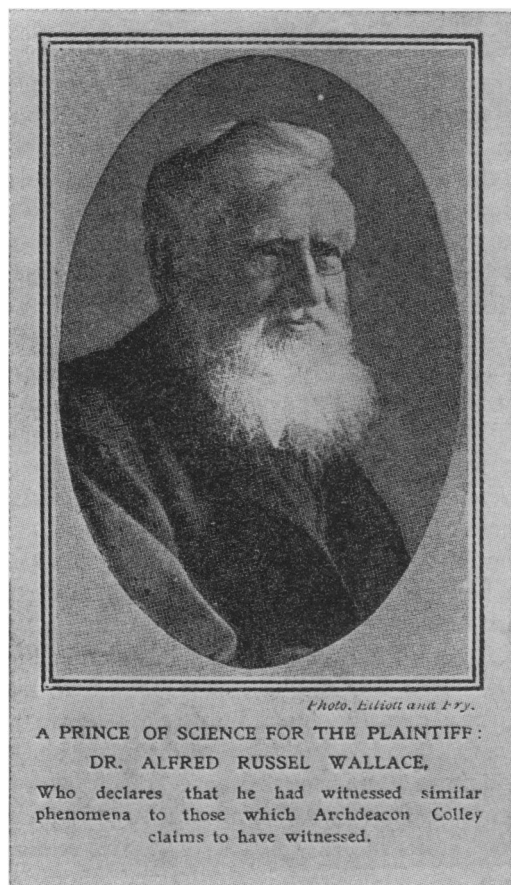


Figure 1. *Illustrated London News*, May 4, 1907, p. 673.

involvement with mediums extended beyond seances. Both Wallace's health and his son's health were poor, so Wallace visited a medium for the purpose of healing. He

⁸⁹ Trial testimony is reprinted in *The Times*, Apr. 27, 1907. "Archdeacon Colley's Challenge to the Conjurer Maskelyne" and "Archdeacon versus Conjurer—a Challenge and a Lawsuit," in *The Annals of Psychological Science*, 1906, 4: 333–335 and 1907, 5:397–398. During his testimony Wallace also "explained" the (supposed) 1876 exposure of Monck. "Monck was not caught in

the act of trickery. Monck was a guest on the occasion, and a demand was made that he should be searched, and he departed through the window" [laughter]. For photographs and sketches of the trial, see *The Illustrated London News*, 1907, 130:673 and *Proceedings of the National Laboratory of Psychological Research*, 1929, 1, pt. 2, Plt. 18. For the exposures of Eglinton and Monck and

took the medium's advice, and the conditions of father and son were, in fact, improved.⁹⁰

Wallace continued to lament the refusal of scientists to investigate the phenomena. He did advise the few who approached him. And he vigorously rebutted the published critiques of spiritualism by those friends, especially Carpenter, who had snubbed his overtures in the previous decade (1860s). St. George Mivart's interest in spiritualism apparently arose from Wallace's 1866 pamphlet. When in 1870 Mivart was going to Naples, where Mrs. Guppy was staying, Wallace happily provided a letter of introduction on Mivart's request. Mivart attended three seances at which Mrs. Guppy obliged with her specialty, the production of flowers in a closed room. Mivart was not entirely convinced, but he was favorably inclined. Wallace felt Mivart was to blame for not obtaining more conclusive results, since he had been impatient and had tried to dictate the type of phenomena. Mivart visited Lourdes four years later and wrote to Wallace of his belief in the reality of the miracles that had supposedly occurred there. But Mivart never made public his beliefs. A letter appeared in *Nature* in 1880 signed "M." in which the author wondered if brain vibrations transmitted through the ether might explain the established facts of thought transference, clairvoyance, and mesmerism. Wallace always believed "M." was Mivart.⁹¹

Wallace's most vigorous defense of spiritualism began in 1874 when his article in the *Fortnightly Review* appeared. In that article Wallace had asserted,

My position, therefore, is that the phenomena of Spiritualism in their entirety do *not* require further confirmation. They are proved, quite as well as any facts are proved in other sciences; and it is not denial or quibbling that can disprove any of them, but only fresh facts and accurate deductions from those facts. When the opponents of Spiritualism can give a record of their researches approaching in duration and completeness to those of its advocates; and when they can discover and show in detail, either how the phenomena are produced or how the many sane able men here referred to have been deluded into a coincident belief that they have witnessed them; and when they can prove the correctness of their theory by producing a like belief in a body of equally sane and able unbelievers,—then, and not till then, will it be necessary for spiritualists to produce fresh confirmations of facts which are, and always have been, sufficiently real and indisputable to satisfy any honest and persevering inquirer.⁹²

Carpenter in 1871 had vehemently attacked Crookes' psychical research. In 1875 in a new edition of his *Mental Physiology* Carpenter repeated his twenty-year-old arguments against the reality of psychical phenomena and specifically criticized Wallace. Wallace responded to the criticisms in the appendix to his book *On Miracles and Modern Spiritualism* (1875), which brought together Wallace's paper on miracles delivered to the Dialectical Society, his "The Scientific Aspect of the Supernatural," and "A Defence of Modern Spiritualism."⁹³

other seances of Monck attended by Wallace, see Fodor, *op. cit.*, "William Eglinton" and "Rev. Francis Ward Monck"; *Journal of the Society for Psychical Research*, 1889–1890, 4:143–145; *The Spectator*, Oct. 6, 1877, pp. 1239–1240.

⁹⁰ Wallace, *Miracles*, pp. 190–192. Fodor, *op. cit.*, "Frederick A. Hudson." Wallace, *My Life*, Vol. II, p. 397. Marchant, *Wallace*, Vol. II, p. 241. George, *Biologist Philosopher*, p. 157.

⁹¹ Wallace, *My Life*, Vol. II, pp. 300–305, 309–

310. M., "A Speculation Regarding the Senses," *Nature*, 1880, 21:323–324.

⁹² Wallace, *Miracles*, pp. 204–205.

⁹³ W. B. Carpenter, "Spiritualism and its Recent Converts," *London Q. Rev.* (American ed.), 1871, 131:161–189. W. B. Carpenter, *Principles of Mental Physiology* (New York: Appleton, 1875), pp. 626–627. Wallace, *Miracles*, pp. 31–32, 225–227.

In the summer of 1876 Wallace and Carpenter “clashed” again during the BAAS meeting, on the occasion of the delivery of a paper by William Barrett on thought transference in the mesmeric trance. In view of the great controversy surrounding this paper, it is worth remarking that the young physicist Barrett, once an assistant of Tyndall, was very skeptical of the reality of the more fantastic seance phenomena such as the elongation and levitation of the medium’s body. He preferred to attribute reports of such phenomena to the power of suggestion exerted by the medium upon the seance sitters.⁹⁴ Barrett had submitted his paper to the Biology Section, of which Wallace was president (see above for his presidential address). The committee of the section chose not to report on the paper but by a small majority referred it to the section’s Anthropology Department, of which Wallace was chairman. The committee of the department was also divided, but by a majority of one—Wallace’s deciding vote—the reading of the paper was approved. Carpenter arrived during the paper, and the discussion that followed was heated. Lord Rayleigh was especially active in the discussion. He had attended his first seances in 1874 after learning of Crookes’ investigation, and though he forever remained undecided as to the reality of psychical phenomena, he was convinced that ridicule of investigations of those phenomena was wrong. Since Wallace had personally witnessed some of the same phenomena as Barrett (such as phreno-mesmerism), he described his experiences with mesmerism many years before and recommended that a committee be appointed to study the phenomena. The BAAS later chose to print only the title of Barrett’s paper in its report.⁹⁵

This lively session of the otherwise rather uneventful meeting of the BAAS was vividly reported by the press and was followed by a lengthy correspondence in *The Times*. In addition to Barrett’s paper, the mediumship of H. Slade was at the heart of the debate. In the discussion of the paper Rayleigh had cited his own recent experiences with the American medium Slade, whose specialty was slate writing. In one of the more common forms, two clean slates were placed face to face with a bit of pencil in between. Eventually scratching noises were heard, and when the two slates were separated, writing or drawing was found where previously there had been nothing. Rayleigh had brought a professional conjuror to help detect any fraud in the manipulation of the slates. No fraud was detected, and the conjuror’s only contribution was the suggestion that the phenomena “might have something to do with electricity.”⁹⁶

⁹⁴ This “hallucination” explanation of observations at seances had been put forward before. In 1872 Wallace had specifically disputed it in *Nature*, arguing that it was the medium who showed all the signs of being in a trance (thus subject to suggestion), not the seance sitters, who were fully alert. A. R. Wallace, “Ethnology and Spiritualism,” *Nature*, 1872, 5:363–364. Wallace, *Miracles*, pp. 123–124.

⁹⁵ *The Times*, Sept. 13, 19 (Wallace), 20, 22, 1876. Marchant, *Wallace*, Vol. II, pp. 195–196. Only seven years later, after the formation of the Society for Psychical Research, did Barrett’s paper, “On Some Phenomena Associated with Abnormal Conditions of Mind,” appear in print: *Proceedings of the Society for Psychical Research*,

1882–1883, 1:238–244. Two years before the paper was published Barrett asked Wallace’s opinion of the card-guessing experiments done on thought transference by the Sidgwicks. The experiments had yielded mostly negative results. Wallace offered some interesting comments on the difficulties involved in the card-guessing kind of experiment. Marchant, *Wallace*, Vol. II, pp. 200–201.

⁹⁶ F. Podmore, *op. cit.*, Vol. II, p. 89. R. J. Strutt, Fourth Baron Rayleigh, *Life of John William Strutt, Third Baron Rayleigh* (augmented ed., Madison:University of Wisconsin Press, 1968), pp. 65–68, 409. Medhurst and Goldney, “Crookes,” pp. 90–94.

Just the day before the presentation of Barrett's paper, the biologist E. R. Lankester had attended a seance with Slade. Although Lankester later claimed during his lawsuit that he had gone to the seance unprejudiced, it seems as if he had for some time been intent on exposing the mediums Herne and Williams. Then in the summer of 1876 Slade came to England and immediately created a sensation. At the first seance Lankester was passive and led Slade to believe he was a believer in the phenomena. But a few days later he returned with a colleague for a second seance, at which he was sure he had detected fraud. The next day (Sept. 16) Lankester's letter to *The Times* appeared in which he exposed Slade. He also called Wallace's action on behalf of Barrett's paper "more than questionable" and said the meeting of the BAAS had been thereby "degraded." Wallace replied (Sept. 19), defending his behavior. He then described his own visit to Slade (in August) which had been "completely unlike" what Lankester presumably observed. Lankester eventually decided to bring suit against Slade. The trial, which extended through October, was of great public interest. On the last day Wallace testified for the defense, describing his three seances with Slade (two since the trial had begun!) at which he had found no evidence of imposture. But the court ruled in favor of Lankester against Slade.⁹⁷

Late in 1876 the London Institution invited Carpenter to lecture on spiritualism. The lectures when published set off a very vehement exchange of views between Carpenter and Wallace. During his dispute with Wallace, Carpenter also took up the hatchet again with Crookes. Before the battle finally ran down, over a year after it had begun, the controversy was spread across the pages of five different journals.⁹⁸

Carpenter's argument consisted of three major criticisms. (1) There was a strong a priori improbability about psychical phenomena. In such matters the judgment of sense outweighed the evidence of the senses. (2) There were many known cases of fraud, revealed by detection or confession. Similar to such cases were the imitations by

⁹⁷ For the debate over Slade's mediumship see *The Times*, Sept. 16 (Lankester), 18, 19 (Wallace), 20, 21 (Lankester and Slade), and 23 (Slade), 1876. The prosecution of Slade was reported with verbatim transcripts in *The Times* on Oct. 3, 11, 21, 23, 28, 30 (Wallace), and Nov. 1, 1876. C. C. Massey, "Translator's Preface" to J. C. F. Zöllner, *Transcendental Physics* (London: W. H. Harrison, 1880), pp. xxviii-xxxix. Houdini, *A Magician Among the Spirits* (New York: Harper, 1924), pp. 80-82. Gauld, *Founders*, pp. 124-127. A contemporary letter from George Romanes to Darwin about the Slade episode is of interest:

Lankester seems to have doubled up Slade in fine style. I suppose the latter has always trusted to his customers not liking to resort to violent methods. His defence in the "Times" about the locked slates was unusually weak. 'Once a thief always a thief' applies, I suppose, to his case; but it is hard to understand how Wallace could not have seen him inverting the table on his head. In this we have another of those perplexing contradictions with which the whole subject appears to be teeming. I do hope next winter to settle for myself the simple issue between Ghost *versus* Goose.

E. Romanes, ed., *The Life and Letters of George John Romanes* (London: Longmans, Green, 1896), p. 46.

⁹⁸ W. B. Carpenter, "Mesmerism, Odyllism, Table-Turning, and Spiritualism Considered Historically and Scientifically," *Fraser's Magazine*, 1877, N.S. 15:382-405. W. B. Carpenter, *Mesmerism, Spiritualism, &c. Historically and Scientifically Considered* (New York: Appleton, 1877). A. R. Wallace, *Quarterly Journal of Science*, 1877, N.S. 7:391-416. W. B. Carpenter, "Psychological Curiosities of Spiritualism," *Fraser's Mag.*, 1877, N.S. 16:541-564, 806. A. R. Wallace, "Psychological Curiosities of Scepticism," *Fraser's Mag.*, 1877, N.S. 16:694-706. W. B. Carpenter, *Nature*, 1877, 16:546-547 and *Nature*, 1877, 17:8-9, 26-27, 81, 122-123. A. R. Wallace, *Nature*, 1877, 17:8, 44, 101. W. B. Carpenter, "The Curiosities of Credulity," *The Athenaeum*, Dec. 22, 1877, pp. 814-815 and "The Psychological Curiosities of Credulity," *Athenaeum*, Jan. 26, 1878, p. 122. A. R. Wallace, "The Curiosities of Credulity," *Athenaeum*, Jan. 12, 1878, pp. 54-55 and "The Psychological Curiosities of Credulity," *Athenaeum*, Feb. 2, 1878, p. 157.

conjurers of the phenomena of seances, which suggested the possibility of fraud where it had not yet been demonstrated. (3) There were many negative results in the investigations of mediums. Wallace's rejoinders to these three points were: (1) Every time in the past when scientists had asserted the improbability or impossibility of certain facts history had proven them wrong. (2) In some instances there was fraud or deception, but the exposure of one medium or even many mediums was not the exposure of all. A medium was innocent of fraud until proven guilty. Conjurers usually produced crude imitations and even then elaborate apparatus and advance preparation were required. There was no evidence of such apparatus or preparation when the real phenomena occurred at seances. (3) One positive result outweighed one thousand negative results. Since the phenomena were delicate and uncertain, there was no guarantee of success in every investigation. But not all investigations had failed: there were positive results which investigation had shown were not due to fraud.

In the 1880s Wallace was much less actively involved with spiritualism. But he did have one interesting encounter with a fellow scientist which began in the first year of the new decade. The letter to *Nature* signed "M." (discussed above) was answered by a letter signed "F. R. S." who was not sure that any psychical phenomena had been as well established as "M." had claimed. Therefore he wanted to study the phenomena, and he asked for help from the readers of *Nature* in carrying out this study. Since Wallace had helped found *Nature* and by 1880 had contributed over fifty pieces, it was no surprise that he read the letter from "F. R. S." and responded to it. "F. R. S." turned out to be George J. Romanes. Romanes and Wallace had never met before, and so it is of some interest that the first meeting of these ardent foes in the dispute—during the last two decades of the nineteenth century—over the sufficiency of natural selection in the origin of species was due to their common interest in psychical phenomena. Wallace pointed out to Romanes that the kind of study he wanted to carry out had already been done and warned Romanes that "he was rather sanguine in thinking that any experiments of his would convince the scientific world, or that they would even condescend to witness and test them. . . ." Romanes did not expect any one investigation to convince fellow scientists nor did he feel any one should, but he had had a few personal experiences and he mainly wanted to satisfy his own mind on the subject. Wallace and Romanes met and discussed Romanes' experiences with a relative who had considerable mediumistic powers.⁹⁹

Romanes had obtained, in fact, much more evidence concerning psychical phenomena and had been much more impressed by it than he admitted to Wallace. In two letters to Darwin four years before (1876) Romanes had discussed his experiences with and without a paid medium. He had received a communication from what he believed had to be a nonhuman intelligence, from which he concluded there were spiritual intelligences, minds without brains. He also described physical phenomena at a seance with the medium Williams.¹⁰⁰ Thus Romanes like several other of Wallace's acquaint-

⁹⁹ F.R.S., " 'A Speculation Regarding the Senses,' " *Nature*, 1880, 21:348. Wallace, *My Life*, Vol. II, pp. 310–315. *J. Soc. Psychical Res.*, 1889–1890, 4:212–213.

¹⁰⁰ Wallace, *My Life*, Vol. II, pp. 317–318. Since Darwin had become convinced a few years before that Williams was a fraud, his response

to Romanes' experiences was unenthusiastic. "About the other subject (never mentioned to a human being) I shall be glad to hear, but I fear that I am a wretched bigot on the subject." The subject was, of course, spiritualism. Romanes' wife later wrote "[Romanes] worked a good deal at spiritualism for a year or two, and he never

ances had been extremely reluctant to admit private thoughts on the heretical subject of spiritualism. Besides Mivart, Wallace knew the same to be true of the geologists W. Pengelly and D. T. Ansted.¹⁰¹

Wallace was quite surprised to learn a year later of Romanes' attempt to explain the success of a popular thought-reader, Washington Irving Bishop, by muscle reading. Bishop had begun his career as a conjuror with a vengeance against mediums, and presumably he had come to England in 1881 in the same capacity. Romanes reported that Bishop was open to any explanation of his powers, so perhaps he was beginning to think he was a medium. In the pages of *Nature* Romanes took on Carpenter, whom he believed was giving the scientists' stamp of approval to Bishop. Carpenter only regretted that Bishop had not performed his more baffling mind-reading feats before Romanes and the others (including Galton and Lankester) who were investigating him.¹⁰² Perhaps Wallace would have been less surprised had he known of a letter Romanes wrote to Darwin shortly after the meeting with Wallace:

I had never spoken to Wallace before, but although I passed a very pleasant afternoon with him, I did not learn anything new about Spiritualism. He seemed to me to have the faculty of deglutition too well developed. Thus, for instance, he seemed rather queer on the subject of astrology! and when I asked whether he thought it worthy of common sense to imagine that, spirits or no spirits, the conjunctions of *planets* could exercise any causative influence on the destinies of children born under them, he answered that having already 'swallowed so much', he did not know where to stop!!¹⁰³

There was one more act in this curious episode between Wallace and Romanes. In 1886 Romanes first put forth his personally prized theory of physiological selection. Wallace engaged in a lengthy dispute with Romanes over the theory, which denied to natural selection the power of originating species in polytypic (branching) evolution, giving it only the power of accounting for adaptations. In one of the exchanges, after the publication of Wallace's *Darwinism*, Romanes contrasted the two Wallaces he saw in that work. The Wallace of the final chapter on man was "the Wallace of spiritualism and astrology, the Wallace of vaccination and the land question, the Wallace of incapacity and absurdity."¹⁰⁴ Wallace did not reply publicly, but he did privately. He informed Romanes he did not believe in astrology and revealed his knowledge of the

could assure himself that there was absolutely nothing in spiritualism, no unknown phenomena underlying the mass of fraud, and trickery, and vulgarity which have surrounded the so-called manifestations." E. Romanes, ed., *Life of Romanes*, pp. 60–61, 48–49.

¹⁰¹ Wallace, *My Life*, Vol. II, pp. 332–333, 314.

¹⁰² *Ibid.*, p. 315. G. J. Romanes, "Thought Reading," *Nature*, 1881, 24: 171–172 and "Dr. W. B. Carpenter and Mr. W. I. Bishop," *Nature*, 1881, 24: 211. W. B. Carpenter, "Psychological Curiosities of Spiritualism," *Fraser's Mag.*, 1877, N.S. 16: 554–556 and 559–560 and "Re W. I. Bishop," *Nature*, 1881, 24: 189. E. Romanes, ed., *Life of Romanes*, pp. 119–120.

¹⁰³ E. Romanes, ed., *Life of Romanes*, p. 97. Three years before (1877), Romanes had written to Darwin in the same skeptical spirit about seance phenomena (*ibid.*, p. 66):

Possibly the microscope may show something and so I have asked Schäfer to come down, who, as I know from experience, is what spiritualists call a 'sensitive'—I mean he can see ghosts of things where other people can't. But still, if he can make out anything in the jelly of Aurelia, I shall confess it to be the best case of clairvoyance I ever knew.

R. D. French, "Darwin and the Physiologists, or the Medusa and Modern Cardiology," *Journal of the History of Biology*, 1970, 3: 253–273.

¹⁰⁴ G. J. Romanes, "Darwin's Latest Critics," *The Nineteenth Century*, 1890, 27: 831. See also G. J. Romanes, "Mr. Wallace on Darwinism," *Contemp. Rev.*, 1889, 56: 245–246 and G. J. Romanes, *Darwin and after Darwin II. Post-Darwinian Questions Heredity and Utility* (Chicago: Open Court, 1897), pp. 20–34. Wallace, *My Life*, Vol. II, p. 317.

two 1876 letters from Romanes to Darwin, which he had been shown during his North American trip (1887), much to Romanes' amazement and chagrin. What, then, Wallace retorted, about the Romanes of "incapacity and absurdity"?¹⁰⁵

The Society for Psychical Research was founded in 1882, and Wallace was one of its early members. His participation, however, was always very limited. He repeatedly rejected suggestions from William Barrett that he make himself available for the society's presidency, because he feared that his reputation as a "crank" and "faddist" would injure the reputation of the new society. Wallace's reluctance to accept the presidency did not mean he was ashamed of his belief in spiritualism. When once asked "whether he believed that light and proof would come from occultism," he responded, with a smile, "Why are you afraid of the term spiritualism? . . . I am a spiritualist, and I am not in the least frightened of the name!"¹⁰⁶ Wallace became very much concerned about the skepticism of many of the society's members. He was also dissatisfied with the manner in which they conducted their investigations. They treated mediums as if they were on trial and applied their own conditions from the beginning of the investigations; instead they should have treated the mediums with consideration and patiently followed "the advice of the intelligence" working through them. Crookes had proceeded in this latter way and successfully obtained "striking results, under the most stringent conditions and subject to the most varied tests." But members of the Society for Psychical Research had obtained few results using their own methods and had frequently become convinced the mediums were impostors. Wallace was always skeptical of many claims of exposure and, in fact, all of his communications to the society were defenses of the legitimacy of suspected mediums.¹⁰⁷

Wallace's involvement with spiritualism did momentarily increase during his 1886/1887 trip to the birthplace of spiritualism—America. He was engaged in many discussions of the subject with Oliver Wendell Holmes, William James, Elliott Coues, and others. He attended seances in Boston, Washington D.C., and San Francisco, where he delivered a popular lecture entitled "If a Man die, shall he live again?" The trip led directly to Wallace's last publications on the phenomena of spiritualism—two articles for the Boston *Arena* on recent evidence for apparitions. These were incorporated, four years later, into the third edition of *Miracles and Modern Spiritualism*.¹⁰⁸

With the exception of the American trip, Wallace attended very few seances after 1880. But in 1896 he was visited by a medium while ill and given a seance. The medium's "controls" made several predictions all of which seemed highly improbable to Wallace because of his poor health. But all three were fulfilled once Wallace's health improved. Needless to say, Wallace could not imagine the possibility of chance fulfillment.

¹⁰⁵ Marchant, *Wallace*, Vol. II, 215. Wallace, *My Life*, Vol. II, pp. 317–326.

¹⁰⁶ Marchant, *Wallace*, Vol. II, pp. 208, 210–211. H. Begbie, "Master Workers XVII. Dr. Alfred Russel Wallace," *The Pall Mall Magazine*, 1904, 34: 76.

¹⁰⁷ Marchant, *Wallace*, Vol. II, p. 204. Wallace, *My Life*, Vol. II, p. 294. *J. Soc. Psychical Res.*, 1887–1888, 3: 273–288, 313–317; 1889–1890, 4: 143–144; 1891–1892, 5: 43; 1893–

1894, 6: 33–36; 1899–1900, 9: 22–30, 56–57. *Proc. Soc. Psychical Res.*, 1899, 14: 373.

¹⁰⁸ Wallace, *My Life*, Vol. II, pp. 115, 117, 160, 210, 213, 337–349. George, *Biologist Philosopher*, pp. 235–236. A. R. Wallace, "Psychography in the Presence of Mr. Keeler," *Psychical Review*, 1891, 1: 16–18. *Arena*, 1890–1891, 3: 129–146, 257–274. At this same time (1892), Wallace contributed the article "Spiritualism" to the 10th ed. of *Chambers' Encyclopedia* (Philadelphia: Lippincott, 1892), Vol. IX, pp. 645–649.

“There’s a divinity that shapes our ends, rough-hew them as we will;” and those who have reason to know that spiritual beings can and do influence our thoughts and actions, will see in such directive incidents as these examples of such influences.¹⁰⁹

Spiritualism was, to Wallace, the science of the spiritual nature of man, but during the second half of his life spiritualism also became his religion. Wallace found in spiritualism much more than an explanation for various human features that natural selection could not account for. But I do not believe Wallace’s initial involvement with matters of the human mind, including spiritualism, was motivated by religious sentiment. Unquestionably his readiness to investigate seance phenomena resulted from his experiences with phrenology and mesmerism in the 1840s; he refused to dismiss seance phenomena as a priori impossible, as incredible as they might seem, because of these early experiences. Wallace was emphatic that his acceptance of the reality of psychical phenomena as undisputed facts was the product of his investigation of those phenomena. Yet at first Wallace hesitated to accept the spiritualist interpretation of those facts: there was “no place in [his] fabric of thought” for spirits. However, more facts “beat” him. The reality of spirit communication and spirit manifestation convinced Wallace of the existence of spirits and revealed to him the nature of spirit life. Wallace insisted that a fear of death had not pressured him to accept the spiritualist interpretation which contended that man’s spirit survived his bodily death.¹¹⁰

Nevertheless, having accepted this spiritualist interpretation because of undeniable facts, Wallace received great solace from it. His belief in spiritualism relieved him

... from the crushing mental burthen imposed upon those who—maintaining that we, in common with the rest of nature, are but products of the blind eternal forces of the universe, and believing also that the time must come when the sun will lose his heat and all life on the earth necessarily cease—have to contemplate a not very distant future in which all this glorious earth—which for untold millions of years has been slowly developing forms of life and beauty to culminate at last in man—shall be as if it had never existed; who are compelled to suppose that all the slow growths of our race struggling towards a higher life, all the agony of martyrs, all the groans of victims, all the struggles for freedom, all the efforts towards justice, all the aspirations for virtue and the well-being of humanity, shall absolutely vanish, and, “like the baseless fabric of a vision, leave not a wrack behind.”¹¹¹

Furthermore, the moral teachings of spiritualism were eagerly welcomed by Wallace, since they complemented the ethical code he already adhered to. These teachings were primarily derived from trance-speaking mediums who were presumably in communication with spirits of the dead.¹¹² Wallace was an extremely high-minded, ethical individual. Clear signs of his deep concern for the plight of his fellow human beings are discernible from his early life. Eventually this concern was expressed in Wallace’s ardent advocacy of such social heresies as land nationalization, socialism, and anti-militarism.¹¹³ The Christian concept of the afterlife was unsatisfying to Wallace. He

¹⁰⁹ Wallace, *My Life*, Vol. II, pp. 234, 397–400. Marchant, *Wallace*, Vol. II, pp. 223–224.

¹¹⁰ Wallace, *Miracles*, pp. vii, 108, 125, 221; *My Life*, Vol. II, pp. 349–350. Crookes’ involvement with spiritualism began soon after the death of his brother in 1867. Fournier d’Albe, *op. cit.*, pp. 133–134. It has been suggested to me that the great personal tragedy of his brother

Herbert’s death in 1851 while both were in South America may have “driven” Wallace to spiritualism.

¹¹¹ Wallace, *Darwinism*, pp. 476–477.

¹¹² Wallace, *Miracles*, pp. 108–118, 213–223.

¹¹³ Wallace, *My Life*, Vol. I, pp. 79–105 and Vol. II, pp. 235–274. George, *Biologist Philosopher*, pp. 219–225.

rejected the meting out of rewards and punishments by an external power. This was an “arbitrary system . . . dependent on stated acts and beliefs only, as set forth by all dogmatic religions.” But Wallace found the spiritualist conception in full accord with his humanitarian ethical beliefs as well as his beliefs in “continuity” throughout nature. The happiness or misery of the spirit after death depended entirely on the extent to which an individual had exercised and cultivated his mental and moral faculties while he was alive. The spirit started, after death, from the level of intellectual and moral development attained on earth.¹¹⁴ There was a ready place for spiritualism in Wallace’s personal nature, in addition to Nature as a whole.

Wallace’s last three large works all reflected the place of spiritualism in nature. *The Wonderful Century* described the successes and failures of science in the nineteenth century. The failures included science’s lack of appreciation for phrenology, mesmerism, and psychical phenomena.¹¹⁵ Any brief discussion of *Man’s Place in the Universe* and *The World of Life* would totally fail to convey the permeating influence of Wallace’s belief in spiritualism. In these two scientific works Wallace fully incorporated that belief into the discussion of scientific issues. Consequently these works are interesting, but coming so late in Wallace’s life—past his prime—they were not influential.

Both *Man’s Place in the Universe* and *The World of Life* sought to demonstrate the existence and constant action, possibly through thought transference, of Mind throughout the universe. On earth this action prepared and provided for man.¹¹⁶ Wallace was very much impressed with the diversity in each realm of nature. He believed this diversity was only intelligible in terms of the action of a purposeful Mind guiding organic development in preparation for man’s existence on earth.¹¹⁷ In the vegetable realm Wallace considered the many kinds of wood which happened to be “so exactly suited to the needs of civilised man that it [was] almost doubtful if he could have reached civilisation without them.” But as far as Wallace could determine, the many qualities of these different kinds of wood had been unnecessary and useless to the plants from which they were derived and to the lower animals that had coexisted with them before the origin of man. In the animal realm Wallace perceived the entire course of vertebrate evolution to be preparation by a guiding Mind for man. He was especially struck by the circumstance that animals which man had eventually domesticated “should have been slowly evolved so as to reach their full development at the very time when [man] became able to profit by them. . . .” A foreseeing Mind had “so

¹¹⁴ Wallace, *Miracles*, pp. 101, 108–118, 213–223; *My Life*, Vol. I, p. 88. “A Visit to Dr. Alfred Russel Wallace, F. R. S.,” *The Bookman*, 1898, 13:122–123.

¹¹⁵ Wallace, *The Wonderful Century*, pp. 159–212. But most of the space allotted to failures of science dealt with a new heresy of Wallace, his belief that smallpox vaccination was not only useless but actually the cause of smallpox deaths rather than their cure. *Nature* refused to notice Wallace’s book, despite his innumerable contributions in previous years. The editor, Norman Lockyer, was very hostile to several of Wallace’s heresies. Lockyer had refused an invitation from Wallace in Oct. 1865 to attend a seance, but he

confessed to the physicist and spiritualist Oliver Lodge in 1907 to having personally had a psychic experience. *Ibid.*, pp. 213–324. Marchant, Wallace, Vol. II, p. 206. A. J. Meadows, *Science and Controversy: A Biography of Sir Norman Lockyer* (Cambridge, Mass.: M.I.T. Press, 1972), p. 10.

¹¹⁶ A. R. Wallace, *Man’s Place in the Universe* (New York: McClure, Phillips, 1903). A. R. Wallace, *The World of Life* (London: Chapman and Hall, 1910). George, *Biologist Philosopher*, pp. 274–278, 281–284. Marchant, Wallace, Vol. II, pp. 89–90, 93–98, 101–102, 121–122, 178–179.

¹¹⁷ Wallace, *The World of Life*, pp. 278–284, 390–400.

directed and organised . . . life, in all its myriad forms, as, in the far-off future, to provide all that was most essential for the growth and development of man's spiritual nature." Even in the inorganic realm Wallace could discern the action of Mind. Wallace noted that most of the elements were exceedingly rare, and only fourteen were essential for the existence of the earth and life upon it. The remaining elements, then numbering over sixty, appeared to be useless until Wallace considered their relation to man. The ancient metals, for example, had proven to be necessary for civilization. Wallace could only conclude that these elements had been produced specifically for the purpose of promoting man's development.¹¹⁸

Wallace and psychical research

Was Wallace a competent investigator of seance phenomena? This final question is worth asking in view of Wallace's insistence that his belief in spiritualism resulted from his own investigation of the phenomena and not, contrary to Dohrn's charges, from "preconceived or theoretical opinions." Indeed Wallace stated ". . . the cardinal maxim of Spiritualism is, that every one must find out the truth for himself." Wallace's advice to a Dr. Edwin Smith was

If you want to *know* anything about Spiritualism you should experiment yourself with a select party of earnest enquirers—personal friends. When you have thus satisfied yourself of the existence of a considerable range of the physical phenomena and of many of the obscurities and difficulties of the inquiry, you may use the services of public mediums, without the certainty of imputing every little apparent suspicious circumstance to trickery, since you will have seen similar suspicious facts in your private circle where you *knew* there was no trickery.¹¹⁹

Wallace's biological work had proven he was a keen observer of nature, and for this reason his acceptance of psychical phenomena baffled fellow evolutionists, who were disbelievers. At the same time, however, Wallace was not, on his own admission, an experienced experimentalist.

Wilma George has stressed Wallace's naïveté and gullibility and, by implication, impugned his observations and investigations:

No one could convince him that seances were a fraud. If a man said he had seen his dead son it was a fact. If a medium said he could raise spirits it was a fact. Transferring to others his own attribute of innocent generosity, he was deceived by them and by himself. All men conformed to his own standards of integrity.¹²⁰

Though this statement is an exaggeration, there is definitely some truth to it. A long-time friend and neighbor of Wallace remarked that Wallace had an

. . . apparently unflinching confidence in the goodness of human nature. No man nor woman but he took to be in the main honest and truthful, and no amount of disappointment—not even losses of money and property incurred through this faith in others' virtues—had the effect of altering this mental habit of his.¹²¹

Contemporary psychical researchers felt that because of his trusting nature Wallace was too credulous in his investigations of spiritualism. Thus after a seance he had attended with Wallace, William James told Josiah Royce, who much later told E. B.

¹¹⁸ *Ibid.*, pp. 325–326, 280–284, 357–361.

¹²⁰ George, *Biologist Philosopher*, p. 244.

¹¹⁹ Marchant, *Wallace*, Vol. II, p. 210.
Wallace, *Miracles*, p. 223; *My Life*, Vol. II, p. 350.

¹²¹ Marchant, *Wallace*, Vol. II, p. 109.

Poulton, "It is a curious thing to see Wallace plunging head foremost into a flood which we Americans only allow just to wet our feet."¹²²

Wallace believed that he had never met a medium who was a scoundrel. He acknowledged the existence of fraudulent mediums, but he vigorously defended the honesty of *all* the mediums of his own experience. Even though all of these mediums, with the possible exception of the illustrious Home, were exposed as frauds by others, Wallace retained his initial conviction as to their integrity and continued to attend their seances. However, it is important to understand that exposures of mediums were not always clearcut.¹²³ Thus Wallace was never alone in the defense of a medium. To conclude that all of his observations and investigations were unreliable just because the mediums were, at some time, "exposed" by someone else is unjustified. But the fact that Wallace *never* witnessed fraud at a seance does strongly suggest that at some seances he was the victim of deception.

Once Wallace had become convinced of the reality of the phenomena from his seances with Miss Nichol he became extremely reluctant to reject any reports of phenomena which resembled what he had personally observed and authenticated. "Once demonstrate that genuine mediumship exists in any case, and the whole argument of assuming imposture in every case falls to the ground." Wallace was able to carry this principle to extremes. In order to prove that slate writing was a fraud the admitted conjuror S. J. Davey posed as a slate-writing medium in the mid-1880s. Seance sitters could not detect fraud and wrote convincingly of the legitimacy of the phenomena; however, the psychical researcher R. Hodgson to whom Davey had divulged the means of trickery was present at the same seances and was able to follow the deception. He could demonstrate that the reports of seance sitters were, in fact, very incomplete and inaccurate despite their words of absolute assurance as to what had transpired. Wallace never attended a seance with Davey, but by this time he had observed slate writing with several mediums—his seance with F. Evans during his American tour being one of the most astonishing cases of slate writing on record. Since the phenomena at Davey's seances were so similar to those of his own experience,

¹²² Poulton, *loc. cit.*, p. xxix. F. Turner has quoted, from an unpublished letter, F. Myers' low opinion of Wallace's critical judgment at seances:

His worst credulity as to the good faith of cheating mediums belongs to a separate compartment of his mind—or rather forms a part of his innocent generosity of nature, an unwillingness to believe that anyone will do anything wrong.

However, Myers' colleague R. Hodgson shuddered at Myers' credulity!

Myers (bless his dear soul!) *can* be as sceptical as anyone about some individual person or thing, but if he once gets his sympathies enlisted,—his evidence isn't worth 2 straws. This is part and parcel of his big, poetic divine genuine soul, & he can't help it!

Turner, "Between Science and Religion," p. 107. Gauld, *Founders*, p. 233.

¹²³ The case of the medium Charles Williams

sharply illustrates this point. In the 1870s a number of prominent psychical researchers—Crookes, the young Myers, the Russians A. Aksakov and A. Butlerov—were convinced from personal experience of the genuineness of Williams' mediumship. Some of Romanes' 1876 psychical experiences occurred at a seance with Williams. But at the very same time Huxley was completely satisfied from his observations that Williams was a fraud, and Romanes soon changed his mind when he thought he saw Williams cheating. The medium F. Herne with whom Williams had held joint seances early in his career was openly exposed more than once, thus casting doubt on Williams, too. And Williams himself was even exposed. Yet Williams continued his mediumship undaunted into the twentieth century, and, for what it is worth, Home, who was extremely critical of rival mediums, vouched for Williams. Fodor, *op. cit.*, "Charles Williams" and "Frank Herne." Medhurst and Goldney, "Crookes," pp. 44–47, 49–50, 103.

Wallace refused to accept Davey's assertion that he was just a conjuror and not a medium. Wallace's logic was quite a shock to psychical researchers who concluded from the similarity that the mediums were actually conjurors, rather than that Davey was actually a medium. By this time it was (almost) logically impossible to prove to Wallace that any medium was a fraud.¹²⁴

Eusapia Palladino, unlike Davey, was a professed medium—next to Home perhaps the most renowned medium of the nineteenth century (see Fig. 2.). She had been investigated in 1894 on a small island owned by the physiologist (Nobel prize winner) and spiritualist Charles Richet. The investigators, including Richet, Myers, and the

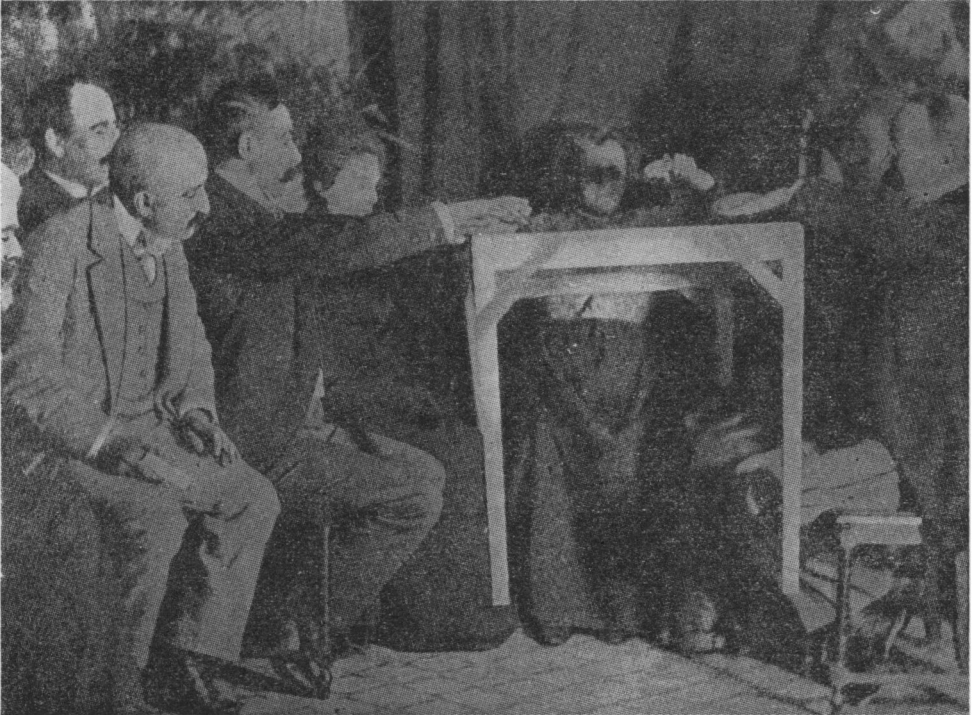


Figure 2. Table levitation at a seance by the medium Eusapia Palladino (photograph courtesy of Mr. A. H. Wesencraft, Harry Price Library, University of London).

physicist Oliver Lodge, reported positively. But in the subsequent year in England, Palladino failed to convince many of her sitters, which this time included the physicists Rayleigh and J. J. Thomson. In some instances she was detected using fraud. The magician Maskelyne had been present at the English seances and in October 1895 wrote to the *Daily Chronicle* of his own negative conclusions.

¹²⁴ *J. Soc. Psychical Res.* 1891–1892, 5:43 and 1893–1894, 6:33–47. R. Hodgson, “Mr. Davey’s Imitations by Conjuring of Phenomena sometimes attributed to Spirit Agency,” *Proc. Soc. Psychical Res.*, 1892, 8:253–310. Gauld, *Founders*, pp. 204–207. Fodor, *op. cit.*, “William

Eglinton” and “Magicians.” It should be kept in mind that Davey thought he might possess legitimate telepathic powers, though he forever insisted that the slate writing itself was pure trickery.

Though Wallace had never attended a seance with Palladino, he came to her defense. He had already reported the phenomena observed on Richet's island in *Miracles and Modern Spiritualism*. As for the Cambridge experiments, Palladino could and would cheat, perhaps unconsciously, unless she was properly controlled; thus the burden, according to Wallace, was on her investigators to prevent her from cheating. If given the opportunity, she might cheat, especially if her psychical powers were running low. During the seances Hodgson had purposely relaxed the controls hoping to catch her using fraud. Under these circumstances Wallace was hardly surprised that Palladino, or her "control," had resorted to fraud. Nor did the occurrence of (unconscious) fraud in this situation call into question the validated phenomena when trickery had been excluded.

In essence Wallace was arguing that once satisfied of the legitimacy of a mediumship, no subsequent evidence of fraud could affect the original judgment.¹²⁵ These attitudes toward the Davey and Palladino phenomena were not conducive to conclusive investigation. Thus it is not difficult to see why Wallace's personal experiences had little influence on the unconvinced. However, unless one totally rejects the possibility that at least some psychical phenomena are real, it is impossible to dismiss *all* of Wallace's experiences as "mental hallucination" or "insanity."

CONCLUSION

Wallace's interest in matters spiritual, mystical, or religious has generally been vaguely associated with his divergence from Darwin on the origin of man. I have tried to document a causal relationship. In his autobiography Wallace noted four major areas in which he differed from Darwin. The first and, to Wallace, foremost of these areas was the origin of man's intellectual and moral nature. Wallace found natural selection inadequate to explain it and introduced the action of higher intelligences to purposefully guide man's development. To a certain extent Darwin also found natural selection inadequate, but he rejected the addition of any non-natural cause for man. Instead he supplemented the action of natural selection with sexual selection and the inherited effects of the direct action of the environment and of the use and disuse of parts.

I believe this difference of opinion arose as the direct result of Wallace's conversion to spiritualism, which occurred at the same time the divergence over the origin of man did. In a letter to Darwin from this period (1869) Wallace specifically attributed his new view of man to his new belief in the reality of psychical phenomena and their spiritualist interpretation. The letter reflected Wallace's firm belief that there was an incompatibility between the spiritualist interpretation of psychical phenomena and the development of man by means of natural selection alone, which forced him to modify his earlier views. The very existence of an *immaterial* spirit, responsible for "the enormous influence of ideas, principles, and beliefs" in man's life, could not be explained by the struggle for *material* existence. The inherent progressive power of development that characterized man's mind was incompatible with natural selection. In addition, the

¹²⁵ Gauld, *Founders*, pp. 221–245. Wallace, *Miracles* (3rd ed., London: Nichols, 1901), pp. 103–104. E. Clodd, *Pioneers of Evolution* (New

York: Appleton, 1897), p. 149. Medhurst and Goldney, "Crookes," pp. 31–32, 144–148.

ability of an immaterial spirit to interact with matter in a purposeful manner was incompatible with a materialism linked to “purposeless” natural selection.

But from the first half of this paper it is clear that Wallace was able to present a case against natural selection, which his contemporaries considered formidable, without reference to psychical phenomena or spiritualism. It is tempting therefore to conclude that perhaps, contrary to my thesis, Wallace had two independent grounds for his divergence—scientific and spiritual. According to this alternative viewpoint, Wallace *originally* concluded that natural selection was inadequate in the origin of man on the basis of his utilitarian analysis of various human features. Thus Wallace’s simultaneous discovery of spiritualism was not the origin of his doubts about natural selection’s sufficiency in man’s development, but spiritualist phenomena provided further evidence, and in spiritualism Wallace found an explanation for those human features inexplicable by natural selection on purely utilitarian grounds.

I find this reconstruction of Wallace’s thought on the origin of man in the years 1864–1869 unlikely. It fails to explain what prompted Wallace’s new analysis of man. In 1864 Wallace had unequivocally supported natural selection’s sufficiency in the development of *all* of man. It is true that in his 1864 paper Wallace considered man “in some degree a new and distinct order of beings” and “a being . . . in some degree superior to nature, inasmuch as he knew how to control and regulate her action, and could keep himself in harmony with her. . . .” But this uniqueness of man was solely due to the nature of his mind and, as Wallace emphasized throughout his 1864 paper, man’s mind was the product of natural selection alone. I have discussed Wallace’s 1864 position that natural selection was responsible for the development of man’s intellectual and moral nature both before and after that nature had effectively shielded man’s body from the further action of natural selection. Therefore it would be a mistake to interpret Wallace’s description of man as “a being apart” to be the initial evidence for his 1869 conclusion that natural selection was inadequate in the origin of man. His 1864 position could not have logically led him to perform the utilitarian analysis of man’s unique physical and mental features. Wallace’s statement in his autobiography that his divergence from Darwin over the origin of man was “first intimated” in 1864—that is, prior to his first seance (1865)—must be rejected as incorrect. Certainly Darwin and other evolutionists, who lavished praise on Wallace for the great new ideas in the 1864 paper, recognized no signs of doubt in Wallace’s mind as to the sufficiency of natural selection in man’s development.¹²⁶

The alternative viewpoint also fails to explain a curious aspect of Wallace’s new analysis of man. The kinds of scientific arguments employed by Wallace against natural selection were hardly new with him; some had already been applied to man, while most had already been applied to animals. Wallace rejected virtually every claim that various *animal* features were inexplicable by natural selection because they were more highly developed than required or because they were useful to future generations but useless in the present. His refusal to apply the same reasoning to animals that he applied to man speaks forcefully for my contention that the root of his belief that

¹²⁶ Both F. Turner and R. Smith (see n. 1) contend that Wallace’s 1864 paper does foreshadow his later (1869) doubts about the sufficiency of natural selection in the origin of

man. However Smith’s argument is vitiated by his exclusive use of the 1870 modified version of Wallace’s 1864 paper.

natural selection could not account for the whole of man was in spiritualism, not science. In 1869 Wallace did recognize that the hand of apes was more highly developed than required, and in 1870 he did attempt to subsume all natural forces under will force. But only late in life, in *The World of Life*, did Wallace extend the action of higher intelligences to all organic development.

It has been suggested to me that Wallace's conception of natural selection differed from Darwin's conception; unlike Darwin's, it could not in fact explain man's intellectual and moral nature. According to this viewpoint, the source of Wallace's recognition of natural selection's inadequacy in the origin of man was his own conception of the nature of natural selection rather than his belief in spiritualism. Wallace was being perfectly logical, therefore, in his rejection of natural selection's sufficiency in the origin of man.

I find this reconstruction unlikely, too. Wallace did disagree with Darwin over several matters in the years 1864–1869. Each disagreement did revolve around the adequacy of natural selection, and Vorzimmer has already noted the differing conceptions. The three major disagreements concerned sexual selection, the origin of interspecific hybrid sterility, and the origin of man. Darwin perceived sexual selection as a supplement to natural selection; Wallace rejected the need for sexual selection. Thus Wallace defended the efficacy of natural selection in regard to a class of phenomena while Darwin denied it. The same pattern emerged with respect to the origin of hybrid sterility. According to Darwin natural selection could not explain it; such sterility was the incidental byproduct of speciation. But Wallace believed natural selection could account for it and again credited natural selection with more power than Darwin did.¹²⁷ Only in the case of the origin of man did Wallace find natural selection less adequate than Darwin did. But Darwin, too, supplemented the action of natural selection in the evolution of man.

The mere fact that Darwin and Wallace disagreed over the adequacy of natural selection in the cases of two evolutionary problems aside from the origin of man in no way suggests that they were destined to disagree also with respect to the origin of man. Besides, in the two cases of sexual selection and the origin of hybrid sterility Wallace supported natural selection's adequacy against Darwin's doubts, while in the case of the origin of man, Wallace had the graver doubts about natural selection's sufficiency.

The differing conceptions of natural selection emerge from the disagreement over the role of natural selection in the origin of hybrid sterility. Darwin conceived of natural selection as applied to individuals only, at least in this problem. Darwin "could not see how the inability to breed properly, to breed in lesser numbers, or to yield abnormal offspring could be selected as advantageous to any organism." Wallace, in contrast, conceived of natural selection as applied to both individuals and groups of individuals (for example, the entire species). There could be selection for a trait—sterility—advantageous to a group of individuals—incipient species—but disadvantageous to an individual within the group.¹²⁸ But I fail to see how Wallace's conception of natural selection could not account for the origin of man while Darwin's could. Indeed, with respect to the origin of man's moral nature, Darwin himself resorted to the "good of the species" argument. Unless it can be shown how Wallace's

¹²⁷ Vorzimmer, *Darwin*, pp. 188–209. George, *Biologist Philosopher*, pp. 200–204, 80–83.

Wallace, *My Life*, Vol. II, pp. 17–20.

¹²⁸ Vorzimmer, *Darwin*, p. 207.

conception of natural selection logically forced him to the conclusion that natural selection was inadequate in the origin of man, this reconstruction also fails to explain what prompted Wallace's new analysis of man.

If, then, Wallace *originally* came to the conclusion that natural selection was inadequate to explain certain physical, mental, and moral features of man on the basis of his belief in spiritualism, how should his scientific arguments offered in support of his position be interpreted? Possibly he really believed in them. Having come to a conclusion from the direction of spiritualism, Wallace discovered another route—science. Since his colleagues rejected spiritualism, Wallace attempted to convince them of the validity of his new view with a strict utilitarian analysis of man. According to this “compromise” Wallace's belief in spiritualism did give rise to his first doubts about natural selection in the origin of man. Wallace hoped fellow scientists would perceive the significance of psychical phenomena for a complete understanding of human development. When he realized their outright rejection of the reality of those phenomena he was compelled to find reasons more acceptable to them for questioning natural selection's adequacy. Thus spiritualism stimulated Wallace to reconsider the utility of various human features, and the results of this new analysis (a foregone conclusion?) reinforced his earlier doubts which had been created by spiritualism alone.

On the other hand, Wallace may never have been truly convinced himself by his utilitarian analysis. This is a real possibility. Pearson was puzzled by Wallace's arguments and commented that Wallace's “pages read as if he had invented his difficulties in order to justify his beliefs.”¹²⁹ In *Darwinism* Wallace rejected many of the arguments he had earlier employed against the efficacy of natural selection in the origin of man. The physical features of man, once considered inexplicable by natural selection, were now conceded to be explicable by it. Wallace “retreated” to man's intellectual and moral nature—the original stumbling block, with respect to man, for other evolutionists. Yet in this same work and throughout the last two decades of the nineteenth century Wallace was the most ardent champion of neo-Darwinism—that is, of the sufficiency of natural selection alone as the mechanism of evolution. Of course his advocacy of natural selection's hegemony did not extend to man. This striking duality certainly suggests an extra-scientific basis for Wallace's belief in the inadequacy of natural selection in the origin of man. It also highlights Wallace's insecurity about his scientific grounds for challenging natural selection's sufficiency in man's development.

At the same time it must be remembered that the vast mental gulf existing between man and animals was not easily bridged by selectionists. Darwin's own demonstration that these mental differences were of degree only and not of kind was weak and incomplete.¹³⁰ In fact, the natural selectionist's position with respect to man was very much a statement of faith in a continuity of causes in nature. Wallace, on the other hand, repeatedly remarked that continuity of effects did not necessarily imply a continuity of cause(s). In this context Wallace's problems with the origin of man, side by side with his satisfaction with natural selection in the origin of animal species, should be understandable. Indeed, Wallace was the first to perceive the difficulties in

¹²⁹ Pearson, *Grammar of Science*, p. 343.

York: G. P. Putnam, 1894), pp. 327–338.

¹³⁰ H. W. Conn, *Evolution of To-day* (New

explaining a huge, rapid increase in human brain size by natural selection's accumulation of slight favorable variations.¹³¹

Therefore I tend to believe Wallace was persuaded by his scientific as well as spiritual arguments against natural selection. Yet I remain convinced that Wallace's belief in the reality of psychical phenomena and their spiritualist interpretation created the initial doubts about natural selection and stimulated his rethinking, on grounds of utility, man's unique features.

Lastly, I do not know whether the work of any other nineteenth-century scientist who firmly believed in the reality of psychical phenomena was so directly influenced by that belief. But I hope this paper, demonstrating the direct influence of Wallace's belief in spiritualism on his evolutionary thought, will encourage the growth of interest among historians of science in the history of psychical research.

¹³¹ Eiseley, *Darwin's Century*, pp. 309–314. Vintage, 1958), pp. 79–94.
Loren Eiseley, *The Immense Journey* (New York: