

WALLACE, ALFRED RUSSEL (*b.* Usk, Monmouthshire, Wales, 8 January 1823; *d.* Broadstone, Dorset, England, 7 November 1913), *evolutionary biology, biogeography, physical geography, social theory, astrobiology*. For the original article on Wallace see *DSB*, vol. 14.

Considering the fact he was nearly forgotten after his death for some fifty years, the “rediscovery” of Wallace since the 1960s, at an ever-accelerating pace, is a remarkable story. By the end of the 1970s his fundamental contributions to evolutionary theory (including, of course, his independent discovery of the principle of natural selection), biogeography, anthropology, and physical geography had been revealed, but in the years following scholars have recognized his significance to a number of other individual subjects as well. Further, significant progress has been made since the mid-1980s in clarifying the weave of his idiosyncratic worldview. Many observers now rate Wallace as the single most outstanding field biologist and tropical regions naturalist in history; he can also be credited as one of the founders of astrobiology studies (and in turn as one of the first modern proponents of the

anthropic principle in cosmology), a pioneer in the use of statistics in epidemiology, and an influential humanitarian many of whose ideas for social improvement later flourished as elements of the liberal agenda of the twentieth century.

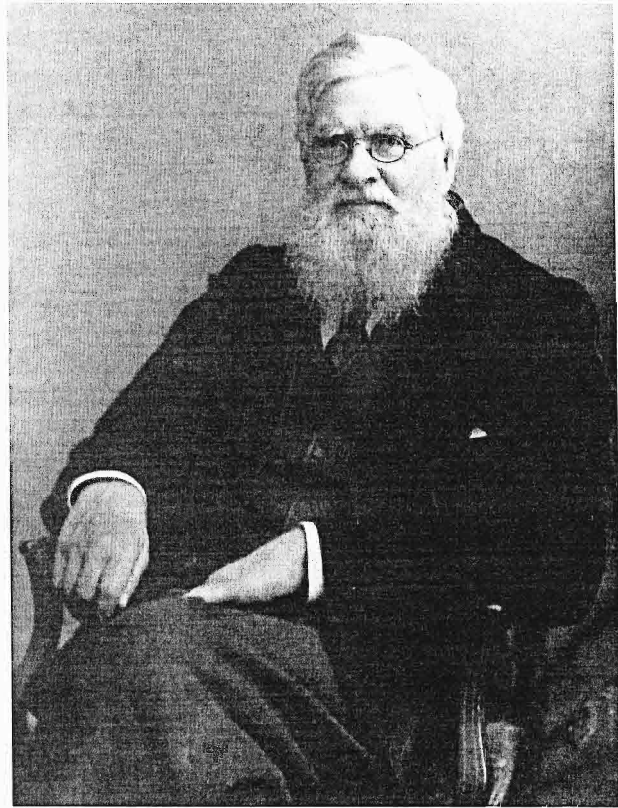
A major reason for Wallace’s “return” has been the birth and growth of the biodiversity studies movement since the late 1980s. At that time the individual species-focused thinking of classical Darwinism increasingly came under fire as researchers strove for new understandings of the diversity and interrelatedness of life and its implications for one’s own well-being. Biogeographical studies suddenly became fashionable again, and in turn many biologists and conservationists rediscovered Wallace’s ideas and writings. Among those Wallace-associated biogeography models under renewed consideration are the so-called riverine barriers theory (that diversity patterns in Amazonia might be related to the isolating effect of the river’s main tributaries), his observations on the history of Wallace’s Line in Indonesia, his explanations for the origin of planet-level latitudinal species diversity gradients, and his suggestion that rapid climatic changes might account for accelerated species change.

Another reason for Wallace’s reemergence has been the increased attention given to his full bibliography, including the clarifications that hundreds of rediscovered works (and even passages) have provided. The additional material has not only made it possible to develop a better model of his overall worldview (as discussed below), but to improve time lines and correct misappreciations of many of his more specific positions. For example, it turns out that his first public statement expressing a divergence of view from Charles Darwin on human evolution appeared not in the famous *Quarterly Review* article of April 1869, but instead at a British Association for the Advancement of Science meeting eight months earlier; similarly, his first public embrace of socialism came in a short published letter in November 1889, not in the well-known essay “Human Selection” that came out ten months later. As to one factual correction, Wallace has frequently been cited as stating that life could only have evolved on Earth, whereas in an interview printed in 1903 he specifically states he only intended his words to mean “intelligent beings” akin to humans, and not all life forms. Again, Wallace has typically been cast as one of those adhering to a gradualistic, Darwinian model of organic change, whereas it is apparent from passages in several of his lesser known writings that this was not the case and that he instead had embraced something akin to what in the early twenty-first century would be termed a punctuated equilibrium model: that is, change occurring in spurts and separated by long periods of relative stasis.

Further, the portrayal of Wallace as a dispersalist has come under attack by Bernard Michaux, Charles H. Smith, and Bruce S. Lieberman, who point out that his earliest efforts at understanding evolutionary histories (as in the “Sarawak law” essay) actually anticipate vicariance biogeography. Also generally overlooked by pre-1980 sources were the clear indications that prior to 1858 he opposed the very same principle of necessary utility of adaptations that he rigorously supported after that date. In another misconception, his opposition to smallpox vaccination has often been taken as indicating his belief that vaccination was, and always had been, absolutely ineffective—despite the existence of an 1895 publication that directly states his real appreciation that the practice had only in recent years become as dangerous as the likelihood of incidence of the disease, and should therefore be abandoned. Another recently rediscovered article somewhat surprisingly exposes him, despite his spiritualist beliefs, as a sharp critic of theosophy, and in particular reincarnation, which he terms a “grotesque nightmare.”

Views on Social Issues. Indeed, one might reasonably suggest that in the thirty-plus years since the first *DSB* article, the main progress that has been made in Wallace studies overall has been a realization that earlier ad hoc associations of his name with a variety of positions—including some seemingly, but incorrectly, explained by period social trends and institutions—has had a crippling effect on dispassionate analysis of his actual mindset. Both individual investigators and the recent domination of externalist research agendas must bear some responsibility for this state of affairs, as the evidence was always there.

Another such assumption that does not stand up to close examination pertains to his many forays into social criticism and planning—that these were the rabble-rousing efforts of a crank. Wallace took his social theorizing and involvements very seriously, actually, and the degree to which they presaged later eventualities remains only lightly investigated. As founder and president of the Land Nationalization Society, for example, he led a movement to retrieve ownership of the land from Britain’s relatively few large holders; along the way he devised ingenious compensation schemes that might well have relevance to the way natural lands are now being set aside for purposes of nature conservancy. The system as described in *Land Nationalisation* was in part based on his recognition of the relationships among (inherent) locational values, value added to the land during its periods of custodianship, and the setting of rents, anticipating elements of twentieth-century economic geography. The same work included suggestions for setting aside land for historic memorials and as greenbelts, another distinctly twentieth-century trend. He was also an early champion of the “new town” planning efforts of Ebenezer Howard.



Alfred Russel Wallace. HULTON ARCHIVE/GETTY IMAGES.

Wallace also entered into period discussions on economics, addressing those forces he believed were damaging to both national and individual interests. Some of these complaints were predictable (for example, emotional tirades against war expenses and the profligate vices of the wealthy), but some were better thought out and influenced later thinkers: for example, his thoughts on the development of a paper money standard, which were taken seriously by the American economist Irving Fisher and later by members of the Chicago School. One of Wallace’s main pleas in the economics arena was that the “old” ideas invested in political economy should be replaced by more soundly relevant principles contributing to what he termed a “social economy.” Among these new principles was the startling idea that the state should not legally recognize wills and trusts bearing on far-future events—a concept that is actually beginning to find its place in the world of early twenty-first century philanthropic practices.

To understand how such interests followed from Wallace’s investment in the general subject of evolution, one requires a passably good picture of his overall operating cosmology, and in this realm the availability of the rediscovered sources and an alertness to avoid a priori assumptions sustained considerable progress. Wallace was represented in the *DSB* essay of 1976 as a man who had

adopted a general—actually rather modern—evolutionary perspective around 1845 with his reading of the anonymously penned *Vestiges of the Natural History of Creation*, made a rather slow but steady kind of progress in unraveling the change-invoking influences involved, and had a revelation as to an exact mechanism (natural selection) in 1858, but then several years later had second thoughts about the universality of that mechanism and began to backslide on the theory accordingly. Supposedly, his defection from his original view (in 1858) came about as a result of his adoption of spiritualism, his waning respect for natural selection as a positive force in evolution, disillusioned Owenite leanings, or some combination of the three. This theory, the “change of mind” interpretation of his intellectual development, was as of 2007 in the process of being overturned by a new “no change of mind” model that better fits the known facts, and does not rely so heavily on negative evidence.

Route to Ideas about Selection. The “change of mind” model derives most centrally from the notion that in the “Ternate Essay” of 1858 Wallace had accepted that natural selection pertained to humans as it did to other living things, and secondarily (and implicitly) on the idea that his route to the discovery of natural selection was a relatively linear, if not very speedy one. But humankind is not referred to in the essay (nor did he ever later say they were meant to be included in the argument), which nevertheless does contain seeds of his later-used argument that humans *are* different, based on the analogy of domesticated animals (that is, both humans and domesticated animals are changed in a manner distinct from the operation of a rote natural selection process). Further, it is apparent that Wallace’s route to 1858 was not a linear one. As alluded to earlier, he clearly believed prior to 1858 that adaptive structures were not necessarily utilitarian, and very probably believed that after coming into being through unknown means they were then secondarily shaped (developed further, or went away through disuse or extinction) by gradual, large-scale environmental forces that somehow provided overriding direction—a model invoking implied final causes. Along these lines it is significant that the 1858 natural selection paper contains no mention of any of the thoughts on evolution introduced in the 1855 “Sarawak [a state of Malaysia, on northwest side of the island of Borneo] Law” essay, nor to the several papers between 1855 and 1858 that represented developments of it, and thus that a new direction is suggested.

As of mid-1858, therefore, it looks as though Wallace was in possession of a model that accounted for the adaptive shaping of lower life forms, but not, considering his many years of experience observing native peoples with abilities they seemed to have no need for, people. In analogy with the domestication process and in continuation of

his final causes-centered approach, Wallace began to look for mechanisms that might serve to help human beings evolve in spite of themselves; that is, without their being aware of it.

Distracted on returning to England in 1862 by the success of Darwin’s materialist approach and the writings of the English philosopher Herbert Spencer, Wallace at first laid off “big picture” thinking and concentrated on the disposal/description of his natural history specimens. His misgivings about the range of applicability of natural selection soon resurfaced obliquely, however, in a series of papers and discussions beginning in September 1864 dealing with the means of civilizing savages. Around the time the last of these appeared, he was introduced to the writings of spiritualism, perhaps by his sister. On investigating he discovered that these preached a philosophy of acting on intelligent conviction, exactly the kind of mechanism that in theory might serve a societal final cause. He began attending séances in the hope that these would prove the existence of a domain of spirits contributing to that final cause. Eventually he was convinced by what he saw, and by the beginning of 1867 was not only advocating objective analysis of spiritualism, but had become a full believer besides. His final public break on the evolution of humankind with Darwin in 1868–1869 was delayed by his writing *The Malay Archipelago* in the interim, but when it did take place it signaled not a change of mind, but instead the completion of a teleological model of evolution: that is, as enacted through final causes.

What of the remaining threads used to defend the old “change of mind” hypothesis? It should first be pointed out that there is nothing in Wallace’s writings at this time (or later) to suggest that he was a “disillusioned socialist” during this period; in fact, just about all of his writings on socialism and the social reformer Robert Owen date from 1889 on, because before that point he simply had not felt that socialism was practicable. Further, while it has often been posed that Wallace’s adoption of spiritualism caused him to alter his position on humankind’s evolution, he is on record himself (in the preface to his book *On Miracles and Modern Spiritualism*) as saying this was not the case. The changes that he made in his 1864 essay “The Origin of Human Races and the Antiquity of Man” when it was included in the collection *Contributions of the Theory of Natural Selection* in 1870 have sometimes been offered as evidence of a change of mind, but were this the case, why in the preface of the latter work would he specifically say “I had intended to have considerably extended this essay, but on attempting it I found that I should probably weaken the effect without adding much to the argument. I have therefore preferred to leave it as it was first written, with the exception of a few ill-considered passages which never fully expressed my meaning” (p. viii)? Again, there

is no real evidence here or in the adjusted passages of owning up to a “change of mind” of the sort accused. Finally, there is Wallace’s 18 April 1869 letter to Darwin, in which he states:

I can quite comprehend your feelings with regard to my ‘unscientific’ opinions as to Man, because a few years back I should myself have looked at them as equally wild and uncalled for ... 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. (in Marchant, pp. 199–200)

Here Wallace simply states a fact: that his opinions have been “modified”—not changed (that is, reversed)—by this new source of information. The interpretation that this modification constituted a full-blown reversal of position has for many years been fed by the assumption that Wallace intended his ideas as expressed in 1858 to apply to humankind, which as shown above is an unlikely stretch.

To summarize, in his early years Wallace held a Bau-plan-like view of nature and society, which featured a utilitarian role for productive belief in the social milieu but rejected necessary utility of adaptations at the biological level (that is, both bad ideas and bad biological structures were eventually weeded out by more remote, weighty forces). In 1858 he realized how a “necessary utility” model not related to first causes thinking—natural selection—could operate. This however still left him unable to explain how the turnover process might operate at the level of higher consciousness. In late 1865, while already investigating séance phenomena, he began attending a series of public soirees, given by the spiritualist lecturer Emma Hardinge, that linked spiritualist teachings to natural science. Wallace was obviously impressed, soon after beginning to compose his *Scientific Aspect of the Supernatural*, published in a magazine in the summer of 1866 and soon thereafter as a pamphlet (this contains many quotations from Hardinge’s writings). There had been no “change of mind,” just the finalization of an evolutionary model in which natural selection and spiritualism stood side by side. (Further development of the “no change of mind” model appears in this author’s *Alfred Russel Wallace: Evolution of an Evolutionist*, an online monograph hosted by *The Alfred Russel Wallace Page*).

The “no change of mind” model leaves the scholar in a much better position to understand Wallace’s later work, and indeed to contrast his approach to evolutionary studies with Darwin’s. As one example, the anthropologist Gregory Bateson recognized as early as 1972 that Wallacean natural selection, describing as it does a mechanism for removal of the unfit (and hence a net return toward

the norm), represents a negative feedback process that of itself does not capture the entire “push-pull” character of irreversible biological change. Understanding this, one can in turn recognize that Wallace was not the hyperselectionist many (especially the late Stephen Jay Gould) have accused him of being: Wallace never argued that natural selection necessarily created the variation on which it acted (and indeed in several instances pointed out that we were entirely ignorant of its origin), merely that all such variation, *once existing*, was subject to its action. One next naturally wonders how exactly to contextualize the remaining positive feedback part of the process, a question central to biogeographic and evolutionary studies alike.

Despite the many advances that have been made in appreciating Wallace on his own terms since 1976, one cannot end here without mentioning the ongoing (more than thirty-year) discussion as to whether Darwin might possibly have stolen ideas from Wallace’s 1858 paper “On the Tendency of Varieties to Depart Indefinitely from the Original Type” to help him complete what would become *On the Origin of Species* in 1859. This theory, especially as developed by Arnold C. Brackman in 1980 and John L. Brooks in 1983, is based on real, though by no means overwhelming, evidence. In any case, little new evidence of a kind that could either silence or markedly encourage conspiracy theorists has surfaced for many years.

The complete Wallace is still emerging. In early 2006 this author discovered an unpublished paper that Wallace wrote in 1843 at the age of twenty. This short work, explaining a possible mercury-based technology for preparing lenses in telescopes, was sent to William Henry Fox Talbot, one of the inventors of photography, for comment. There is no evidence Talbot ever responded, but it is intriguing that in 1850 a friend of one of Talbot’s colleagues (the prominent astronomer Giovanni Amici, who actually visited Talbot in England in 1844), read a paper in Italy laying out principles fundamental to what in the early twenty-first century is known as spinning mirror telescopes, a related mercury-based technology.

SUPPLEMENTARY BIBLIOGRAPHY

A thorough bibliography of secondary sources, including period reviews of Wallace’s books, an iconography, and a list of obituaries, is provided at the Alfred Russel Wallace Page Web site. The most complete listing of archival resources is in Shermer. A Wallace correspondence project was as of 2007 underway under the direction of the historian James Moore.

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Charles H. Smith