



## Essay Review

### Symbiosis: Shermer on Sulloway and Wallace

By

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A review of *In Darwin's Shadow: The Life and Science of Alfred Russel Wallace (A Biographical Study on the Psychology of History)*. By Michael Shermer NY: Oxford University Press, 422 pp.

Modern biologists remember Wallace for many things, including his essay that described natural selection, one that he mailed to Charles Darwin. Darwin, two decades into his own account of natural selection, was shocked by the clarity, timing, and brevity of Wallace's paper. Darwin's ambition to be first was rescued by his two friends, Charles Lyell and Joseph Hooker who arranged for both Wallace's and Darwin's work to be presented to the Linnean Society where Darwin received primary attention. Wallace was in Borneo at the time and learned months afterwards of these arrangements. Wallace, however, had no complaint: he was unknown, Darwin was not (Brown, 2002). Such partnerships are useful. Ed Wilson presented obscure W. D. Hamilton's pioneering essay on kin selection while Hamilton sat in the audience (Wilson 1994). Their partnership benefited both men and even country and western acts often get their first recognition by warming up audiences for established performers.

These are ancient gambits: The *Hox* genes *labial* and *orthodental* each use and support variation in the other and, thanks to successive duplication of *Hox* assemblies, human form and mind eventually resulted (Carroll *et al.*, 2001; Raff, 1996). In a cross-century application of these symbiotic tactics, Shermer attaches both to Wallace and to Frank Sulloway, author of *Born to Rebel*. Wallace's life becomes a good story, Sulloway a piton for the elusive "science of psychohistory," and Shermer, the skeptic *par excellence*, an advocate.

Wallace's 747 essays, articles, and papers (508 of them scientific), and 22 books compare favorably with the productivity of Jared Diamond, Ed Wilson, Stephen Gould, and Carl Sagan. Erasmus Darwin, however, published 1 million words in 11 volumes; Charles, 2 million in 23 volumes (King-Hele, 1999). Wallace, however, took many more trips than either Darwin and for a longer time, constantly writing, and even finding a publication from what

he saw of glaciers on his honeymoon. He devoted his life to the species problem but also became a popular authority on many topics, including spiritualism, mesmerism, and phrenology.

Wallace was a religious skeptic and strong believer in adaptation as the driver for variation in creatures. He, however, found a plausible foundation for special creation because he saw a gap between what our minds can do and the contexts in which they emerged. Since Wallace was convinced that organisms do not exceed the requirements of environment, there *must* have been an outside intervention that led to human intelligence. He missed the notion that organisms change for many reasons and define both new environments and new selective pressures. (He was also driven to explain rather than to admit that he could not know.) Wallace radiated kindness, wrote well, had his picture taken regularly, and published a manuscript every month (747 publications/12 months = 1 publication/month for 61 years, he lived until age 90).

### **Self Organization and Active Darwinism: The Missing Half of Our "Stories"**

Shermer (p. 44) quotes Wallace on the matter of heredity and environment: "...the character of every individual is formed *for* and not *by* himself, first by heredity... and secondly, by environment... which always modifies the original character for better or for worse." The externalist model has its fans and could be an "adaptive" glitch: I ignore my own contributions to my personal dilemmas but notice the self-contributions and rationalizations of other people. For example: I watched a little boy spin between tables in a small restaurant. He eventually hit a chair with his head and screamed. Dad jumped to his feet, turned around and yelled: "Bad chair, bad chair. Bad, BAD chair!" The little boy cried until dad yelled at the correct chair. Neither father nor son examined their own contribution to the incident. Neither do small children in trouble with their teacher nor therapists who account for current anxiety as an

outcome from early abuse. Wallace committed a similar error. While the externalist model often works, it also led Wallace to neglect some of the possible causes for the evolutionary development of human intelligence and to a rift between him and Lyell on one side of the issue and Darwin on the other.

Shermer also vacillates between externalist language and that of emergence and self organization. For example, Wallace was "later born," and he, *therefore*, overcame mediocre schooling. Floggings, however, instilled not fear and obedience but a sensitivity to inequality. His first experiment, dropping stones into a container so that the liquid rose to the top, failed and this failure made Wallace suspicious of what he read in books rather than of his method of testing what he read. Wallace tutored friends in order to earn school tuition. This experience taught him communication and "entrepreneurial independence." (His father had a similar vocational profile but we don't know if he ever tutored.) Robert Owen and Thomas Paine were early influences but not much is made of the high probability that Wallace, who found bookstores that let him read without buying, preferentially adopted these particular authors. Likewise, Wallace's humble origins and self-made career are credited for shaping his kindness and generosity (p. 250-251). His checkered education shaped an independent thinker and made infectious ideas (spiritualism) even more infectious rather than making him a beggar or liar.

Nowadays, some of us try on a new pair of shoes that lets us find our own environments over the long term (Allport, 1955; Popper, 1992; Brody, 1999a, 1999b, 2000; Turner, 2000; Brody, 2003). Thus, small children can be similar to each other in ways that suggest an imposed cocoon from mom and dad but, by age 8-13, each child throws it off (Harris, 1995, 1998). Harris suggested that peers supply the new environment but there is no reason to expect peers to be any more influential than parents are. Indeed, there are reasons to expect

them to be less so. This expectation extends also to serial birth position: older siblings may be one more instance of imposed environment (usually called "shared environment," environments that make us act alike, which can be powerful while we are in their midst but which often contribute only 2-10% of the variance in long term outcomes (Plomin, 1994). Nonshared environment (environments unique to each individual) appears to be the powerful element and also appears to be chosen by the individual rather than imposed upon him. We pick our memories and battles just like we pick our friends, often for genetic reasons (Rowe, 1994).

Along these lines, I once reviewed all 20 texts on the New Biographies shelf at the local Barnes and Noble store. There were many cases of children who recruited audiences, evaded or defied parents, devoured obscure books, or collected materials for a particular quest. They started early and continued their particular quest through their adult life. In order to understand these careers we might admit that we each engage in some activities more easily than others, show early in life preferences that are similar to those of our parents and grandparents, and chase those preferences from our diapers to our shroud. We may even notice that in old age, we return to the passions of our youth.

Shermer sometimes acknowledges Wallace's internal seek-and-find nature but not explicitly. For example, Thomas Vere Wallace was perpetually broke and uncertain of his income, Alfred Russel Wallace did a little better. Does this improvement rest on his mother's contribution to his biology? Also, was Wallace's mother or father a spiritualist? Or do we reach to a grandparent for these passions that cement flocks of starlings or Baptists? The genetic contributions of his mother, Mary Anne Wallace, to Wallace's independence, spiritual qualities, and kindness are unsuspected, unconsidered, and unknown. Shermer also gives us little such information for Wallace's father and none for either set of grandparents. From the standpoint of psychohistory and Shermer's tale, Wallace

might just as well have been an adoptee.

### **Sulloway's Confound**

Sulloway (1996) argued that a Darwinian competition between siblings favored the emergence of rebellion and independence in the younger members. He collected thousands of biographies and correlated scientific originality with birth order: later arrivals were less conformist. Shermer applies Sulloway's model and tags Wallace's attempt to merge spiritualism and science as an outcome of birth order (Wallace was 8th). Darwin, however, was also a late arrival (the 5th) but disliked religiosity and spiritualism. I'm not sure about Art Bell but I'm fairly positive that Howard Bloom was not the last in a long chain of siblings. Howard has a bent for rebellion and grand causal schemes and shares that and other preoccupations with his grandparents. I suggest there has to be a gene, perhaps once donated by a virus, for religiosity (Martin et al, 1986). (Unfortunately, those with the gene assume that everyone has it. Perhaps one-third of us talk and listen to a god directly or through a shaman, one-third of us are persistent skeptics, and one-third of us will do whatever our neighbors do.)

Aside from birth order or a "gene for," what else could account for Sulloway's 100,000 current examples of later-birth rebels? "Epigenesis" applies both to environments and to DNA activation patterns that are inherited but vary even when the actual DNA sequences do not. There is suggestive evidence that mothers are "allergic" to carrying a son. More sons are spontaneously aborted than daughters, having sons shortens a mother's life but having daughters tends to lengthen it, and in some instances, homosexuality correlates with the number of prior sons born to a particular mother. These effects may be associated with epigenetic effects: the mother changes after each birth and biases her niche for those that follow. We might expect, then, later arrivals to be more impulsive, independent, and exploratory on the basis of prenatal rather than postnatal experience. Sons might be literally "born to rebel" through

maternal physiological changes, niches that are inherited along with their DNA, rather than forced into rebellion by Darwinian competitions with older siblings. (See Cohen, 1999, for more discussion of these possibilities.) The tooth and claw battles occur between mother and son or between the separate genetic contributions of mother and father (Haig, 2002) rather than between sibling knuckles. Unfortunately, Shermer opens, sometimes touches base, and closes with Sulloway's theme.

### Disappointments

First, Shermer lost me early with his introduction to psychohistory. His model has enough variables to explain but not enough to predict individual paths. He lost me further when he concluded on p. 55 that Wallace had a theory about the species problem (before his travels) but needed data but on p. 177 concluded that Wallace after South America had data but no theory. Shermer also neglected one role of natural selection in Victorian thinking before Darwin: natural selection conserved differences between species rather than providing a source for new species (Eiseley, 1979).

Second, Wallace led an Indiana Jones life and his story deserves a better telling. After all, he spent 4 dangerous years on South American rivers, collected 10 species of tortoises, 100 species of fish, and living monkeys and birds, but lost all of them but one parrot when his ship caught fire and sank. Wallace and crew members drifted for 10 days, probably ate the parrot, and found and boarded the *Jordeson* 200 miles from land. The *Jordeson* subsequently encountered three storms, lost its main sails, and nearly ran out of food and water before reaching London.

London did not yet meet Wallace's purposes and the ship wrecks taught him little: he needed more specimens for his scientific audience who also bought them for their own collections. He next went to the southwest Pacific and in 8 years defined the biogeography of Borneo and the islands that surround it. "Wallace's Line," a boundary that separates species invasions from

Asia and Australia is still used today. He collected 125,600 specimens, found roughly 1000 new species (including for Haldane's future admiration, 83,200 specimens of beetles, 72 species of them found in one day). He found recurrent intimacy with malaria, dysentery, and yellow fever but his 14-hour workday allowed him time to write hundreds of papers from his camp stool and desk. Shermer casts Wallace in a "heretic" mold. He might reconsider: I suggest that heretics and prophets fundamentally differ in their driving forces and that Wallace usually wanted to be the latter and an architect rather than a wrecking crew.

Third, I find my own faults in Shermer's writing. An oddly relevant hero, Stephen King (2000) tells us to cut any book by 25% before sending it to a publisher, ensure that every word is needed, and eliminate adverbs. He also prescribes Strunk & White. Academic texts can be in active voice and, according to Geoff Miller, we can also write a text on nearly any subject with 400-800 words. Thus, Shermer suffers from comparison with Jon Weiner, Desmond King-Hele, Janet Browne, David Cohen, or that master ivory carver, Bob Wright. Shermer's writing also suffers by comparison whenever he quotes from Wallace! For example, one sentence from Wallace on p. 61:

"We reached a point about twenty miles below Arroya, beyond which a large canoe cannot pass in the dry season, from the rapids, falls and whirlpools which here commence and obstruct the navigation of this magnificent river more or less to its source; here we are obliged to leave our vessel and continue in an open boat, in which we were exposed for two days, amply repaid however by the beauty of the scenery, the river (here a mile wide) being studded with rocky and sandy islets of all sizes, and richly clad with vegetation; the shores high and undulating, covered with a dense but picturesque forest; the waters dark and clear as crystal; and the excitement in shooting fearful rapids, &c. acted as a necessary stimulant under the heat of an equatorial sun, and thermometer 95° in the

shade."

### We Could Have Had...

Rutgers University Press issued David Haig's collection of his papers on genomic imprinting. Likewise, for Bob Trivers's key papers. Both texts allow a convenient access to formal material and to the personal stories that Haig and Trivers tell at the start of each manuscript. Their gossip is not only interesting but it also elicits auditory and visual memories of the rooms and events at which I've heard each of them speak.

I would enjoy a collection, edited by Shermer, of Wallace's pivotal writings. Wallace appears to be a more persuasive advocate than Shermer who, after all, made his career as a talented skeptic. (The skeptic's role can be powerful: H.L. Mencken through his book reviews shaped American literature and sometimes her politics. See Teachout, 2002.) Shermer could then serve us well by introductions to the history, context, and impact of each of Wallace's papers in such an anthology.

Wallace, 90, died in 1913, 5 years before my own father's birth, they almost could have touched. Thus, Shermer's current book is all the more interesting but I expected more: Wallace is still in Darwin's shadow...

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