Ernst Mayr (1904–2005), Darwin of the 20th Century, Defender of the Faith

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Ernst Mayr died in 2005, just months before his 101st birthday. His nine-decade career spanned much of the history of modern biology and by the end of it Mayr had contributed so much to its understanding that he became a kind of living history of his own. He was the last of the living “architects”—a self-designated distinction—of the historical event he termed “the evolutionary synthesis” (see Mayr and Provine 1980).

His life-long interests were dominated by a need to understand the pattern and process of evolution. He made notable contributions to the establishment of the “modern” or synthetic theory of evolution and to galvanizing, organizing, and shaping the scientific discipline of evolutionary biology. He worked especially hard at integrating Darwinian selection theory with newer areas in Mendelian genetics, and in stressing population approaches for understanding the origins of biological diversity. Along with Theodosius Dobzhansky (to whom he always gave credit), he developed a workable definition of species, and proceeded to explore the geographic patterns and mechanisms associated with species formation. He made this work, and the path taken to achieve it, widely known through his historical and philosophical efforts leading to a series of scholarly and semipopular works. He was a tireless promoter and organizer who served a number of administrative, editorial, governance, and service roles, all in the cause of promoting, defending, and legitimating the science of evolution.

Mayr made such a career out of evolution that of all the noted figures in the 20th century, he came the closest to filling Darwin’s shoes. Asked by a New York Times reporter, following the occasion of the publication of This is Biology in 1997 (at the ripe old age of 92), how I understood Mayr’s monumental career, I immediately declared “He’s the Darwin of the 20th century, defender of the faith.” It was an exaggerated claim, perhaps, but there was enough truth to it to ring true for many readers. Not only did the analogous characterization make the headlines then, but it dominated the numerous international headlines, obituaries, and tributes in his honor at the time of his death (see, e.g., Yoon 1997, 2005; Bradt 2005; Coyne 2005; Guterman 2005; Meyer 2005).

Mayr’s life did bear notable parallels to Darwin’s. Both developed an obsessive interest in the natural world at an early age and both became committed naturalists. Mayr’s interests were clearly in ornithology while Darwin was “taxonomically promiscuous,” choosing to study organisms as his interests dictated (though we do know that he was especially fond of beetles in his youth). Both came from well-educated, “professionalized” families who encouraged love of natural history and outdoor activities. Mayr was born to a family of judges, Darwin to a family of physicians. Both were offered the best of educational opportunities, and both attended medical school but then dropped out to pursue their true interests in natural history. Neither was terrifically quantitative and neither showed a marked intellectual precocity of the kind usually associated with “genius”; yet both had strong theoretical leanings that accompanied notable observational acuity, especially of the natural world.

Most importantly, their life and work followed some notable parallel trajectories. While still young, both participated in important life-altering natural history–oriented expeditions that included prominent islands or groups of islands in the Pacific, and that ultimately proved to be crucial to the development of their ideas on evolution. Mayr traveled to the island of New Guinea on the Rothschild Expedition and to the Solomons on the Whitney South Sea Expedition for a total of two and a half years; Darwin on the famed five-year voyage of the H. M. S. Beagle that included stops in the Galapagos, New Zealand, and Australia, in addition to South America. After returning, both turned to focused study of their collections and gained professional status and authority in their prospective scientific communities.


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Neither made a career out of exploration, preferring to remain closer to home to pursue more reflective and synthetic endeavors. Both also made rather conventional personal choices following these travels by marrying and becoming devoted husbands, fathers, and “pillars” of their respective communities.

Finally, both were known for their productivity, writing copiously for the entirety of their long careers, and both made their greatest impact from broadly synthetic works. Mayr’s first and most famous book delved into the subject of systematics and, with patterns and process of speciation, into areas also associated with Darwin. Mayr’s first famous book appearing in 1942, called Systematics and the Origin of Species, replicated in part Darwin’s famous title of 1859. It was also the systematist’s response to Dobzhansky’s 1937 synthetic work, Genetics and the Origin of Species. (Both Dobzhansky and Mayr felt that Darwin had failed to give an account promised by his title.) Thus in their love of natural history, in their emphasis on the patterns and process of evolution, as revealed in biogeography and inspired by their observations of particular Pacific island contexts, both Mayr and Darwin’s life-long interests were undergirded by similar themes. Certainly Mayr had more in common with Darwin than the other celebrated “architects” of the “evolutionary synthesis” like Theodosius Dobzhansky, G. Ledyard Stebbins, G. G. Simpson, or Julian Huxley, whom he considered his equals, more or less.¹

But there the analogy to Darwin ends. Unlike Darwin, Mayr was a diligent, focused student who met with marked success in conventional academic settings. Mayr actually finished his medical training, obtaining his degree from the University of Greifswald in 1925 (chosen because it was favorable to birdwatching), then going on to earn a PhD in biology from the University of Berlin only 16 months later. While Darwin had little in the way of formal training in science, Mayr worked closely with the curator of birds at the Berlin Museum, Erwin Stresemann, who inspired him in stressing geographic variation and developing a “populational” rather than a “typological” view of species (both terms subsequently defined Mayr’s understanding of evolution as well as his history and philosophy of biology).

Mayr’s early 20th-century German education also gave him a number of advantages that Darwin’s rather narrow 19th-century English education did not. The influence of the German Gymnasium, and of Bildung, the German educational philosophy that focused on cultivating the entirety of a person through a comprehensive education, was especially important in shaping Mayr’s life and work. His emphasis on what we might call “the life of the mind,” and his preference for “serious subjects” like science, history, and philosophy, were in fact characteristic of the intellectual interests of the German class of intellectuals recognized by European intellectual historians like Fritz Ringer as “the German Mandarins” (1969/1990). Most everyone familiar with Mayr’s intellectual tastes knew that these were areas whose worth was never questioned. This was in stark contrast to areas that involved the performing arts, literature, athletics, sports, or even current affairs or other endeavors that can be viewed as part of the category of popular culture. Mayr had little patience with television, cinema, or other forms of entertainment which he viewed as a waste of time; even politics took a backseat to true intellectual pursuits. To be sure, Mayr’s intellectual interests can be considered as polymathic but clearly within a conventional scholastic mode, emerging from his educational experiences in Germany.

Unlike Darwin, who spent his mature years in a kind of splendid isolation as the “squaxon-naturalist” of the village of Downe, Mayr was a hard-working, energetic, and effective museum curator, administrator, and enough of an “organization man” to be involved in the founding and managing of
societies like the Society for the Study of Evolution in 1946, as well as serving as the first editor of the journal associated with the society, *Evolution*. Disciplinary “gatekeeping” was his forte and did not always endear him to those he inadvertently marginalized or kept “outside,” because they held what to him were unconvincing or undigested ideas.

As curator and faculty member, Mayr was also a visible and influential presence not only in the Museum of Comparative Zoology (his primary base), but also in shaping the direction of the biological sciences at Harvard in the late 1950s, 1960s, and well into the 1970s. (He arrived there in 1953 after a curatorial appointment at New York’s American Museum of Natural History.) He served as a kind of background facilitator in the division of the biological sciences at Harvard in the late 1960s, into cell and molecular biology on one side, and organismic biology on the other. This was no mere academic, political, or administrative split based on contentious personalities or petty academic divisions; it in fact mirrored Mayr’s philosophy of biological science, which drew the distinction between the biology of proximate causes and the biology of ultimate causes (Mayr 1961 was his first articulation of this). It was Mayr, after all, who had the celebrated exchange (more of a fracas really) with the Harvard biochemist George Wald, following Wald’s bald assertion that there was one biology and that was molecular biology. Mayr’s famous address on the occasion of the Darwin centennial at Cold Spring Harbor signaled what would be a life-long campaign to preserve the location, enhance the status, and defend the science—and discipline—of evolutionary biology in the wake of more “glamorous” pursuits like molecular biology and even genetics (Mayr 1959; Smocovitis 1994, 1996). Indeed his turn to history in the mid- to late 1960s and his support in founding the *Journal of the History of Biology* was meant to counter the turn toward the history of genetics to the exclusion of natural history and systematics (see Mayr’s [1973] celebrated essay review on the historiography of genetics for this).

Yet another indicator of Mayr’s status and influence on the “two biologies,” especially as they unfolded at Harvard University, is apparent from at least two autobiographical reflections by E. O. Wilson (1994 and especially 1998) and James D. Watson (2002). As unlikely a pairing as they could be, Mayr served as a kind of role model to both at early points in their careers. Watson, an avid birder, looked to Mayr for a permanent appointment at Harvard (as well as looking to the great man for help in his ill-fated courtship with his daughter, Christa), while Wilson’s own interests in islands, biogeography, and natural history were inspired by Mayr at an early stage of his career. As Mayr relayed later on, even MacArthur and Wilson’s mathematically-informed “theory of island biogeography” had been greatly informed by his early insights on islands, especially on continuous colonization and extinction (Shermer and Sulloway 2000).

Mayr’s intellectual influence was felt by other luminaries in evolutionary biology, including Stephen J. Gould and Niles Eldredge. They applied insights from a famous 1954 paper Mayr wrote describing founder events, genetic restructuring, and allopatric speciation to paleontology to ground their famous view of “punctuated equilibrium.” Gould was especially influenced by Mayr, having served as his teaching assistant at Harvard for some three years, and although the extent to which the famous team of Gould and Eldredge (or Eldredge and Gould), drew on Mayr’s work is the subject of a lively debate, it is clear that Mayr’s insights on the pattern and process of speciation had far-reaching consequences late into the 20th century. His monumental *Animal Species and Evolution* (1963), also known as “the big green book,” synthesized all his insights and was considered *de rigueur* reading for an entire generation of evolutionary biologists.

Like Darwin, Mayr faced opposition to his work, but unlike Darwin, whose personality has been seen as so anxious, hypersensitive, approval-seeking, and so conflict-avoidant as to be retiring from view (Browne 1995, 2002), Mayr preferred direct engagement, attacking rival points of view, or dismissing as outright insupportable what he thought were stupid claims. Frequently at the center of evolutionary debates, especially when his cherished “synthesis” was being challenged, Mayr could come across as dominating, absolute, and even overbearing. “I’m not dogmatic,” he was rumored to have said, “I’m right!” (see Coyne 2005). That quip, in a nutshell, pretty well summed up the character of the man. Yet Mayr was, I would argue, very often on the winning side, preferring empirical evidence to abstract or mathematical theories and hard work to quick but sloppy or lazy conceptualizing. And he could just as often turn a nasty exchange to productive debate, especially
when a junior scholar was involved. What mattered most to Mayr were the ideas themselves, and he got along splendidly with those who had the wit and intelligence to appreciate that. “Defender of the Faith,” was the subsidiary title reserved for the powerful monarchs of England beginning with Henry VIII, and though its application to Mayr is perhaps an exaggeration, it does I think convey his kind of despotic but benevolent “rule.”

Outside the battlefield of ideas Mayr was a generous, unpretentious individual who made little in the way of personal demands on his colleagues and friends. He was just as much a good-spirited, light-hearted, “people person” who took more than a casual interest in the lives of people around him than he was a formidable or intimidating intellect. He enjoyed field trips and hiking, and he reached out to the next generations. Like Darwin, he loved his family, his work, and the natural world, and faced his end with courage and dignity. And though he never reached the prominence of Darwin, who received a state burial late in the 19th century, Mayr’s passing at the beginning of the 21st was mourned by an international audience whose understanding of evolution had been fundamentally shaped by his life and work.

Note

1. The list of “architects” or major players in the evolutionary synthesis varies depending on historical source. R. A. Fisher, Sewall Wright, and J. B. S. Haldane, the mathematical modelers of theoretical population genetics, may justly be considered as architects. For discussion of criteria, lists of names, and specific achievements, see Ernst Mayr and William Provine (1980). Mayr had turbulent relations with nearly all of his peers and especially disliked the prominent position given to theorist Wright by historians like Provine.

References


