

BOOKS & ARTS

An incomparable life

Exceptional intellect and creativity made Ernst Mayr the last century's greatest evolutionary biologist.

**Ornithology, Evolution, and Philosophy:
The Life and Science of Ernst Mayr
1904–2005**

by Jürgen Haffer
Springer: 2007. 473 pp. \$119

Jared Diamond

Returning from an expedition to New Guinea in 1965, John Terborgh and I laid out our hundreds of bird specimens in the Harvard Museum of Comparative Zoology for Ernst Mayr to identify. Ernst had made only one collecting trip to New Guinea 36 years previously, and his last publication on New Guinea birds had appeared in 1954. Nevertheless, as he walked along the shelf and glanced at one specimen after another, he quickly identified each by its Latin species name and then by its subspecies name; he told us which zoologist had described it, in what year and in which journal; gave the alternative names under which other zoologists had discussed it; and explained its broader biological significance (for example, "Check that one for altitudinal hybridization"). He hesitated only at one obscurely mottled specimen: "See if that's a female *Rhagologus*." We found later that it was indeed a female *Rhagologus*, a whistler whose relatives are usually banded black and gold.

This incident illustrates some of what made Ernst Mayr the greatest evolutionary biologist of the twentieth century. He is known especially for having woven together field studies of natural history, museum studies of taxonomy, and laboratory studies of population genetics to solve problems of the origin of species. He is also known for his syntheses of modern evolutionary biology and for contributions to understanding biology's distinctiveness within the history and philosophy of science. He released the last of his 21 books, *What Makes Biology Unique?*, on his hundredth birthday, after which he published the last seven of his 856 papers. He died five months short of turning 101. These achievements, plus his distinctive intellect and personality, make him an interesting subject for a biographer and historian of science.

Jürgen Haffer's is the first book-length biography of Ernst Mayr. Although others will surely follow, Haffer's will remain unique, as it was virtually co-authored by Mayr as a hybrid between an authorized biography and an autobiography. After meeting Mayr at the age of



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Ernst Mayr at 98. At 100, he published his twenty-first book and the last seven of his 856 papers.

64, Haffer interviewed and corresponded with him, and completed a draft in time for Mayr to review it. Haffer is himself a distinguished ornithologist and evolutionary biologist, so he understands and can explain Mayr's achievements. Like his subject, he is German-born but fluent in English, so he was able to read the young Mayr's diaries and letters in German and to appreciate how Mayr's German background and his American citizenship contributed to his science and his life.

A theme that emerges repeatedly from Haffer's account is the large role that chance played in Mayr's career — and the hard work and intrinsic ability that enabled him to profit from it. The first major stroke of luck was Mayr's field observation, at age 18, of a rare duck, the red-crested pochard. This led to his introduction to Germany's leading ornithologist, Erwin Stresemann, who helped the student Mayr to switch from medicine to biology. Mayr worked 18 hours a day to complete his PhD thesis in just 16 months.

Mayr had more good luck at his first lecture to a large general audience in December 1939. He was preceded by a dreadful one-hour lecture delivered by the geneticist Sewall Wright with his back to the microphone. Mayr's contrasting clear and splendid talk resulted in an invitation to write his first great book, *Systematics and the Origins of Species*. Students of creativity should compare Mayr with other scientists who also enjoyed good fortune and achieved distinction,

but without equalling his greatness.

Haffer recognizes the qualities that contributed to Mayr's scientific achievements. Besides his outstanding memory for detail, instant visual pattern recognition, a synthetic ability to place details in a wider context, and legendary capacity for hard work, he was quick to learn (for example, he learned the Malay language from other passengers during his 26-day boat voyage from Italy to Java). He was determined in the face of resistance — as in his 11-year, ultimately successful, struggle to win US citizenship for his wife and himself from the anti-German New York immigration office. His social skills enabled him to survive in New Guinea, to befriend the tribes people there and amass rare bird collections from them, to establish hundreds of productive collaborations with other scientists, and to establish friendships with younger generations — such as Haffer and myself — as he outlived his own age cohort.

Mayr enjoyed a rare self-confidence. Haffer's book contains a long letter written by the 19-year-old Mayr to his mentor Stresemann, suggesting studies that Stresemann should pursue — quite shocking, considering the authoritarian posture of German professors to their students even today. Mayr confessed he was "terribly amused at my forwardness" when he re-read this letter 68 years later. The same self-confidence took him to New Guinea at age 23 to live as the only European in jungle camps with

New Guineans. This belief in himself rested on a realistic assessment of his own strengths and limitations, constraining him — unlike some other great scientists and many great musicians — to stay within his competence. For instance, he decided after many months of preliminary study not to extend his book *Animal Species and Evolution* to discuss plants, or *The Growth of Biological Thought* to include physiology and embryology, because he recognized his lack of familiarity with these subjects.

Mayr would defend his ideas vigorously. Often construed as dogmatism, it was a trait that he explained as heuristically useful by inviting challenge. He did not hesitate to discard his own long-held views when presented

with convincing contrary evidence, as when the naturalist James Chapin persuaded him to abandon his original lamarckian outlook. Because Mayr had previously stressed the evolutionary significance of peripheral isolates, I expected trouble when, during our collaboration on our book *The Birds of Northern Melanesia*, I sent him an analysis demonstrating that such isolates rarely spread upstream in northern Melanesia — but he raised no objection.

This biography is required reading for evolutionary biologists, historians and philosophers of science, and for scholars of creativity. It is organized for such a readership: Haffer separates the phases of Mayr's career and the fields of his science, explains the scientific problems

that Mayr studied, and appends Mayr's complete *curriculum vitae*, bibliography and an analysis of his publications.

Room remains for another biography of Mayr aimed at a broad public interested in how creative and productive minds are formed. Much more can be extracted from Mayr's diaries and letters, and from reminiscences of his students and younger friends. My advice to such a biographer: start soon, while those people are still available — and be grateful that Haffer has done so much of the groundwork in this splendid account. ■

Jared Diamond is professor in the Department of Geography, University of California, Los Angeles, California 90095-1524, USA.

The dark side of cancer research

The Secret History of the War on Cancer

by Devra Davis

Basic Books: 2007. 304 pp. \$27.95

Daniel S. Greenberg

Scorn and bitterness steam from the pages of *The Secret History of the War on Cancer*. This amalgam of history, speculation and memoir argues that "the wrong battles with the wrong weapons and the wrong leaders" have consigned millions to preventable death from cancer.

Dangerous carcinogens — mainly tobacco, radiation, asbestos and benzene — continue to pollute the environment decades after their lethality was clearly identified, writes Devra Davis, an epidemiologist and director of the Center for Environmental Oncology at the University of Pittsburgh Cancer Institute in Pennsylvania. Their prevalence, she asserts, is the product of corporate greed and guile, warped political priorities, supine regulatory practices and dirty dealing by notable scientific generals. Today, new hazards may lurk in innumerable chemical compounds in convenience items, electromagnetic propagation and industrial waste, all shielded from scrutiny by malign cover-ups and evasions.

The well-known reality of this 'war' is that environmental clean-up, which means friction with corporate powers, has been neglected relative to curative strategies, which raise hope, enrich the scientific enterprise and offend no one. But the imbalance has been diminishing. In Davis's telling, however, little has changed in decades, leaving industrial polluters unrestrained, while devious characters profit by spreading cancer. For a nuanced understanding of the confrontation with cancer, look elsewhere.

Davis notes that Richard Doll, the epidemiologist credited with establish-

ing the relationship between tobacco and lung cancer, held lucrative consulting deals with major chemical companies and industrial associations, including a firm that he "defended ... against lawsuits from some of its asbestos-exposed workforce". By way of contrast, Davis chronicles the fate of several scientists who sounded alarms about environmental carcinogens, risking and sometimes losing their careers, while their findings were flushed down the memory hole.

Turning to her own experience, the author reports a conversation that she says occurred in 1986 — 22 years after the US Surgeon General's historic report on smoking and health, and 15 years after President Richard Nixon and the Congress declared war on cancer. While she was an environmental staffer at the National



According to a recent Nationwide survey: **MORE DOCTORS SMOKE CAMELS THAN ANY OTHER CIGARETTE**



CAMELS *Cotter Tobacco*

Smoking risks were suspected when this ad came out in 1946.

Academy of Sciences (NAS), Davis alleges that the then NAS president Frank Press doused her plan to write a book about "the fundamental misdirection of the war on cancer". He warned her, she writes: "You can't write a book critical of the cancer enterprise and hold a senior position at this institution." Davis remained at the academy for a decade. "I watched ... the concerted and well-funded effort to identify, magnify, and exaggerate doubts about what we could say that we know [about carcinogens] as a way of delaying actions."

Asked to comment, Press, now an official at a consulting firm in Washington, wrote to me: "I don't recall the incident. It could have happened." Press added, "If as a staff member she wrote a book on issues before the academy, the NAS would be viewed as biased and predictable. Davis should have known this."

Davis details what was long-ago recognized about major environmental cancer risks, and how the polluting miscreants eluded control.

The tales she tells, and retells, are generally well known, as evidenced by the predominance of published sources in 22 pages of citations. From insider whistle-blowers and corporate documents unearthed in legal proceedings, the monumental deceptions of the tobacco industry, reiterated at length here, have been described and dissected in several distinguished books and innumerable articles. In this respect and others, the 'secret' in the title is questionable.

Nonetheless, for a well-documented, prosecutorial account of the dark side of cancer-control politics, Davis's work — lopsided and verbose as it is — merits attention. Younger readers, particularly, may be unaware of the corporate and political machinations that kept carcinogenic pollutants uncontrolled long after their dangers were understood.

Presented in fascinating detail is the long and troubled career of Wilhelm Hueper. Between the First and Second World Wars, this German émigré pathologist pioneered some of the earliest identifications of industrial