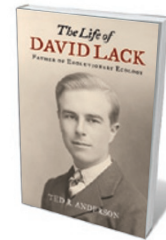




David Lack (left) seeking out nests of chimney swifts in Ithaca, New York.



The Life of David Lack: Father of Evolutionary Ecology
TED R. ANDERSON
Oxford University Press: 2013.

LACK FAMILY

to our understanding of a major issue in evolutionary biology by means of a few months' rather chaotic field study reflects a different age of scientific enquiry. So, too, does Lack's completely missing the point in his first major paper on the subject, in which he dismissed the possibility of adaptive causes of beak-size differences.

The central message of Anderson's book is that Lack should be understood as someone who bridged the gap between traditional natural history and the development of its modern academic descendant, evolutionary ecology. Indeed, Anderson argues that Lack's depth and breadth of impact were such that he deserves to be credited as a parent of the discipline.

Lack's scientific career began at a time when boundaries between amateur and professional were still blurred. He taught science at the progressive Dartington Hall School in Devon, and involved his pupils in early studies of robin behaviour. Mayr and evolutionary biologist Julian Huxley acted as mentors well before Lack established himself in his first academic post, as director of the Edward Grey Institute of Field Ornithology at Oxford University, UK (the post I now hold). Once in the Establishment, he withdrew from engaging with non-academic ecology. Anderson hints that this is most likely to have been due to conflicts with Max Nicholson — a giant of twentieth-century conservation and pioneer of what would now be called citizen science. They clashed over the academic direction of the institute, to which Lack was appointed against Nicholson's wishes.

Although he worked exclusively on birds, Lack's insights could frequently be generalized to other taxa. Birds are enduringly popular with macroecologists, thanks to the tremendous volume of information collected by amateur ornithologists, and (ironically) their rather limited diversity. Lack worked as the 'modern synthesis' in evolutionary biology was being developed (by Mayr among others). He was, if not one of its architects, one of its first practitioners.

Lack was particularly adept at using comparative approaches to derive general rules about how ecology affects evolution. He also provided much of the underpinning for modern population biology, using information from studies of marked individuals to estimate lifespans and rates of reproduction in the wild. Again, the foundations of this work were laid while Lack

EVOLUTIONARY BIOLOGY

Rare bird of evolution

Ben Sheldon applauds a life of the schoolmaster who broke new ground on Darwin's finches and speciation.

Charles Darwin had remarkably little to say about how the birds that bear his name — Darwin's finches — came to have such a variety of beaks, despite their iconic status in evolutionary biology. It was left to an English schoolmaster on sabbatical in the late 1930s to carry out the first serious work on this question.

David Lack's insight, gleaned from a four-month field trip to the Galapagos archipelago in 1938–39, ultimately centred on the role of ecological isolation in speciation. As Ted Anderson shows in his charming and very readable biography, Lack's argument, which developed slowly, was that differences in the way populations adapt to and compete for

local resources (such as seeds, in the case of finches) is a key part of the process of speciation. Although Lack completely changed his mind in print between 1940 and 1947, his work was extremely influential. Ernst Mayr, an evolutionary biologist with whom Lack corresponded extensively, credited Lack with introducing the idea of ecological isolation to the process of speciation. More recently, Canadian evolutionary biologist Dolph Schluter quipped that Darwin's finches, which have continued to provide a rich model for work on speciation, natural selection and evolutionary genetics, should be known as Lack's finches.

That a then schoolmaster contributed

was a schoolmaster, and are described in his classic *The Life of the Robin* (1943). At Oxford, he established population studies of the swift and the great tit, now in their seventh decade.

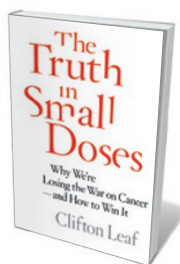
The Life of David Lack is organized chronologically around the 13 books Lack wrote before his death at the age of 62. This approach interweaves his science and life, but at times seems forced. Lack's major contributions to science arguably rest on just four of those books — *Darwin's Finches* and his three synthetic works on evolutionary ecology published between 1954 and 1968. A more in-depth exploration of the lasting influence of these four would be of considerable interest. Furthermore, the match between the content of the books when published and Lack's scientific and personal life at the time is not always very close.

However, Anderson gives us a vivid portrait of Lack and the personalities and careers of many people he interacted with. Lack was a socially reserved man, for whom family life was of great importance, but he was also often described as prickly and abrasive over scientific issues. Anderson does not shy away from discussing Lack's scientific and personal conflicts. For instance, he gives a clear exposition of the long-running debate between Lack and zoologist Vero Wynne-Edwards over the balance of group and individual-level selection in population regulation, which presages current debates on levels of selection. He takes us from the origin of the clash to an eventual rapprochement on a natural history trip in the Scottish Highlands.

The iciness between Lack and zoologist Charles Elton — a founder of population ecology who was a colleague of Lack's at Oxford and a neighbour for decades — remains something of a mystery, however. Despite sharing a building in Oxford's Botanic Garden, the door between Lack's and Elton's groups remained locked until Elton's retirement. Anderson speculates that the simple ecological principle of competitive exclusion might lie at the root of the conflict: here were two scientists who sought to explain the same general biological phenomena, using approaches that were too similar to enable their easy coexistence. Imagine how evolutionary ecology might have developed had they collaborated. ■

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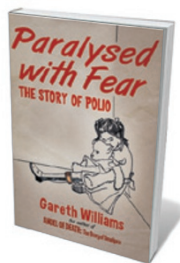
Books in brief



The Truth in Small Doses: Why We're Losing the War on Cancer — and How to Win It

Clifton Leaf SIMON & SCHUSTER (2013)

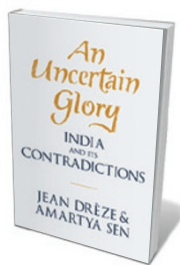
The US 'war on cancer' begun in 1971 has been an overall failure, argues journalist and cancer survivor Clifton Leaf. Over the past 40 years, he shows, crude deaths of US citizens from cancer have risen by 14%, although those from stroke and other killer diseases have fallen. The developing-world burden is also rising. In his exhaustively researched study probing why, Leaf points to a "cancer culture" in which scientists and medics think small, fail to coordinate results and focus on publishing rather than achieving breakthroughs.



Paralysed with Fear: The Story of Polio

Gareth Williams PALGRAVE MACMILLAN (2013)

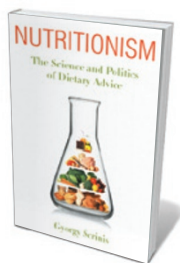
With the World Health Organization poised to roll out its Polio Eradication and Endgame Strategic Plan 2013–2018, the door could finally close on this devastating disease. Medical researcher Gareth Williams negotiates the hairpin bends of polio's history with aplomb. He takes us from its discovery by London medic Michael Underwood in the eighteenth century to Karl Landsteiner's isolation of the virus in 1908, and on through the twentieth century, when polio paralysed and killed millions, and consigned some to iron lungs or a life in callipers. A detailed, science-rich treatment.



An Uncertain Glory: India and its Contradictions

Jean Drèze and Amartya Sen ALLEN LANE (2013)

The world's largest democracy and one of its swiftest-growing economies lags behind many nations in immunization, education, medical care, the power sector and other key services. Economists Amartya Sen and Jean Drèze explore why India is "climbing up the ladder of per capita income while slipping down the slope of social indicators". China, for instance, contributes 2.7% of gross domestic product to public health; India, just 1.2%. A cogent synthesis of the state of a nation where high-tech success sits cheek by jowl with widespread open defecation and gross social inequality.



Nutritionism: The Science and Politics of Dietary Advice

Gyorgy Scrinis COLUMBIA UNIVERSITY PRESS (2013)

From diktats on salt to rulings on carbs, nutritional advice can turn supermarket aisles into minefields. Sociologist Gyorgy Scrinis blames "nutritionism", a reductive ideology that has dominated nutrition science for decades. It is a myth, he argues, that the interplay between nutrients, food and the body is fully understood. Meanwhile, much nutritional science focuses on individual nutrients such as fats, divorced from context such as overall diet. Scrinis calls for an integration of sound science with optimal production and processing, and hands-on cultivation and cooking.



Seaweeds: Edible, Available and Sustainable

Ole Mouritsen UNIVERSITY OF CHICAGO PRESS (2013)

Anyone who has wandered a wrack-strewn beach or munched nori-wrapped sushi knows the singular appeal of seaweeds. Biophysicist Ole Mouritsen trawls their biology and cultural roles as fertilizer, additives, medicine and food. Packed with minerals, proteins, trace elements and fatty acids, these algae are tasty, abundant and easily cultivable, and could feed future billions. Mouritsen even includes recipes: from seaweed pesto and dulse ice cream to kelp broth, a sea garden of delights. [Barbara Kiser](#)