writings. But most important, here we have access to Wright's most mature thoughts. It is nevertheless remarkable how consistent has been his view of the evolutionary process from 1930 until the present.

Of course, most of the book reports the work of others. There are about 700 references in the bibliography. Many of these writings will not be familiar to readers, for Wright has been indefatigable in searching out relevant literature from diverse sources. Many unnoticed or forgotten papers are given a new significance. Another indication of the wide coverage is the number of authors referred to. There are about 500 names listed in the author index (not including his own, which Wright chose to omit).

Wright is the sole survivor of the great trio. He has spent almost all his time for more than 15 years on these books. When the man who has contributed more to a field than any other living person takes time to review the whole field and put it into a common framework with his own synthesis, we should anticipate something important. Having seen volume 4 in manuscript, I know that this anticipation will be fully realised. □

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But is it ecology?

Nature's Economy. By Donald Worster. Pp. xii+404. (Sierra Club Books: San Francisco, 1977.) $15.

It helps a reviewer when an author explains what his book is supposed to be about. The publisher's blurb, on the dustcover, may be misleading, and only say what the publisher hopes the author has written. Donald Worster, in his preface, states that "the aim of this book is not so much to account for the appeal of ecology to our own times as to understand what this field of study has been prior to its most recent ascent to oracular power". The trouble is that though it is indeed about the way in which people have thought about nature and their surroundings during the past 200 years, much of this thought has very little to do with what I would call ecology.

The word ecology means many different things to different people. I have given this subject some thought, particularly since I had the task of drafting a definition for the new Fontana *Dictionary of Modern Thought*. Here, with due acknowledgement to Ernst Haeckel (who is believed to have coined the word in 1873) I say that it is "the branch of biology which deals with the interrelationships of organisms with their environment". I briefly sketch the subject's history, mentioning the main subdivisions of ecological study. I take the opportunity of riding one of my hobby-horses, and, while praising the 'muddy-boot' ecologist, slip in a snide comment about those with a more theoretical approach. Finally, I deplore the misuse of the term today, when it is used to cover anything considered good, so that "the ecology of litter" comes to mean voluntary garbage collecting by public-spirited college students. I conclude my contribution by saying: "because of these debased uses, it seems likely that scientific ecologists will, in the future, have to find some new term to describe their activities".

I must confess that I had some misgiving when I read Worster's comment about ecology's alleged oracular power. However, he hardly develops this point, and says very little about the current period other than describing it as the "Age of Ecology". In fact, rightly in my opinion, he concludes that the modern doomwatchers owe very little to the scientists and others who have studied the subject, and the environment, during the past 200 years.

Worster's technique is to describe the life, work and thoughts of the men whom he thinks have made important contributions to his subject. He starts with Gilbert White (1720–1793), the English country parson and the author of *The Natural History of Selborne*. He includes White's contemporary, Linneaus (1707–1793). He contrasts White's arcadian idyll with Linneaus' more scientific approach. He then devotes several chapters to Thoreau (1817–1862), described as a subversive, in contrast to Charles Darwin (1809–1882), who is credited with inaugurating a dismal age, the idea of the survival of the fittest being seen as suggesting that every organism strives to do down the rest. These four men are the subject of rather more than half the text, although they all worked before 1873, the year when Haeckel started using the word ecology. Worster's accounts of their ideas are well expressed, though they could with advantage be shorter and less dramatically written. But the conflicts of opinion which he deems to be so significant are, in the long run, much less important than the way in which these men collected and codified accurate information about the flora and fauna of the world in which they lived. Many of their philosophical observations had little effect on the progress of science.

The remainder of the book deals, much more briefly, with ecologists from the late nineteenth century to the present day. Those considered in most detail are Eugenius Warming, Frederick Clements, Aldo Leopold, Arthur Tansley and members of the so-called New Ecology Group, which arose in Chicago in the 1930s, and which led to the recognition of the importance of energy flow and eco-economics.

Although the contribution of these workers is described satisfactorily, Donald Worster gives a very curious picture of the development of ecology. We are given the impression of warring factions, men wedded irrevocably to their pet theories, and, when defeated, retiring (with their ideas) to a scientific limbo. We are told that by the 1930s, the ideas of Darwin were considered "not so much wrong as outmoded and boring", and that by the 1960s "orthodox scientific thought was virtually monopolised by thermodynamics and bioeconomics". As one who lived, and sometimes worked as an ecologist, during that period, I cannot recognise this picture.

Real ecology has always been, and continues to be, a descriptive science. Ecologists wish to know as much as possible about the animals and plants which they study, and their relationships with each other and their environment. The different approaches are complementary to each other, not warring factions desiring each other's destruction.

Finally, I fear that the "oracular power" of the ecologist is a myth. Actually, Donald Worster does much to explode it. He shows that the doomwatchers of today owe little to the scientific work of present-day or of past ecologists. He suggests that they choose suitable bits of theories of all past generations from Gilbert White to today, and that they modify them for their own purposes. I think they are less well informed, and that most of them rely more on their feelings than on their knowledge or their powers of observation. Unfortunately, they are joined by some otherwise-reputable scientists who do not always make it clear when they are speaking as experts in their own subject, and when as concerned citizens with no real expertise. They mean well, but they may bring science in general, and ecology in particular, into disrepute. This is why we may need a new name for "that branch of biology which deals with the interrelationships of organisms with their environment".

Kenneth Mellanby

Kenneth Mellanby was Director of Monks Wood Experimental Station from 1960–74.