

at an appropriate international convention it were agreed that books which are reprinted should be cited in a bibliography not with the date of the reprint but with the date of the original publication. A citation giving a much later date of a reprint could be highly misleading.

Lastly, in his treatment of mass motion, after maximizing the entropy with Lagrangian multipliers α , β , γ for the moving system, the author assumes (top of page 153) that $\beta=1/kT$, thus introducing the temperature of a moving object. From this essential step then follows the temperature transformation $T=T_0\sqrt{1-v^2/c^2}$. Most readers will not spot that this is the crucial step in Pathria's argument (which, in fact, I would not regard as unique and would prefer not to make at all), and it would have been worthy of a separate caution. In fact, it can be shown that if one assumes that thermodynamic relations are Lorentz-invariant then this temperature transformation follows. It would therefore have been sensible in such a discussion to raise the question of the Lorentz invariance of thermodynamic relations in the first place. Nonetheless, I believe that this is an excellent book from which to learn the methods and results of statistical mechanics.

P. T. LANDSBERG

Ecological Personalities

Philosophers of the Earth; Conversations with Ecologists. By Ann Chisholm. Pp. 201. (Sidgwick and Jackson.) £2.50.

ANY period of history, as observed by those living at the time, is coloured not only by the events that make up that period of history but also by the state of development that those events had reached when the observer first became aware of them. A sense of history and an awareness of the importance and relevance of the events that preceded those being observed is a necessary prerequisite if the full significance of the new events and the contribution being made by the players in these events is to be understood. Without these prerequisites the records made by an observer living through the period of history in question will suffer from distortion and be highly subjective. A journalist when reporting an event for the permanent column of a newspaper may up to a point be excused this background, but when he or she records in the permanent form of the book then, like the historian, he or she must try to see his or her heroes and the events they are influencing in a more critical light.

Miss Chisholm informs us in her foreword that she became aware of the word "ecology", and I assume the concomitant "environmental or ecological crisis", in the autumn of 1969 just be-

fore Sir Frank Fraser Darling's Reith Lectures on the BBC. This is somewhat surprising as the "crisis" had been news off and on for at least 10 years by that time and had reached an all-time peak during 1967 when the Torrey Canyon went ashore; however, it does explain her selection of "heroes", or what she calls Earth philosophers, and strange bedfellows some of them make. She is clearly influenced by the state the "environmental movement" had reached and by the personalities that occupied the centre of the stage at the moment that she became aware of it, but she has had the good sense to take advice and seek out some of those whose contribution, although no less important than that of the more popular figures, is perhaps less public. Each of us would, I am sure, have selected a different bunch of personalities but we would have had to include at least half of those interviewed in this book if we were to provide a critical review of the "environmental movement" of the past decade.

Unfortunately Miss Chisholm seems less aware of, or perhaps less interested in, the events themselves. She seems less informed about the events that preceded her awakening and incidentally that of many millions of other people too. For example, in the third paragraph of her foreword the author says "In America, as usual several steps ahead. . . ." Really? This is indicative of the sort of thing I referred to in my first paragraph. There is no doubt that the recent response of the USA to environmental wrongs has been significant but it has been a long time coming. Some of the countries in Europe have been doing things too and for longer. Where credit is due give it, but don't hand out laurels where they are not deserved.

However, Miss Chisholm's selection of heroes is interesting; some, as she admits, are not ecologists, in spite of the book's subtitle *Conversations with Ecologists*, but most of them have made major contributions to "environmental thinking". This use, or rather misuse, of the word "ecology" is one of the things troubling the real ecologists; it is rapidly becoming a debased word along with "environment", a situation which does nothing but add to the mounting difficulties facing the world community, and the journalists must take some of the responsibility for this debasement and the resulting confusion.

Miss Chisholm writes in a nice easy style but the question does arise in my mind, for whom does she write? If the layman is sufficiently interested in the "environmental movement" to want to know something of the characters involved, then all well and good, but I doubt whether the "environmentalists" or "ecologists", using the non-debased

forms, will find much in the *Philosophers of the Earth* to interest them. The treatment of necessity is too superficial and for the same reason the book will not be of much use to the historian—the absence of an index in any case makes the book next to useless for the researcher. Perhaps the author would have been better advised to select fewer and to delve deeper. In any event she has spared us yet another book on the "environmental crisis" but has focused on some of the personalities involved in the major events that historians will consider a revolutionary period of history.

ARTHUR BOURNE

Research Directory

Scientific Research in British Universities and Colleges, 1971-72, compiled by the Department of Education and Science. Vol. I: *Physical Sciences*. Pp. xxi+924. Vol. II: *Biological Sciences*. Pp. xxi+769. Vol. III: *Social Sciences (including Government Departments and Other Institutions)*. Pp. xxix+690. (Her Majesty's Stationery Office: London, 1972.) Vol. I £6.50. Vol. II £6. Vol. III £5.50.

THE 1971-72 edition of *Scientific Research in British Universities and Colleges* is still larger and more comprehensive than the previous issues. It is a unique and valuable work of reference, giving a nearly complete guide to current academic scientific and technical research. In addition, the Social Sciences volume covers research in Government and some other institutions, and this year includes Economic and Social History as a new subject heading.

The full subject and name indices enable the user to gain a fair indication of the scope of the research effort in any particular field, or to discover the current research interests of a particular department or individual. Every research worker should be familiar with it; those who are responsible for the organization or financing of scientific research cannot afford to be without it. It gives an overall view without which any research policy will be ill-informed and consequently misconceived.

I am aware of the enormous effort that must go into the publishing of this work, and would like to pay tribute to the compilers in the Office for Scientific and Technical Information; but now that it has grown so large, perhaps it is time for them to reconsider the scope and presentation of this work. What was suitable for the small, single-volume older editions is not really suitable to the present massive compilation. Faults or defects which were then not too serious are now more obvious and can present more difficulties to the user.

It is doubtful whether the separation