with different aspects of finch biology, taking examples from here and there and comparing one species with another. This is a valuable presentation, much that is said having a wider application than merely to the particular group. Geographical distribution and habitat preferences provide one aspect, and it is interesting to note the changes that have taken place in recent years in adaptation to the effects of human activities on the environment.

Feeding ecology is rightly given a prominent place. No two species of European finch have identical feeding habits; they differ in the sizes of seeds that they prefer and in the types of seed-head that they can best exploit, and these are related to the precise structure of the bill and to the particular method of using it. Nevertheless, new feeding habits can arise and spread through the population. The special feeding habits of the bullfinch have made it a major pest in orchard areas.

Further chapters deal with social behaviour, breeding, moult, migration and irruptions, and body weight. We are given an able statement of modern views on migration, applicable not only to these birds but largely to "hardy" migrants in general. Those finches that depend on the seeds of a few tree species, as contrasted with those dependent on herbaceous plants, show great differences in their movements from year to year in relation to a sporadic food-supply. The crossbills are a special case, moving only once a year and taking up new breeding areas.

The book is well illustrated with colour plates, photographs, drawings and clear maps and diagrams.

A. LANDSBOROUGH THOMSON

Heathland Microcosm

Ecology of Heathlands. By C. H. Gimingham. Pp. xv+266. (Chapman and Hall: London, October 1972.) £4.75.

As Professor Gimingham explains in his introduction, he has concentrated on certain aspects of the heathland ecosystem, in particular the vegetational components, but the lack of a detailed zoological treatment should not deter any ecologist interested in this subject. He has presented heathland as a microcosm. This feature alone makes his book different from the many ecological texts which rely on disparate examples: he is able to illustrate the whole range of plant ecology by reference to this particular vegetation type.

The characteristics of the plant, in particular its mode of growth, are shown to determine the nature of heathland and are related to such features as the current pattern in the vegetation, both short-term and longer-term history, management practices, as well as the responses of the larger animals and even the physiological behaviour of the heather plant.

This dynamic interrelationship is a refreshing change. Recently the sledge-hammer of numerical techniques has flattened the descriptive part of ecology; Professor Gimingham shows us what has been lost. In particular the chapters on growth form in relation to community structure, cyclical processes, management by fire and for grazing, nutrient cycling and conservation, make fascinating reading and exemplify this dynamic approach to the system.

I have only a few minor criticisms of this book. There is the usual crop of misprints, particularly in tables, and an unfortunate transposition of lines on the inside flap of the dustjacket—the part that most people will read first. In the chapter dealing with the phytosociology of heathlands, the reader might be forgiven for gaining the impression that, except for communities dominated by tree heaths, the southern limit of heathland is France. Many of the heath types (for example, *Calluna-Ulex* heaths, *Erica vagans* heath, humid heath with *Erica ciliaris*) all extend into the north and west of the Iberian peninsula; in fact, some of these have their phytogeographical centres in northern Spain. I should also have liked to see an expansion of the chapter on physiological ecology, perhaps particularly with regard to recent work on the photosynthetic behaviour of heather, although I must admit that this probably reflects only my personal bias.

In conclusion, I warmly recommend this book, not only to students of heathland, but also to anyone interested in ecology. It is a masterly analysis and exposition of ecology as the science of interactions.

P. BANNISTER

Has Man a Future?

Conservation for Survival: An Ecological Strategy. By Kai Curry-Lindahl. Pp. xiv+335. (Victor Gollancz: London, October 1972.) £3.25.

THE author of this book is a well-known Swedish zoologist who has taken an active part in international conservation activities, particularly in Europe and Africa. He has now taken a very broad and penetrating look at the world's problems and finds few crumbs of comfort in a long catalogue of man's folly. The first chapter is a global sketch of man's place in the world and his impact on the environment; chapters 2-8 consider the "Air", "Sea", "Fresh Water", "Soil", "Vegetation", "Animals", and "Man", while the last four discuss "Is Conservation a Losing Battle?", "Continental Problems of Today", "The Future" and "An Ecological Strategy". Dr Curry-Lindahl's treatment of these subjects is probably more comprehensive than previous books of this type and the layman, for whom it was written, might find that there is too much for his mental digestion while any particular section which interests him is likely to be too brief. There are, for instance, 126 separate headings in 312 pages allowing 2.4 pages per subject. The simplification of ecological phenomena, which is perhaps inevitable in a popular book, leads to over-optimism in some cases (the value of biological control and the use of natural herbivores in Africa in preference to domestic stock, as a source of protein) while, elsewhere, the accusation might be over-pessimism, for example the alleged inability of food supplies to increase as rapidly as the predicted population expansion. Nevertheless it would be wrong to dismiss this book as just another of the many which have appeared in recent years on the evils of overpopulation and consequent environmental degradation. The reader feels entirely sympathetic to the feeling and understanding displayed by the author as he presents his case and the constructive points which are made in the final chapters.

There would be much agreement, for instance, for the view that too many of the politicians, planners and economists, who make decisions affecting us all, behave as if the size of the GNP is the only thing which determines the quality of life and that the standard of living can only be measured in economic terms because "progress" is equated with technological advance which is motivated by profit. The author asks for the formulation by the UN of "a world policy of management and utilization of renewable natural resources". This, he says, should be drawn up by a council which would be the highest international scientific authority on the conservation of nature and environmental problems. These are brave words but the history of action by the UN in other matters makes the mind boggle at the scale and extent of world catastrophes which would be needed to overcome the natural inertia of this organization. It seems that men of power find the needs of tomorrow too difficult to solve and so fall back to the events of today because it is the only ground they have to stand on and yet are unaware that it is slipping away from under their feet.

The book is provided with a glossary and "select bibliography" which includes the major books consulted and a selection of publications which appeared after the completion of the text. The references to original papers consulted were deleted by the author from the bibliography, at the publisher's request, but no one seems to have noticed that they still remain in the text.

ERIC DUFFEY