

## Why zoos?

Gerald Durrell

### Zoo 2000: A Look Beyond the Bars.

By Jeremy Cherfas.

BBC Publications: 1984. Pp.244. £12.95.

HAVING suffered from zoomania all my life, and having created a zoological collection of my own, I am nevertheless the sternest critic of zoos. They are exceptionally important institutions and will become more so in the future, but not all zoos are without blemish and many of them are appalling. It is however perhaps unfortunate that just at the point when good collections are in the transition stage, changing from Victorian menageries to modern establishments with all the accompanying technology, zoos as a whole are under attack from a vociferous group of so-called animal lovers, ill-informed for the most part and ignorant of the real function and value of a well-run zoological collection. It is therefore particularly pleasant to see the appearance of a book like *Zoo 2000*, which addresses and demolishes most of the criticism.

The zoo critics seem to be unaware of the fact that all responsible collections have been trying to set their houses in order for some time, since criticism (in too many cases well-justified) reflects on good and bad institutions alike. With a series of checks and inspections, the Federation of British Zoos, for example, has been striving to make bad zoos better and good zoos better still. This was voluntary and put into operation by the zoos themselves. Now, at long last, we also have legislation for the control of zoos, for it is quite astonishing that until recently anyone with sufficient funds could (with planning permission) start a zoo. One such "zoo director" once telephoned me to ask me how big a puma was. When, slightly startled at this ignorance, I enquired why he wanted the information, he told me that he had a cage six feet long by four feet wide and he wanted to know whether a puma would "fit it".

In his book, Dr Cherfas deals with this vexed problem of caging. From the anthropomorphic view, bars represent a prison, but to a highly arboreal animal, such as an orang utan or a gibbon, they are merely a form of forest canopy on which to swing and exercise. Regrettably too, a lot of people imagine that because an animal has an enormous area it must be happier than in a confined space, not realizing that in nature animals are confined or confine

● *The Pollen Loads of the Honey Bee: A Guide to their Identification by Colour and Form*, Dorothy Hodges' classic work of natural history first published in 1952, has been re-issued by the International Bee Research Association. The book is available through bookshops or direct from IBRA, Hill House, Chalfont St Peter, Bucks SL9 0NR, UK. Price is £26.50, \$42.50.

themselves to a territory; nor is it generally appreciated that an animal can be just as unhappy in the sylvan glades of a safari park if it is looked after by unskilled people. In the book Cherfas points out very lucidly that game parks are nothing more than gigantic safari parks, but on the whole better run. It is useless for the anti-zoo body to keep prating on about animals being happier in the wild, when — minute by minute — the wild is shrinking and what little is left in terms of game reserves has to be managed in the same way that a large zoo has to be managed.

No one is suggesting that zoos can solve the problem of extinction by captive breeding, but they can certainly be of enormous help. The European Bison, the Père David Deer, the Hawaiian Goose and, in the case of my own organization, the Pink Pigeon, would not be in existence were it not for captive breeding. But it is nevertheless impossible, with all the goodwill in the world, to save all the species that are liable to become extinct in the next 50 or so years. I was, not many years ago, at an exceedingly depressing conference in San Diego, when I suddenly realized that we were all sitting round the table discussing which species we could save and which

species we would be forced, through lack of space or for financial considerations, to allow to become extinct. Still, the good zoos, of which there are many, can be a vital conservation tool and it is a step forward for all concerned that conservationists have now learned to value their usefulness in this respect.

Of course, zoos should cease to be as parochial as many of them are and be outward-looking. They should assist in the conservation of animals in the field and many of the more progressive zoos are doing this, such as the New York Zoological Society, Frankfurt Zoo and ourselves in Jersey. By such means, zoos will have been transformed from mere consumers of wild creatures to being their champions and helpers.

All this is made very clear in Cherfas's excellent book. It is the sort of account that I would like to press into the hands of any of those people who are anti-zoo, since it states so clearly and positively what some zoos are, what all zoos could be and how crucial are the functions they perform. □

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## Stellar instability

D. Lynden-Bell

### Physics of Gravitating Systems, Vols I and II.

By A. Fridman and V. Polyachenko.  
Springer-Verlag: 1984. Vol. I pp. 468, DM 248, \$92.50. Vol. II pp. 358, DM 218, \$81.40.

THIS two-volume work is devoted to the dynamics of star systems in which each star moves in the smooth mean field of all the others. Galaxies and large star clusters are primary applications, but the authors concentrate on idealized models to illustrate the different instabilities which may occur. Thus the books largely deal with cooperative instabilities in stellar dynamics, which play a role analogous to the instabilities found in plasma physics.

After an exploration of the analogies between these fields, Vol. I contains calculations made with the small perturbations linearized about the equilibrium, while the second volume considers non-linear phenomena. The equilibria simple enough for detailed stability analysis are homogeneous slabs, thin sheets and spherical systems, and the stability of such systems is thoroughly discussed. The authors rightly emphasize the seminal contributions of Antonov to the theory of the stability of spherical clusters, and go on to cover generalizations and applications of his methods to particular models. Here, it is surprising that the general proof of the stability of

systems with isotropic velocity distributions which decrease monotonically is neither included nor mentioned.

The books include much of what is known about encounterless stellar dynamics, Fridman and Polyachenko demonstrating a wide knowledge of both Russian and Western literature prior to 1978. It is a pleasure to see this material organized and swept together between hard covers. Part of the reason for the length is that the authors prefer to give mathematical details for some rather specialized problems — for example the stability of models of spherical star clusters in which all the stars move in circles. One can argue that the truth cannot be understood without spelling out the mathematical steps, but it is not always easy for the reader to find out the general principles from among all the details. The theory of spiral waves in galaxies is treated but the swing amplification of waves is only touched upon. Presumably this is because Toomre's advocacy of it as the basic wave amplifier came too late to influence the books' contents. Some references from more recent literature (1982) are cited and discussed.

These two volumes are a guide through the literature rather than a pedagogical lecture course. They will be useful to research students who wish to know what has been done in this area, and contain the fullest treatment in the literature of the different instabilities. □

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