In the bag

J. J. D. Greenwood

Bird Trapping and Bird Banding. By Hans Bub. *Cornell University Press: 1991. Pp. 330. $69.50.*

CATCHING birds has long been a matter of art and ingenuity. Many of the traps invented have been capable of capturing birds alive, which has allowed birds to be taken into captivity. The great diversity of trapping methods that has developed has been taken over by bird-ringers ('banders' in American English), who aim to catch and mark the birds for the purposes of scientific study and in whose hands trapping methods have developed and multiplied yet further.

This book presents an exhaustive review of the ways of catching birds alive. It will be useful both to the experienced ringer looking for new methods to aid his pursuit and to the beginner looking perhaps to find a way of trapping the species that he has taken as the subject of his doctoral research. Unfortunately, it has several major deficiencies. The first is that its title is misleading: it contains virtually no information on banding or on the activities that commonly accompany banding, such as distinguishing age and sex, taking measurements, recording moult and breeding condition, scoring fat deposition, and taking blood samples and parasites.

The problem facing the author of a manual of trapping methods is that one could choose to organize it by method, by species to be caught or by habitat in which one is operating. None would be ideal: a careful blend is probably required, backed with a good index. Bub's presentation is, unfortunately, a jumble, in which the reader gets no aid from the index, which contains entries for species of birds only. On the finer scale, the precise ways of making and operating particular traps are too often obscure. Although the book is abundantly illustrated, many of the illustrations are not illuminating. In some of the line drawings it is impossible to see how the trap is constructed, let alone how it works. And many of the photographs do not show the necessary detail, which is rendered even more of a problem by their frequent murkiness.

Although the book presents a huge number of methods, it makes too few attempts to assess their relative merits. The beginner, especially, is likely to be overwhelmed, unable to sort the gold from the dross. This is compounded by the idiosyncrasy of the practical hints that are given, with trivial or self-evident points being made while important questions of practice are often not mentioned. In discussing mist-nets, for example, it is suggested that one should colour-code the loops on the shelf-strings, but there is no consideration given to the requirement to guy the nets properly or to the question of how much lengthwise tension there should be on the shelf-strings or how much vertical slack there should be in them.

Proper guying of nets is partly a matter of safety for the birds, which are endangered if a net collapses. It is on the welfare of the birds that the book is weakest. The forewords by George Jonkel and Chris Mead point out that the techniques described may be risky and that many of them may be illegal in some countries, but the book pays scant attention to this. Indeed, it encourages undesirable practices, such as laying holding-bags with birds in them on the ground, and putting more than one bird in a bag. Bags, we are told, should be washed 'from time to time': my experience is that they should be washed every time they are used, not only because clean and dry bags are better for the birds, but also because dirty bags, shedding the dust of dried faeces as they are opened, are bad for the ringer. (The section on dangers to the bird-bander covers matters such as tree climbing, but none of the problems of picking up *Campylobacter* or other infections.)

Bird welfare is important not only in its own right and in terms of public relations, but also because any technique that harms the birds jeopardizes the quality of the science that is the ultimate objective of the ringing; so failure to address it is a serious deficiency in the book. But not withstanding its deficiencies, the diversity of methods presented makes it a useful addition to the ornithological library — provided that it carries the label 'use with care'. □

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Nuclear free

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Nuclear and Particle Physics. By M.S.C. Williams. *Oxford University Press: 1991. Pp. 385. Hbk £40, $83; pbk £19.95, $32.50.*

CHARM pervades this text, designed "for use by university undergraduates in the penultimate year of their studies for a first degree in physics". Williams begins by sketching the developments around the turn of the century that gave rise to atomic and nuclear physics, complete with lovely photographs of the protagonists and enlivened by cartoons. There are few problems for the student, possibly because Williams has adopted the Oxford style of teaching, in which there is considerable interchange between tutor and student.

The uncouth Americans, on the other hand, in their nearest equivalent (*Subatomic Physics,* second edition by Hans Frauenfelder and Ernst M. Henley: Prentice Hall, 1991) launch straight into particle accelerators. Frauenfelder and Henley believe that the important tools are necessary from the start, and they absolutely plaster the student with problems.

Both books cover some astrophysics including supernova 1987A, the Big Bang and nucleosynthesis. There are a few errors in Williams' book: the Chandrasekhar mass is $5.76Y_e^2M_\odot$ not $1.2–2M_\odot$ as in the text. Nevertheless, Williams' qualitative discussions of astrophysics are accurate.

My criticism of the book is that the treatment of nuclear physics is woefully out of date by about two decades. No wonder nuclear physics research in Britain is being turned off! Superdeformation is not mentioned; the beautiful treatments of the monopole, dipole, quadropole and Gamow–Teller giant resonances are skipped; and the giant dipole resonance is barely alluded to. The important interplay between the nuclear many-body problem and those in condensed matter physics is not developed. The study of matter under extreme conditions, high temperature and high density, is not even mentioned, although — with the development of SIS at Darmstadtr, the AGS heavy-ion accelerator at Brookhaven, the planning there for the relativistic heavy-ion collider, and the 200-GeV/nucleon beams at CERN — this is now the main thrust of nuclear physics.

According to Williams, "the problem is that there is no unified theory of nuclear reactions that is of practical use." He goes on: "The theories of nuclear structure and behaviour do not form a unified model in the sense that all properties can be predicted or explained from a set of assumptions of a fundamental nature. Nuclei are complicated many-body objects held together by poorly understood forces. . . ." I am left speechless. I am used to physicists in other fields being ignorant of nuclear physics, and also to their making comments like those of Williams — but I am not used to their writing textbooks on nuclear physics. Frauenfelder and Henley do much better! □

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