1977 Army field experiment, she notes that the percentage of women in a company was unrelated to its performance ("operational capability"). Rather, in the words of their own commanding officers, the important determinants of success were leadership, training, and morale.

Finally, the issue of physical strength has long been a sticking point regarding the effective utilization of women in the military. One consequence of the backlash in the 1980s was the reassessment of women's assignment to "nontraditional" (that is, nontraditional to women in the private sector) MOS. Certain specialties were assessed as unsuitable for women because of their lesser strength, stamina, and agility and reassigned as men-only jobs. Military leaders trotted out various studies purporting to show that women were "misplaced" with respect to physical strength. And yet, as Stiehm points out, about one-half of the women in the Army were already doing the jobs for which studies claimed they were unsuitable (p. 203). Military planners were thus using a physical-strength criterion to eliminate women's access to certain MOS. This is only one example of how military leaders institutionalize sex differences in opportunity within the military. They also reserve certain jobs for male military personnel rotating back from sea duty, or allot jobs on the basis of men's career development, presumed sex differences in interests, and definition of jobs as combat-related.

The military and civilian leaders who buy the myths Stiehm describes have a problem. Though they have succeeded since 1980 in restricting women's access and mobility within the ranks and in keeping them from combat, they cannot make military women go away. The military is too good a deal for women, especially poor women whose only alternative may be welfare. After all, the military provides secure employment, equal pay for equal work, and benefits for dependents (especially important for single mothers). Stiehm suggests that the military might be looking at the issue backward, that there is really a "man problem" rather than a woman problem. The military, after all, regularly coerces its soldiers to accept a variety of things uncritically (for example, relocation, jobs). Rather than falling back on the assumption that women cannot lead, Stiehm argues that the military needs to coerce men to follow when women do lead (p. 107).

In conclusion, I doubt that even those sympathetic to women in uniform will buy all of Stiehm's recommendations. I wish that, as it might be put in military jargon, Stiehm had prioritized her recommendations. Some seem hopelessly unrealistic (for example, give the Air Force to women). But we should not be turned off by such recommendations and miss the important issues Stiehm addresses. She boldly challenges us to rethink our prejudices and uncover our ingrained ideas about women in the military. In that she succeeds admirably.

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The Bones from Zhoukoudian

The Story of Peking Man. From Archaeology to Mystery. JIA LANPO and HUANG WEIWEN. Foreign Languages Press, Beijing, and Oxford University Press, New York, 1990. viii, 270 pp., illus. $29.95. Translated by Yin Zhiqi.

The bones of Peking Man are famous for being both lost and found. They were found during the 1920s and '30s in a former cave near the village of Zhoukoudian, approximately 50 kilometers southwest of Beijing. In 1941, during the Japanese occupation, the bones were crated and sent away for safekeeping. Although stories differ, they appear to have been sent to the U.S. Embassy, after which they disappeared. Rumors about their whereabouts have been circulating ever since. Were they inadvertently discarded as trash, sunk aboard a ship, or hidden for ransom in Japan or the United States?

The Peking Man collection (some specimens are female) is classified as *Homo erectus* and comprises parts of several skeletons—including some well-preserved skulls—dating back between 700,000 and 200,000 years. The excavation of the Zhoukoudian site has been a large-scale, international affair involving scientists from North America, Europe, and Asia on and off for more than 50 years.

Jia Lanpo is a distinguished Chinese archeologist and Quaternary geologist and the most senior living Peking Man fieldworker, having begun work at Zhoukoudian in 1931. With the help of co-author Huang Weiwen, he tells his side of the Peking Man saga firsthand. Jia Lanpo has no real axes to grind, except perhaps with the former Chinese government because it held up the Peking Man project for years, pronouncing its international character inconsistent with the ideology of "cultural revolution." He discusses the main Peking Man controversies about dating, artifacts, the use of fire, and cannibalism. He also describes, albeit briefly, other early *Homo* sites in China in order to place Peking Man in spatial and temporal context. Jia Lanpo believes that the common ancestors of all *Homo* swept out of Asia—probably South China—to populate perimeters of the Old World. Some Western scientists will be inclined to call this interpretation Sinocentric.

Historians of science will enjoy Jia Lanpo's tales about the early search for Peking Man among collections of "dragon bones" and his personal recollections of well-known anthropologists like Davidson Black, Franz Weidenrich, Pei Wenzhong, and Pierre Teilhard de Chardin. Unfortunately, many of his book's black-and-white photographs are of poor quality or dubious worth and detract from the publisher's apparent attempt to make the book attractive. The main contribution of *The Story of Peking Man* is that it gives an authoritative Chinese perspective on what is, after all, a Chinese find. It will not spoil Jia Lanpo's story to reveal that, despite hunches, he too does not know what happened to the Peking Man bones. Their fate remains a mystery.

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Natural Clones

A Functional Biology of Clonal Animals. ROGER N. HUGHES. Chapman and Hall (Routledge, Chapman and Hall), New York, 1990. xii, 331 pp., illus. $75. Functional Biology Series.

Functional biology seems to be the newest trend in the "organismal renaissance," an amalgamation of what we used to call physiology and functional morphology. As defined in the foreword to this monograph series, functional biology is "the way organisms acquire and then make use of resources in metabolism, movement, growth, reproduction and so on." The goal of the series, then, is to elucidate both how and why organisms of a particular type, in this case clonal animals, work.

The title of the present book notwithstanding, it concerns itself largely with the population and evolutionary consequences of cloning. There are a number of interesting aspects of the subject, such as how clones integrate information and resource use, that are not considered. In fact, no consideration is really given to how the biology of clonal animals differs from that of non-clonal animals, except with respect to reproduction.

The book is organized into seven chapters, beginning with reviews on the nature, mechanisms, and the consequences of cloning, in which the terminology of gametic and agametic cloning is introduced. These chapters are reasonably comprehensive and,

like the book as a whole, packed with interesting information and examples. The taxonomic coverage is broad, including aphids, guppies, rotifers, bryozoans, and many groups of both flat and rounded worms. A glossary at the end of the book is useful in easing the way through a specialized terminology.

The four last chapters deal with issues that should be ripe for discussion and synthesis—life histories, population genetics, obligate cloning, and modular colonies. The life history chapter includes some theoretical approaches to the evolution and consequence of clonal life histories, but the treatment of the models is too superficial. Sibly and Calow's life history model is not adequately presented for a reader unacquainted with the original model. Then the transition to Caswell's model is awkward because it is treated as an alternative to that of Sibly and Calow, rather than as having a different purpose. Finally, the Sackville *et al.* model is presented descriptively and with so little information about techniques and assumptions that it too is impossible to evaluate.

Both the chapters on population genetic and obligate cloning list topics with little attempt to synthesize but the taxonomic survey of obligate cloning stands out as an informative and up-to-date review of a rapidly accumulating literature. The conclusions from this section give some sense of the topics treated: (i) obligate cloners are primarily parthenogens, rather than agametic fissioners like anemones; (ii) parthenogenesis arises often from hybridization and is usually apomictic; (iii) parthenogens lose heterozygosity more slowly than sexual inbreeders; (iv) clones do evolve and variance is provided by mutation.

The chapter on modular colonies offered the greatest opportunity to develop issues about the functional biology of clonal organisms, and yet it brushes lightly over the issues that seem to me most challenging: how colonies are integrated and the conflicts of clonal unit and colony level in function, the role of somatic mutation in the evolution of clonal animals, and the consequences of chimera formation. Surely there should have been some discussion of the relative rates of evolution of clonal and aclonal organisms as developed in Buss's *The Evolution of Individuality* (1987).

The ecological and evolutionary consequences of cloning in both plants and animals have been of enormous interest over the last 10 years as it has been realized that the population dynamics, demography, and maybe even evolution of clonal organisms are unusual. At the same time there has been intense interest in the evolution of sex, stimulating a reexamination of asexual reproduction in its many forms. This book does update existing work, such as Bell's *The Masterpiece of Nature* (1982), and provides a few new details, but it is not very synthetic. It is a handy reference book, well-produced and generously illustrated, that provides a useful entree to the literature on clonal organisms, but it does not offer inspiration for future research.

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Some Other Books of Interest

Some Mathematical Questions in Biology. Sex Allocation and Sex Change: Experiments and Models. American Mathematical Society, Providence, RI, 1990. x, 205 pp., illus. Paper, $41. Lectures on Mathematics in the Life Sciences, vol. 22. From a symposium, Toronto, Canada, Aug. 1989.

In its history the series of annual symposiums headed "Some Mathematical Questions in Biology" has addressed a considerable range of topics, among them circadian rhythms, muscle physiology, the dynamics of excitable media, and, in this latest volume, the evolutionary biology of sex. As Marc Mangel notes in the preface to the volume, "sexual selection, sex determination and sex allocation have been at the center of evolutionary ecology since its inception," "many key questions remain to be investigated through a combination of empirical and theoretical work," and "questions of sex provide a natural mechanism for . . . allowing plant and animal researchers to focus on similar kinds of questions." The seven papers that follow present and evaluate various models and hypotheses bearing on such questions. In the opening papers M. L. Stanton and L. F. Galloway consider sex allocation in plants and P. Bierzychudek discusses selective factors that favor a sexual mode of reproduction. Among the conclusions reached in these papers are that because "the modular nature of plant reproduction allows an individual's sexual investment to be partitioned in many ways . . . future models may need to adopt a more dynamic view of sex allocation" and that "demonstrations of an ecological advantage for genetically-variable progeny may be scarce simply because they have been so rarely sought." C. M. Lively then presents models designed to assess the cost of biparental sex in a parasitic worm and its implications regarding sexual reproduction in the worm's host, and S. Lessard presents covariance formulas for gene frequencies as an approach to determining optimal sex allocations. The next two papers deal with animals that undergo sex change, P. S. Petraitis discussing male reproductive success and probabilities of sex transition in a polychaete worm and D. M. Fernandes presenting results of a study concerned with the role of size advantage in sex change in terrestrial slugs. The final paper, by C. W. Petersen, describes tests of local mate competition theory as an explanation for allocation of resources to male and female function in six species of simultaneous hermaphrodites (seabasses).—**K.L.**

The Cerebral Cortex of the Rat. BRYAN KOLB and RICHARD C. TEES, Eds. MIT Press, Cambridge, MA, 1990. xii, 645 pp., illus. Paper, $35. A Bradford Book.

In compiling this work the editors have had especially in mind the concerns of behavioral and comparative neuroscientists, and they introduce the volume with a discussion of the history and rationale of the use of the rat as a "representative mammal," noting both the existence of "class-common" features of the mammalian cortex and uncertainties whether class-common and species-typical behavior patterns can be associated with class-common and species-typical cortical features. The volume proper consists of 25 chapters whose authors have been "encouraged to be integrative and to speculate" rather than present details of individual experiments. The opening section is devoted to the organization of the neocortex. In addition to containing, as do all the sections, an introduction by one of the editors, it includes accounts of prenatal and postnatal development (Uylings *et al.*), cyto- and myeloarchitecture (Zilles), neurochemical organization (Zilles *et al.*), and electrical activity (Vanderwolf). Aspects of the motor system are treated by Neafsey, Bures and Bracha, and Whishaw, the last of whom summarizes results of work on decorticated rats. The treatment of sensory cortex includes chapters on visual perception and visuomotor control (Dean; Goodale and Carey), the somatic sensory cortex (Chapin and Lin), and auditory and gustatory cortex (Kelly; Braun). The three chapters on association cortex are all contributed by Kolb. The volume concludes with a set of chapters on cortical plasticity, including effects of gender and environment (Juraska), experience and perceptual competences (Tees), sparing and recovery of function (Kolb), motor plasticity (Castro), and results of neural transplantation (Dunnett). The chapters have individual reference lists, with subject and author indexes rounding out the volume.—**K.L.**