Vignettes: Military Manoeuvres

On a bright spring morning in 1845, the *Princeton* steamed out into Chesapeake Bay for the initial tests of its 12-inch guns. . . . The first gun tested was designed by Captain Stockton of the Navy. . . . When it exploded, as it did, it killed the Secretary of State, the Secretary of the Navy, a naval captain, a Congressman from Maryland, and, as the newspaper reports of the day had it, "sundry other dignitaries." Had it not been for the fact that President Tyler had been detained briefly to finish a military ballad below deck, he, too, would surely have been killed. This is the sort of thing that gives technology a bad name!

—*D. Allan Bromley*, in *The President's Scientists: Reminiscences of a White House Science Advisor* (Yale University Press)

I was a part-time cadet in the Reserve Officer Training Corps (ROTC), which was compulsory for all male students at the University of Alabama. I was by then in my late-teens radical period. . . . At ROTC drill one day, I explained to our sergeant, a regular Army lifer waiting out his retirement in this remote outpost, that marching and rifle practice had been made obsolete by the atom bomb. What we were doing on the parade ground, I declared, was a useless exercise to commemorate the past, like dancing around maypoles. Without changing expression, he growled something inaudible that might have been an expletive.

—*Edward O. Wilson*, in *Naturalist* (Island Press/Shearwater Books)

summary that is an important reminder that the ideal of the male (dominant) good-provider role is rather newly arrived on the social scene as a product of the structures of work associated with industrial capitalism. Her central concern is with variations among men now, at a time when employment conditions may constrain the possibilities for male breadwinning and prevailing social ideologies of gender equality and individual autonomy have opened up new roles for men.

To this end Gerson has studied 138 middle- and working-class, predominately white, men in their 30s. She employed in-depth, "life-history" (a word about the utility of this approach to study these men later) interviews to assess how much, in what directions, and under what circumstances men's current orientation toward family and work represents a change from their childhood orientation, particularly with reference to the breadwinning role. Gerson constructs ideal types according to which the men are categorized. Those who are not "primary breadwinners" are either "autonomous" or "involved fathers." She has cast these categories as mutually exclusive, but it is arguable whether a man who is a primary breadwinner cannot also be an involved father.

By concentrating her analysis almost entirely on those men whose current orientation is different from what Gerson terms their "points of departure," her interpretation becomes somewhat skewed. In fact, fewer than half the men interviewed have actually changed from their initial orientation. Also slightly fewer than half of the men were oriented toward breadwinning even in childhood. Now, in young adulthood, only about a third of her sample are primary breadwinners. These are big and notable changes compared to what we would have seen in a comparable sample of the preceding generation.

Gerson's assiduousness in teasing out individual variations and patterns of movement from one subgroup of one ideal type to another has two unfortunate results. The first is the difficulty produced by her use of percentages—and percentages within percentages—with such a small sample. At numerous points one becomes infuriatingly tangled up in sentences like these: "Among the married breadwinners (86 percent of all men with a breadwinning outlook), 21 percent had wives who were employed full-time and 35 percent had wives who were employed part-time. Among married breadwinners with children (74 percent of the group), 16 percent had wives employed full-time and 35 percent had wives employed part-time" (p. 192).

A more serious problem is that in micromanaging her data Gerson overlooks the big picture of what these men have in common as a cohort. Nearly all of them were children in the 1960s and adolescents in the '70s, and the almost two-thirds of the men she studied who are not defined by the breadwinner role must surely illuminate the dramatic social changes and unrest of the particular historical period that contained their youth. In addition, these men are themselves just plain *young*. Over and over I found myself questioning Gerson's life-history approach when that history is still so much in the making and the likelihood is great that major life changes, both in circumstances and values, lie ahead. In this connection, Gerson's discussion would have been richer had she probed more fully the lives of those men whose point of departure and current orientation appear to have remained consistent. We cannot assume that they simply stood still and life just happened to them as planned or that they arrived at their present place for the same reasons that motivated them initially.

As Gerson herself is surely aware, when we close the covers of her book we have hardly closed the book on the lives of the men in her study. She has captured them at a particular time and place in their lives. She has shown us with persuasive detail and clarity of expression the mutability of the life course as a function of social forces and personal experiences. These lives will continue to change long after we stop reading, and Gerson has given us considerable hope that men are moving slowly but surely in the direction of mutuality and sharing in family and work. She is right to plead for supportive social policies to reinforce and bolster this trend.

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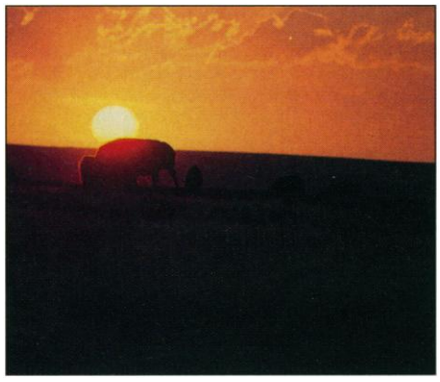
Plains Rangers

Bison. Mating and Conservation in Small Populations. JOEL BERGER and CAROL CUNNINGHAM. Columbia University Press, New York, 1994. xxiv, 330 pp., illus. $55 or £43.50. Methods and Cases in Conservation Science.

A simple statement, "Days of free-ranging large mammals are rapidly ending," opens the preface and describes the central problem addressed in this book. Berger and Cunningham are behavioral ecologists who, applying their discipline to the conservation biology of large mammals, sensibly chose the American plains bison (*Bison bison bison*). Their subject is easily observed, and its demographic and management history are well known. It barely escaped extinction with numbers of no more than 1000 but has since recovered to roughly 140,000 in the United States and Canada. Like most other mammals, it is polygynous and, given the bottleneck through which it passed in the

Two bison bulls "form a temporary association during late winter." [From *Bison*]



Bison cow and calves on shortgrass prairie, Badlands National Park, South Dakota. [From the cover of *Bison*]

Female bison with 20-minute-old calf. [From *Bison*]

last century and the isolation of closed populations in this century, is subject to genetic problems. The goals of the book are to present new data about the behavioral ecology of bison, to analyze those data so as to aid bison conservation, and to show that behavioral ecology can be applied to the conservation of large mammals in general.

The study was conducted at Badlands National Park in South Dakota from February 1985 through October 1989. The authors and their crews logged some 8750 hours of observation of an expanding herd of 300 to 775 bison, including about 200 individually recognized animals. Results included detailed data sets on individual reproductive success (male and female), gestation periods, birth synchrony, effective population sizes, loss of genetic lineages, and apparent physical defects that may be linked to inbreeding.

The book does not quite live up to the claims on the dust jacket that the study "resolves such complex questions as how does nondispersal affect populations, to what extent does a lack of predators affect behavior, and how much genetic diversity has been lost since the nineteenth century?" It does a thorough job of evaluating these daunting issues and contributes substantially to the understanding of them, but they will not be resolved scientifically until considerably more research has been completed.

Nevertheless, the results are thorough and well presented. The book is rich with statistical analyses, the details of which are nestled neatly at the end of each chapter next to the chapter summary. The concluding chapter contains recommendations for the application of Berger and Cunningham's research findings to the management of bison. Among their recommendations are the encouragement of bison "migration" where area permits, further evaluation of the "buffalo commons" idea fostered by Frank and Deborah Popper, and the management of public herds as a metapopulation through the systematic exchange of females. Other recommendations include guidelines for studies of the behavioral ecology of large mammals in general.

This book is a must for bison specialists and is highly recommended for conservation biologists and for behavioral ecologists interested in large mammals. Bison managers will find the book useful through both the recommendations and the 600 literature citations, probably the single most complete source for the biology and conservation of bison. Berger and Cunningham have made a major contribution to the biology of bison and to the conservation biology of large hooved mammals everywhere.

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Eukaryotic Origins

Tracing the History of Eukaryotic Cells. The Enigmatic Smile. BETSEY DEXTER DYER and ROBERT ALAN OBAR. Columbia University Press, New York, 1994. xiv, 259 pp., illus. $50 or £43; paper, $24 or £20. Critical Moments in Paleobiology and Earth History.

The origin of eukaryotic cells with nuclei, microtubules, and a host of other specialized organelles from their prokaryotic ancestors was one of the most remarkable and critical steps in evolution. It made it possible for a cell to manage the huge genomes needed to code for multicellular organisms and to reshuffle those genomes during sexual reproduction. Without this step, intelligent life could not have arisen. But the origin of eukaryotic cells is hidden in the past, over two billion years ago, and must be pieced together by combining clues from chemistry, geology, paleontology, biochemistry, molecular biology, cytology, genetics, and evolutionary theory. The subject is huge, and it is a daunting task to become sufficiently expert in all these areas to write about it clearly, accurately, and critically. The authors of the present work have been only partially successful.

The book is packed with interesting facts, intriguing speculations, and unanswered questions. It gives the reader a good sense of the field as active, controversial, and full of exciting questions for future research. In a nice touch, the authors asked a number of active researchers in the field what they think are important questions for future research directions; their answers form an interesting chapter. Written at a level just above introductory college chemistry and biology, the book should provide a stimulating overview of the problem to a wide audience of educated readers. Most of the exposition is clear, although the poor illustrations and sometimes over-simplified explanations will frustrate a reader who seeks a deep understanding.

Unwary readers may also be misled in some areas. The discussions of the relative rates of transfer of genes between nuclei and mitochondria, changes in mitochondrial code, and the inheritance and recombination of mitochondria and plastids are seriously flawed. For example, an erroneous description of translation termination in animal mitochondria is used to explain why animal and fungal mitochondria have been able to evolve a modified genetic code. A section on sexual reproduction is preceded by the assertion that the search for evidence of a selective advantage for sexual reproduction over asexual reproduction has yielded "almost nothing." But in fact many advan-