been staffed largely by students. By ending nurses' traditional isolation and giving them specialized skills and greater authority over patients, hospital work enhanced their confidence and linked them to other workers. The emergence of the feminist movement also gave nurses fresh vocabulary and new images that offered new opportunities. Nurses have learned increasingly that a group subordinated by class, gender, or race can effectively pursue autonomy only by altering the larger assumptions of society. Feminist thought does not claim nursing for women on the basis of inherent gender traits but rather seeks to place a higher value on caring generally.

This lucid and immaculately researched book adds immensely to our historical awareness.

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Intrapopulation Differences

Population Ecology of Individuals. ADAM ŁOMNICKI. Princeton University Press, Princeton, NJ, 1988. xii, 223 pp., illus. $45; paper, $13.95. Monographs in Population Biology, vol. 25.

This monograph concerns itself with individual differences among the members of ecological populations. The topic is usually treated in categorical terms: castes, life stages, polymorphisms, discrete age classes, and so forth. However, Łomnicki glosses over these kinds of differences in favor of continuous or near-continuous variation in ecological properties. He is particularly interested in variation arising from differing degrees of success in resource acquisition. The properties that are affected include resource use, degrees of reproductive profligacy or restraint, and migration. Issues of special interest are the evolutionary origins and stability of these traits and whether they promote population stabilization in an ecological sense.

If individual differences play a role in population stability, their involvement may be subtle and hard to detect. Imagine this scenario: A seasonal population becomes overpopulated in relation to the supply of some vital resource. Indeed, all population members would die if each got an equal share. However, some individuals succeed early and with time become increasingly good at resource acquisition while others fall behind from the start. The gap typically widens through the season. Rather than extinction, which would surely occur as a result of competition in the absence of individual differences, a mere fraction of the population gives rise to a new generation. Numbers are reduced and there is an improved adjustment between population and resources. Individual differences have played a key role in the population limitation.

The scenario above is an abstraction and simplification of ones developed by Łomnicki and gives some idea of what to expect from him in the way of methodology.

In the sequence of events that leads to population limitation, the losers at resource acquisition may take on behaviors that are not seen among the winners. They may emigrate or withhold reproduction. If they did not already rank low on the scale of Darwinian fitness, such behavior would make them rank low. The population or the species may benefit because the behavior prevents overpopulation and subsequent extinction, but the harm done to the perpetrator assures that the behavior is opposed by natural selection. Hence the traits may be called acts of self-sacrifice or altruism. A few population biologists have long held the supposition that altruistic traits evolve by group selection: by natural selection acting through the differential proliferation and extinction of groups. Given the right genetic and ecological conditions, natural selection on groups can replace and effectively overcome natural selection on individuals.

There is a long history of controversy over the efficacy of group selection, and Łomnicki reveals himself as one of the most extreme anti–group-selectionists. Indeed, the straw man of this book is V. C. Wynne-Edwards, author in 1962 of *Animal Dispersion in Relation to Social Behavior*. Wynne-Edwards attributes much of population regulation, particularly in higher vertebrates, to social behavior group-selected for the benefit of social units above the individual level. Łomnicki tries to show that this is illusion and misinterpretation. He believes that the correct interpretation involves only individually selected adaptive behavior and that the illusion of altruism is brought about by failure to recognize the true significance of individual differences.

Łomnicki's interpretation probably will not encounter much resistance from readers. If being identified with conventional wisdom and standard explanation are what is required of a good straw man, then Wynne-Edwards will not do. Even some of the most ardent group selectionists find his claims for population regulation excessive. Ecologists have had a refreshing open-mindedness toward Wynne-Edwards, but they will probably jump for an alternative explanation now that one is available.

Łomnicki's method is typical of adaptationism in evolutionary ecology. He concocts a scenario, invents a simple arithmetic model, derives some artificial outcomes, and compares them to his experiences with nature. Plausibility is the sole criterion for the process. The models are not designed for hypothesis-testing. The book resorts to case histories that are few and scant. However, these deficiencies are not the outcome of necessity, and they would be inexcusable if perpetuated. Individual differences should be among the most amenable to experimentation of all topics in population ecology.

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Quaternary Adjustments

North America and Adjacent Oceans During the Last Deglaciation. W. F. RUDDIMAN and H. E. WRIGHT, JR., Eds. Geological Society of America, Boulder, CO, 1987. viii, 501 pp., illus., + maps in pocket. $43.50. Geology of North America, vol. K-3.

This volume in the Decade of North American Geology (DNAG) series is part of the celebration of the 100th anniversary of the Geological Society of America. It comprises not simply a series of summary articles but substantive papers on the latest thinking and developments presented by leading workers in the field. These papers contain new treatments or new permutations of the growing data base on glacial, periglacial, biological, and climatological faces of North America during the period of environmental adjustment from the height of the last glaciation (approximately 18,000 years ago) to the present day.

The theme of the volume is "the timing, cause, and mechanism of the wastage of the North American ice during the last deglaciation," that is, from 18 to 6 thousand years ago (ka), a period for which the details of the record have not been obliterated by subsequent glacial bulldozers and for which chronological control, especially by radiocarbon dating, is as good as it gets in the geological record. The volume begins traditionally with glacial history. The lead article on the Laurentide ice sheet quickly establishes that the authors were not constrained by the 18- to 6-ka limits; in it J. T. Andrews details the configuration of the strongly reduced ice sheet during Middle Wisconsinan time and the events preceding the 18-ka glacial maximum, for both the southern and the northern margins of the ice sheet,