

"WHEN I GROW UP"

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Journal editors seek philosophical comment so rarely that I believe few of us could pass up the opportunity to voice our favorite homilies and our unique but underrated perspectives. The quality, content, and balance of *The Auk* should be determined by one simple rule: publish the best *science*, whether the papers are theoretical, empirical, descriptive, or speculative. There should be no need to seek to unify ornithology, for the best ideas should generate the strongest following and feedback and thus the direction of the science. By best, I mean most imaginative, creative, innovative, challenging, and useful, contributing insight, leading to new pathways of thought, and posing new sorts of questions. All budding ornithologists should harken to Don Quixote's advice: "En los nidos de antaño, no hay pajaros hogaño" [Cervantes, *Don Quixote*, 1969 Printing (Samuel Putnam, Trans. and Ed.), New York, Viking Press, Ch. 64: Don't expect to find birds in last year's nest].

But often, for political as well as practical reasons, it is useful to qualify the "good science" criterion. The behavior of a certain differential equation is in itself of interest to those to whom the mathematical structure of such relations appeals, but it cannot be expected to impress the bird biologist who sees no obvious biological reality represented in the equation. Likewise, the behavior of a drake approaching a potential mate is in itself of interest to the fans of anatid behavior but is hardly likely to arouse the theorist! If similar (e.g. congeneric) ducks behave similarly and yet others do not, the description becomes a little more worthwhile, just as, for example, a sensitivity analysis of the parameters of the differential equation would broaden its appeal; but as yet neither paper seems worth much attention. In "Geographical ecology" (1972, New York, Harper and Row), MacArthur warns us to believe theory only when data support it, and to attend only to facts that pertain to theory. This duality seems perfectly reasonable, if in reality a little skewed by the greater accessibility of bare fact to the theorist than is unadorned theory to the empiricist. Aside from the questionable usefulness of pure description or pure theory, we might mention their questionable economics: both seem an extravagance if time, energy, or money are in short supply.

Theory and field work are by and large conducted by different people, and only rarely, as G. E. Hutchinson describes [1975, Pp. 492–521 *in* *Ecology and evolution of communities* (M. L. Cody and J. M. Diamond, Eds.), Cambridge, Massachusetts, Belknap Press], do they operate synergistically to further the science. But Steve Fretwell introduces his "Populations in a seasonal environment" (1972, Princeton, New Jersey, Princeton Univ. Press) by defending convex fitness sets for bird ecologists, and I endorse the view that knowledge of both theoretical and empirical aspects of a question accelerates its solution. But can we expect to produce perfect allrounders, equally able in theory and the field, good at finding birds' nests and characteristic roots, commuting between the bush and the computer center, Peterson (2nd Ed.) in one pocket and Feller (3rd Ed.) in the other? Clearly, these will be rare individuals, but it seems that the cause of ornithology will be advanced by *any*

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broadening of perspective. We can at least demand that its students have a clear view of the theoretical and empirical approaches to a concept or question and demonstrate expertise in one and at least understanding, if not generative ability, in the other.

There certainly are theorists who are so good that we should keep them producing theory and away from the field, and, likewise, there are bird watchers so competent that it would be callous and unproductive to have them learn matrix algebra. Theirs are steep-sided adaptive peaks, and small distractions would diminish their output and worth. We should try to learn from such people, try to keep up, and hope for a biological liaison to interpret and disseminate their work. But the vast majority of us do not fall into this category and might well benefit from the reallocation of, say, 10% of our time to our weak side of the concept: I'm convinced the fitness set really is convex.

And then, it's by no means certain to what extent we can educate for the sort of breadth we think might be necessary for the ideal bird ecologist (let's say). It seems that people are educable in only limited ways, to a limited extent, and at limited times. This variation is presented to a selective society, and, among others, biologists and ornithologists are its products. For whatever reason, many ornithologists simply missed the boat at an earlier age and failed to grasp the inherent beauty of a purely symbolic representation of facts and their interrelations, with its greater potential for analysis, manipulation, and extrapolation. And many theoreticians get no further in the field than worrying about ticks, snakes, and poison oak, and no amount of training can change that.

Ultimately, good research is the product of two qualities: judgement and perspective. There are so many variables to measure or model that one has to be selective; this selectivity is the basis for parsimonious and concise biological relations with both generality and realism, and it takes good judgement. It is a product of and contributes to a researcher's perspective, his own peculiar integration of theory, concept, and the facts of natural history against which each new datum is judged. Other than by submitting a paper to *The Auk*, it's difficult to know beforehand with whom these qualities lie.

ORNITHOLOGICAL THEORY: WHENCE AND WHITHER?

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Ornithology and other taxonomically oriented sciences (mammalogy, herpetology, entomology, and so on) are modes of inquiry that foster the synthesis of knowledge about the adaptations and manifold life-history patterns of free-living animals. They subsume aspects of many process-oriented disciplines (e.g. population dynamics, physiology, functional anatomy, embryology, ethology) and provide a focus for intellectual exchange and socialization among adherents who are interested in understanding the lives of intact organisms. Ornithology and its companion sciences thus offer arenas for the synthesis of knowledge derived from substituent analytical disciplines. It follows that there are no theories of ornithology itself, and the role of

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