with most predators), before a hunt (hyenas will tailor pack size to the demands of hunting a given type of prey), or ontogenetically (the protozoan *Glaucoma vorax*, rotund and slothful when absorbing yeast, can change to a streamlined tailed form and entrap bacteria or can ascend the food chain as a cannibalistic one-celled colossus). Seemingly capricious modes of recognition may have reason: moving prey are more likely to be recognized by a part, stationary prey by the whole. The curious preference of some predators for the "odd" may be due to such prey's being more conspicuous, more vulnerable, or necessary to balance the diet. Prey specialization usually lasts a matter of days, rather than weeks or longer. Individual members of euryphagous populations are far more likely to be slightly differing generalists than to be widely differing specialists. Many predators, so precisely fashioned to their trophic role, spend only one-sixth of their time feeding.

Despite its cover's statement that the book emphasizes "topics that link ethological results with modern ecology, e.g., 'optimal foraging theory' " Curio writes, "The predictions made by generalized optimal foraging models are on the whole too simplistic to provide much guidance in studying behavioral mechanisms." Given that such models can have a dozen or more parameters, the claim of simplicity is astonishing. Moreover, I counted 16 places where interpretations of behavior using the variables of foraging theory are suggested, frequently in a unifactorial, nonrigorous manner. To evaluate completely the predictions of optimal feeding theory, one must measure the temporal and often the energetic costs of feeding activities, the assimilable energy from various foods, and the distribution of the food resource. The necessary combination of ecological, physiological, and mathematical, as well as behavioral, methods is currently being applied successfully to a variety of organisms (an example is the work on nectivores by Wolf, Hainsworth, Gill, Stiles, and others), and it could move many of the book's hypotheses from their tenuous footings. For example, various birds provision nestlings with prey larger than they themselves eat. Curio tries a foraging-economics argument to explain this: "longer flights . . . are profitably counterbalanced by larger prey." But the argument is not precise enough to explain why the adults do not also eat only the supposedly more profitable food, or indeed why larger and larger food need be more and more profitable.

Because of the nonconceptual orientation of this book, we cannot discern what role Curio believes ethologists will play in the future development of the study of predation. From the comment quoted above we might expect that he sees the illumination of behavioral mechanisms as an objective of ethology. Yet the reflection in behavioral acts of neurophysiological mechanisms, hypothesized so frequently by ethologists in the 1950's, is virtually absent here.

The potential link to ecology would seem stronger. Some data reported by Curio, however, seem contrary to assumptions of existing foraging models. For example, various animals seem to have a search image, feeding disproportionately on the most commonly encountered prey, not necessarily on the most profitable. Chicks of certain piscivorous birds, when fed too small pieces of food, starve rather than eat more. Some animals perform "surplus killing," slaughtering more prey than they eat, or "vacuum feeding," both seeming wastes of energy and time. Certain birds seem to discriminate between good food sources and a variety of poor ones, but not among the poor sources.

Observations like these, while possibly consistent with present foraging theory broadly construed, intimate how behavioral limitations can restrict a predator's performance. Indeed, ethology's major role for ecology might be to delineate the constraints imposed by degrees of behavioral organization. In places Curio does this, sometimes explicitly, more often implicitly. For example, we learn that not only mammals but lizards and even spiders detour when stalking prey, moving away eventually to draw nearer. A more stimulating science would result were such information incorporated into foraging theory rather than accumulated in isolation. All foraging models have constraints, and a variety of models can be devised that incorporate a variety of behavioral limitations. Such models can be tested one by one against the performance of a predator and rejected if the animal seems unable to behave "optimally." The psychologist Collier and others have already made a promising start in this direction. I predict an ever more fertile union of ethologists, ecologists, and psychologists as this field advances.

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