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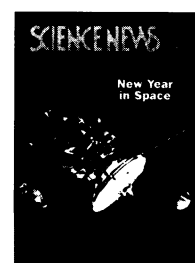
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Letters

Taxing the imagination

The hypothesis of phototaxis as an intermediate step to photosynthesis seems strange and confusing ("The Light at the Bottom of the Ocean," SN: 9/7/96, p. 156). Phototaxis is a process more like a neurological function. To say that it is linked with photosynthesis is like saying "organisms attracted to light might start photosynthesizing."

Evolutionarily, if food is present with light, organisms attracted to light should be more successful. If an organism already near light suddenly mutates to be able to make use of light as a food source, it will be even more successful.

Also, since the shrimp have not been captured uninjured, why not breed them? The offspring should be fine and capable of being tested for low-light sensitivity.

Susanna Dzejachok
Cleveland, Ohio

Clay feet of Sugarscape gods?

Sugarscape sounds like fun, but whether it is the cutting edge of social science or yet another supposedly quantitative cul-de-sac remains to be seen ("The Gods of Sugarscape," SN: 11/23/96, p. 332).

Computer models present convincing results when processes or events can be given mathematical expression in accord with generally accepted physical laws. As there are few, if any, such laws for human affairs, what do Sugarscape's "metaphors" mean?

CORRECTIONS

David H. Spodick, whom SCIENCE NEWS reported as semiretired, is in fact professor of medicine at the University of Massachusetts Medical School in Worcester ("Condition CRITICAL," SN: 12/14/96, p. 376). Photos of the robotic hawkmoth ("Robotic moth reveals key to insect flight," SN: 12/21&28/96, p. 390) were taken by Coen van der Berg of Vrije University in Amsterdam.

Their connection to reality is tenuous; at best, they might be a way to elevate impressionistically the model's initial assumptions.

That's no small thing, but hardly the harbinger of 21st-century science, unless critical reflection in the 21st century will require a computer.

Charles T. Rubin
Associate Professor of Political Science
Duquesne University
Pittsburgh, Pa.

Epstein and Axtell show that their Sugarscape model does not attain a steady state under certain configurations of agent behavior, leading Epstein to conclude that "the assumption that we can let markets produce efficient allocations on their own is deeply challenged.... We see how brittle traditional economic theory really is."

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Nesting with the enemy

For the diminutive Savannah sparrow, both herring gulls and crows are a pain in the nest, preying on the sparrow's eggs and chicks. But of these two predators, the crafty crow, which also devours gull eggs, poses the greater threat.

On an Atlantic island off New Brunswick, Canada, researchers have found that sparrows benefit from the crow's predation on gull eggs. In fact, when sparrows and gulls share close quarters, the gulls serve as unwitting scarecrows.

Nathaniel T. Wheelwright, Joshua J. Lawler, and Joshua H. Weinstein of Bowdoin College in Brunswick, Maine, posed plastic models of crows or gulls near sparrow nests. They found that female sparrows delayed entering their nest significantly longer when the fake crow rather than the fake gull was nearby. The sparrows ignored a pink plastic flamingo that the researchers used as a control.

Wheelwright's team also found that sparrows typically set up house in open fields, where there are few gull nests. Yet when they have no choice but to live around gulls—even within a meter of their nests—sparrows have a significantly better chance of survival. The presence of the raucous gulls

appears to ward off the even more threatening crow, the researchers suggest in the January ANIMAL BEHAVIOUR.

Not that the gull is all noise and no threat. When sparrows

A Savannah sparrow keeps a wary eye out for predators.

Wheelwright



nested in gull neighborhoods, the sparrows were "unusually wary in approaching their nests," which they kept well hidden in patches of blueberry and goldenrod. The subterfuge is necessary because gulls normally find eggs by watching female sparrows entering and leaving their nests. Without this visual cue, gulls seemed oblivious to eggs, even when researchers left them in plain sight.

— C.M.

Okay to spay young kittens

As cats have taken the place of dogs as the most popular pet in U.S. homes, they've also become more common in pounds and shelters. To cut down on the millions of impounded animals, both the American Veterinary Medical Association and the Humane Society of the United States now support the practice of neutering cats and dogs early, before the conventional age of 6 months. A study in 1991 found no major health differences between dogs that were neutered at 7 weeks and at 7 months of age. Now, a report in the Dec. 1, 1996 JOURNAL OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION comes to the same conclusion about cats.

Cats of both sexes neutered at 7 weeks showed no significant differences in bone development, body weight, fat, or behavior from cats neutered at 7 months. Both groups of neutered cats, at age 1 year, had more generous potbellies than cats that weren't neutered, and they also seemed to have more generous hearts. According to research by W. Preston Stubbs, now at Massey University in Palmerston North, New Zealand, and his colleagues at the University of Florida in Gainesville, neutered cats were significantly more affectionate and less aggressive than intact animals.

— C.M.

Letters continued from p. 35

Nonsense, for at least three reasons.

First, a sequence of market allocations can be efficient even if the economy has no steady state; conversely, a steady state market allocation can be inefficient. These results are well known from the very economic theory Epstein thinks his simulations have challenged.

Second, do Sugarscape's inconsistencies with economic theory challenge economic theory or Sugarscape itself? I bet it's Sugarscape, simply because Sugarscape omits so much important economic behavior. For example, there is no production—all sugar is there initially or subsequently regenerates on its own. In the real world, income is produced by individuals responding to economic incentives. Economic theory devotes much effort to explaining production and thus offers a much more credible description of reality than Sugarscape does.

Finally, there are well-defined statistical procedures for checking an economic theory's predictions against economic data. Economic theory generally passes those tests; the failures, as in other sciences, lead to further research and theoretical advance. As far as I can tell, there are no procedures for checking Sugarscape's predictions.

John J. Seater
Professor of Economics
North Carolina State University
Raleigh, N.C.

For most definitions of "efficient," efficient allocation requires perfect information,

which has long been known to be unavailable. Thus, Epstein and Axtell have simply rediscovered this and cannot claim to have challenged economic theory.

Jeff Dike
Deering, N.H.

Peterson draws attention to the contrast between "computer models now being developed on the basis of interactions between agents governed by given rules rather than on equations defining global behavior" so as to "model from the bottom up—seeing behavior emerge out of interactions among individuals—instead of from the top down—deriving the behavior of individuals from overarching laws."

The contrast seems to me to be less sharp than his remarks would suggest.

In both cases, one can ask the question, Where do the rules themselves ultimately come from?

In social and biological systems, we look to history and to the principles of evolution of living systems. In physics, we have recourse to fundamental and universal laws, for which we suppose no deeper explanation exists.

When the nature of the fundamental laws is an open and active question, as it is right now, one wonders how far we can go with this. Can we conceive of fundamental laws that somehow account for their own existence and universality?

Consider the following remark from Lee Smolin's "Space and Time in the Quantum Universe" (in *Conceptual Problems of Quantum Gravity*, Birkhauser, Cambridge, Mass.,

1991): "...if a future purely relational physics were someday constructed... the mathematics used in this fundamental physical theory would resemble very closely the mathematics used in the study of complex biological systems such as ecologies and neural networks. My suggestion is that this might not be a coincidence."

Christopher Weed
Burlington, Ver.

Early female official?

I found "Ancient Egyptian outpost found in Israel" (SN: 10/5/96, p. 215) very interesting but was brought up short by the final paragraph. Weinstein apparently believes that the woman in the burial is unlikely to have been the original occupant of the tomb, saying she might have been "the wife of a powerful official."

The rich burials of prominent Egyptian women from the First Dynasty include at least a few that were not of queens. Egyptian women then (circa 3000 B.C.) served as priestesses of the central goddesses Isis, Nut, and Maat, among others; women owned property, conducted business, served as governors, and exported the cloth their husbands wove.

Is it inconceivable to Weinstein that the woman herself was the "powerful Egyptian official"?

Donna M. Herring
Alexandria, Ohio

No. He just suspects that a tomb of this type originally held a prominent male official.

— B. Bower