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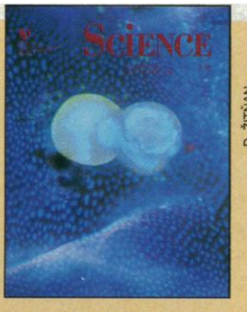
LETTERS

Speaking metaphorically



Fable, comparison, and example are enlisted by this week's correspondents. Apparently contradictory aspects of geologic observation and theory are related to the fable of the blind men and the elephant. Imagining that math skills are totally inherited, one writer asks: Would we then still teach addition and subtraction? In response to earlier Letters and a Policy Forum about changing career prospects for those with new science doctorates, some writers give examples of innovative programs that can boost job opportunities; others "take exception" to the view that science can be pursued for the love of it, as if new Ph.D.'s could aspire to be "19th-century gentlemen of leisure." And the transformation of a chrysalis (triggered by a hormone released by epitrachial glands, one of which is shown at right) evokes memories of an oft-frowned-upon human diversion.

Hormonal Activity

I was just reading the 5 January 1996 issue of *Science*, the cover picture caption (p. 7) and the Perspective, "Ecdysis control sheds another layer" by James W. Truman (p. 40). The account of what is taking place within the chrysalis (prompted, in part, by *Manduca sexta* ecdysis-triggering hormone) was most interesting, but something was bothering me—Why did "ecdysis" sound familiar? Then it came to me: "Ecdysiast." Not a butterfly at all. Minsky's and New York City. So I consulted my *Random House Dictionary* (second edition, unabridged). In 1940 H. L. Mencken, author of *The American Language*, coined "ecdysiast" to mean stripteaser. Burlesque vaudeville, 1935 to 1940. What a wonderful way Mencken had with words. The name fits the action, but the hormonal activity is different.

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Biological Determinism

The popular debate about the genetic heritability of intelligence quotient (IQ) scores in humans and the intellectual education of young people has its origin in a widespread misunderstanding of what biological determinism really means.

As a concrete example, let us assume that the cognitive ability to learn how to make simple arithmetic calculations is not only mostly, but totally heritable (*1*). Should we then cancel arithmetical instruction because we have detected that elementary mathematical ability is simply "innate?" Hardly, because from that moment on no child would ever learn how to add and subtract. That is, the heritability of this trait in such an altered environment would change dramatically; namely, to zero.

The Bell Curve (*2*) is strongly criticized in a statement (Letters, 5 Jan., p. 13) by a U.S. federal advisory group (*3*). The statement is correct in asserting, "Change the environment, and the heritability of traits can change remarkably."

Genetic determination of human intelligence does not mean independence of the environment as a releasing factor, but absolute autonomy of the cognitive *meaning* human beings attribute to that same environment. (Only this explains why chimpanzees successfully continue to refuse mathematical instruction.) However, as long as we don't know which individual is provided with exactly which intellectual abilities, it would be a purely arbitrary act to exclude some people from sophisticated education. And, given the fact that evolutionary variation cannot be stopped, every newborn individual (be he white, black, red, or whatever) represents a new chance for unforeseeable progress.

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References and Notes

1. Accepting the alternative possibility, that only instruction by the environment matters, necessarily leads to a lamarckian view of human behavior, and most biologists (me included) don't much like that sort of evolutionary theory.
2. R. J. Herrnstein and C. Murray, *The Bell Curve: The Reshaping of American Life by Differences in Intelli-*