Letters

Our Ears Do Deceive Us

In "Perceptual restoration of missing speech sounds" (23 Jan., p. 392), Warren notes that "our illusory perception of the speaker's utterance rather than the stimulus actually reaching our ears—reflects characteristics of speech perception which may help us understand the perceptual mechanisms underlying verbal organization." Perhaps. In a book published in 1899 William James said (*1*):

> When we listen to a person speaking or read a page of print, much of what we think we see or hear is supplied from our memory. We overlook misprints, imagining the right letters, though we see the wrong ones; and how little we actually hear, when we listen to speech, we realize when we go to a foreign theatre; for there what troubles us is not so much that we cannot understand what the actors say as that we cannot hear their words. The fact is that we hear quite as little under similar conditions at home, only our mind, being fuller of English verbal associations, supplies the requisite material for comprehension upon a much slighter auditory hint.

We've had 70 years to understand the phenomenon, and still we don't.

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Reference

1. W. James, *Talks to Teachers on Psychology and to Students on Some of Life's Ideals* (Holt, New York, 1899), p. 159.

Don't Overlook Berkeley

In his report on pesticide research (12 Dec., p. 1383), Joel R. Kramer writes: "But university research in biological controls is meager, with one exception—the University of California at Riverside, which has a full department of about 40 people studying biological control and scoring several successes."

Anyone knowledgeable in biological control (including D. A. Chant) knows that there is also a Division of Biological Control at Berkeley, which is training undergraduate and graduate students, conducting applied and basic research, and "scoring successes." Kramer's oversight is understandable since the organizational structure of the University of California is confusing even to some of us within the system. What really matters is that the University supports strong biological control units on major campuses, Riverside and Berkeley.

I perhaps should not have been bothered by the inadvertent "put down" of Berkeley, but as the Division's current primary parasite I feel duty bound to my colleagues to set it straight with the world that they are not ". . . individuals here and there. . .working in a wilderness."

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Our Fragile Environment

The quality of the environment, ecology, and pollution problems have recently become matters of concern everywhere. My own personal explanation for this outburst of interest may be peculiar to myself, but I would like to know whether my explanation sounds a responsive chord in the minds of others. I date my own reawakening of interest in man's environment to the Apollo 8 mission and to the first clear photographs of the earth from that mission. My theory is that the views of the earth from that expedition and from the subsequent Apollo flights have made many of us see the earth as a whole, in a curious way—as a single environment in which hundreds of millions of human beings have a stake.

One view in particular is awe-inspiring—with Africa in the foreground and the whole profile of the Mediterranean very clear. One stares at the whole Mediterranean, looking from outer space much as in an atlas, but *not as a drawing*. Much of our most commonly taught history centers around that little sea, a mere patch of the hemisphere, which once seemed to its inhabitants to be the whole world.

Looking at the blackness beyond the sharp blue-green curve, trying to see even the place where the thin envelope of atmosphere and the solid earth meet, the curious word "fragile" comes to mind. To be on the earth and think of it as fragile is ridiculous. But to see it from Out There and to compare it with the deadness of the Moon! I suspect that the greatest lasting benefit of the Apollo missions may be, if my hunch is correct, this sudden rush of inspiration to try to save this fragile environment—the *whole* one—if we still can.

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Perils of Disease—II

Jukes (Letters, 9 Jan.) must know that a nonresidual quick-knock-down aerosol containing (for instance) pyrethrum is more effective in controlling insects in internal spaces in aircraft than are slow-acting residual halogenated hydrocarbons. The curious logic he uses to arrive at his punch line, "I prefer DDT to yellow fever," shows him to be more interested in propagandizing on behalf of DDT than in the problem of aircraft-borne insect vectors of tropical disease. I would rephrase his punch line thus: I prefer to be without both DDT and yellow fever, which might be possible today if Jukes would pipe down.

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On a trip from Costa Rica I was reminded of Jukes's letter and Marx's earlier letter (14 Nov.). Marx pointed out that passengers aboard all international flights entering the United States are being subjected to spraying with DDT by order of the U.S. Health Service. He further indicated, quite correctly as I have noted myself, that such spraying is not really effective in killing hitch-hiking insects aboard aircraft.

In his reply, Jukes implied that Marx was both naïve and wrong in his assumption that DDT was being used ("to the public, all insecticides currently are DDT"). After citing a source over a decade old, Jukes added, "I prefer DDT to yellow fever."

During my flight from Central America, I was forced to breathe sweet-scented

spray several times, so I requested to see the label on the insecticide bomb. It read: "Airosol Company Inc., G-1152 Aircraft Insecticide Bomb, Neodesha, Kansas. Active Ingredients: Pyrethrins 1.0%, DDT 3.0%, Cyclohexanone 5.0%, Mineral Oil 6.0%. Inert Ingredients: Dichlorodifluoromethane 59.5%, Trichloromonofluoromethane 25.5%." What really caught my eye was not so much the fact that DDT is in truth being sprayed in tightly packed, poorly ventilated aircraft, but the warning at the bottom of the label in bold black letters "*Avoid Inhalation of Aerosol Mist*," and what I assume must be both the source of the caution notice and the order to spray the aircraft, "U.S. Public Health Service (71.5.3E)."

The aircraft in which I was a passenger was sprayed three separate times before three separate landings, several times while passengers were drinking beverages served by the stewardesses. Although it is a relatively short flight from San José to Miami, it is difficult to hold one's breath that long, and contrary to what Jukes might think, we have learned something about the effects of DDT on human health since 1959 . . . or have we?

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Sonic Booms over Cities

It is surprising that F. G. Finger and R. M. McInturff, after giving *quantitative* accounts of many meteorological problems facing the supersonic transport planes ("Meterology and the supersonic transport," 2 Jan., p. 16) discuss the sonic boom in *qualitative* terms only. Why not inform the readers that the sonic boom overpressure will be 2 to 4 pounds per square foot and that this is twice the overpressure used in the 1964 Oklahoma City sonic boom tests—which resulted in damage payments exceeding $94,000?

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We were concerned "only with the atmospheric influences on sonic boom propagation, and with the prospects for predicting the location and intensity of the boom." Although, as we pointed out, there are other problems related to the sonic boom, it seemed to us more appropriate to give a reference to a comprehensive discussion of these problems than to attempt ourselves to delve into an area outside our specialty (*1*).

In the interest of fairness, we offer the following quotation from a speech by John H. Shaffer, FAA Administrator, on 17 November:

"There will be no sonic boom nuisance or annoyance, because the whole program is based on the President's policy that the plane will not be operated at boom-producing speeds over populated areas."

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Reference

1. K. D. Kryter, *Science* **163**, 359 (1969).

Mistaken Identity

The carelessness described by Goldman (Letters, 16 Jan.) is not limited to suppliers of radioactive biochemicals. We recently received nonradioactive samples of epinephrine and norepinephrine from a major supplier of biochemicals; unfortunately, they were in bottles bearing the opposite labels.

We first used the material labeled L-arterenol bitartrate as a substrate for phenethanolamine *N*-methyl transferase, the enzyme that methylates norepinephrine, and knew something was amiss when we found no activity in an assay used daily in our lab. Thin-layer chromatography showed that the bottle marked L-arterenol bitartrate actually contained epinephrine (in this case, the product of the enzyme). Another bottle from the same supplier was labeled L-epinephrine bitartrate; that bottle contained norepinephrine.

We were lucky that our experimental situation readily revealed the error. Possible scientific disaster awaits others with the same preparations if they happen to be working with one of the many experimental situations in which norepinephrine and epinephrine react qualitatively the same. The pharmacologist studying adrenergic blocking drugs, for example, might obtain results that he would accept, but which would be quite wrong. I therefore feel obliged to provide the name of the supplier and the lot numbers of the erroneously labeled catecholamines to anyone who