

teratogenesis which would decree, in simplistic and arbitrary terms, that any agent found to cause birth defects at any dose in any experimental animal must be classified legally as unsafe and barred from human use. The Society believes it is preferable to have policy decisions on these matters made by regulatory agencies, advised, if not administered, by competent and responsible scientists, who continually review the available evidence, revising decisions in the light of increasing knowledge from the basic and applied sciences.

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Confidentiality

The article "Protection of privacy and confidentiality" by William J. Curran, Eugene M. Laska, Honora Kaplan, and Rheta Bank (23 Nov. 1973, p. 797) contains the following statement: "Reference was often made by clinicians to practices of such agencies as the Bureau of the Census and the Internal Revenue Service, and allegations were made about the breaches of confidentiality by these agencies."

This statement picks up a charge that, as far as this agency is concerned, is untrue. The Census Bureau has an outstanding record of protecting the confidentiality of data furnished by individuals or establishments and is, indeed, required by law to do so. No employee of the Bureau has ever been convicted of violating the federal law making confidentiality of census records mandatory.

We have contacted William J. Curran, the senior author of the article, who told us that the allegations concerning the Bureau and confidentiality were made at rather large meetings of people where excitement ran high. Curran told us that it was apparent that the charges were made without basis or foundation and undoubtedly from the emotion of the moment.

Curran's coauthors, Kaplan and Bank, attended meetings where the charges were made, and they indicated that there was no basis for alleging that the Bureau violates confidentiality of information. Rather, the coauthors indicated that the allegations may have been based on a belief that the Bureau had intruded on the right to privacy of individuals because of questions asked in censuses and surveys. In this view, the Bureau was allegedly breaching their privacy, which is quite different from violating confidentiality.

In view of the conversation we have had with Curran, we feel that the Bureau's reputation and record are still without flaw.

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Scientific Methods in Ethology

The Research News article "The Nobel prize for physiology or medicine" by Marler and Griffin (2 Nov. 1973, p. 464) states that von Frisch, Lorenz, and Tinbergen were awarded the Nobel prize jointly for "their discoveries concerning organization and elicitation of individual and social behavior patterns." A short biography of these men follows, including a summary description of their ethological work. The article does not, however, critically review von Frisch's conclusions in light of more recent research on communication among honeybees. This is surprising, because Marler and Griffin state that "questions have been raised about the accuracy with which information is actually transmitted [among bees], and about the relative importance of the[ir] dances, odors, and sounds or vibrations" as represented in von Frisch's research. This criticism of von Frisch's work has been raised—so the report indicates—by "philosophers and linguists."

In fact, von Frisch, described by Marler and Griffin as "an ardent Darwinian" (1), has incurred criticism from entomologists on the basis of more recent experimental data. Wenner, Wells, and Rohlf (2) raise serious questions about the methodology and conclusions of von Frisch's school. Methodologically, they say, von Frisch's research lacks the necessary controls without which one cannot separate spurious from real correlations. Applying factor analysis in their experiments, Wenner *et al.* discovered basic discrepancies in the dance-language hypothesis. Their findings indicate that at least some of the behavior of bees can be explained in terms of simple discrimination conditioning rather than by the dance-language hypothesis, and that the efficiency of communication among naive bees is very low. They also raise objections to Lindauer's hypothesis (3) of communication between scouts and swarm clusters.

This type of criticism suggests that, although the work of von Frisch's

school was undoubtedly pioneering in its field, it no longer constitutes one of the "major advances in our understanding of sociobiology." Under these circumstances, and especially in view of the fact that the award represents a "new departure for the Nobel Committee of the Karolinska Institute," would it not have been feasible for Marler and Griffin to cite the most recent scientific data available in their discussion of von Frisch's work?

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References and Notes

1. Lalande defines the term "Darwinism" as a "biologic and philosophic system [italics ours]." See A. Lalande, *Vocabulaire Technique et Critique de la Philosophie* (Presses Universitaires de France, Paris, 1962).
2. A. M. Wenner, P. H. Wells, F. J. Rohlf, in *Animal Social Psychology: A Reader of Experimental Studies*, R. B. Zajonc, Compiler (Wiley, New York, 1966), pp. 178-200.
3. M. Lindauer, *Nature (Lond.)* 179, 63 (1957).

A Research News article is scarcely the place for a critique or a comprehensive bibliography. Philosophical questions raised by von Frisch's discoveries have been discussed by Adler, Bennett, and Boyle among others (1). Zoologists such as von Frisch, Lorenz, and Tinbergen will doubtless continue to provide many of the data and hypotheses on which such discussions are based. Questions about the accuracy of information transfer by the honeybee dances have been raised primarily by Wenner and his colleagues (2). We are far from wishing to dismiss their contributions, which have stimulated new and improved experiments. But on balance we agree with Wilson (3) that "the communicative function is decisively supported by experimental evidence"

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References

1. M. J. Adler, *The Difference of Man and the Difference It Makes* (World, New York, 1967); J. Bennett, *Rationality* (Routledge & Kegan Paul, London, 1964); D. G. Boyle, *Language and Thinking in Human Development* (Hutchinson, London, 1971).
2. A. M. Wenner, *The Bee Language Controversy* (Educational Improvement Corp., Boulder, Colo., 1971); P. H. Wells and A. M. Wenner, *Nature (Lond.)* 241, 171 (1973).
3. E. O. Wilson, *The Insect Societies* (Harvard Univ. Press, Cambridge, Mass., 1971). See also K. von Frisch, *The Dance Language and Orientation of Bees* (Harvard Univ. Press, Cambridge, Mass., 1967); *Bees, Their Chemical Senses and Language* (Cornell Univ. Press, Ithaca, N.Y., 1971); J. L. Gould, M. Henerey, M. C. MacLeod, *Science* 169, 544 (1970); M. Lindauer, *Am. Nat.* 105, 89 (1971); C. D. Michener, *The Social Behavior of the Bees* (Harvard Univ. Press, Cambridge, Mass., 1974).