

tive. As I see it, the only guarantee of relative freedom for scientific research is an enlightened public in a democratic society. My article was intended as a contribution to open discussion; nowhere in it is there the merest hint of the desirability of "some government-controlled authority," a proposal that is an anathema to my beliefs.

Lockhard compounds confusion by alleging that I suggest "that ethological views of human nature be suppressed because they are dangerous . . ." Perhaps he confuses me with someone else; I wrote no such thing. Some extrapolations from ethological theories are in my opinion a hazard to public health (were my examples not persuasive?), but I am firmly convinced that the suppression of opinions, including Lockhard's distortions of my views, is even more hazardous to the body politic. As a convinced evolutionist, the California Board of Education notwithstanding, and as a physician engaged in clinical genetic research, I am wryly amused to find the spirit of Bishop Wilberforce and the ghost of William Jennings Bryan foisted upon me. Lockhard and I agree on one point: differential reproduction is a central concept in evolutionary theory. But note what Darwin said on this matter: "I use this term [struggle for existence] in a large and metaphorical sense, including dependence of one being on another and including (which is more important) not only the life of the individual but success in leaving progeny" (2). Lockhard's hypothesis that male reproductive success is correlated with aggressiveness in warfare raises empirical as well as theoretical issues beyond brief reply. Some mammals, like elephant seals, exhibit mating patterns such that 85 percent of the cows may be inseminated by the most aggressive 4 percent of the bulls, leaving their more timorous brethren unable to pass on their genes (3); but in many primates subdominant males have access to females almost equal to that of the alpha male; strict hierarchical structures are as often absent as they are present in primate social groups (4). More to the point, theoretical models for the transmission of genes for "altruistic" as well as "selfish" behaviors can be constructed (5). The key question remains—What factors have in fact contributed most to "success in leaving progeny" in the long evolutionary trail from hominids to contemporary *Homo sapiens*? We need detailed studies in genetics, comparative behavior, and

anthropology before informed hypotheses can be put forward.

Clifton is kinder to me but burdens me with the defense of Rousseau's noble savage. I demur. I thought that I had made it clear that ". . . the argument for the pacific character of natural man, uncorrupted by the social order, is inadmissible . . . men are by nature neither aggressive nor peaceful, but rather are fashioned into one or another as the result of a complex interaction between . . . biological givens and the shaping influences of . . . environment. . . ." (6).

Buckbee finds yet another way of misreading what I have written. He has me accepting the myth "that human behavior is changing rapidly and radically" whereas he adheres to the nonmyth that "changes that have happened have not been in people but in the things they have made." Well, I am worried about the things we have made and what these things do to us. I stressed the "task of developing adaptive attributes . . . when radically changed behaviors are required within an individual's lifetime rather than over the history of a people." We both have eyes but one of us sees not. Man may still be the "same" animal he ever was, but he seems to me to be having a hell of a time coping with a world that he changes faster than his imagination can anticipate.

I can only guess what Bezkorovainy's remarks have to do with my article; I did not and do not advocate the crimes he deplores. He is outraged by the "trivial technicalities" that allow murderers, robbers, muggers, and rapists to roam free. The "technicalities" which have led to judicial reversals include such constitutional "trivia" as the right to a speedy and public trial by an impartial jury, to be informed of the nature and cause of the accusation, to be confronted by witnesses and to have compulsory process for obtaining them, to have assistance of counsel for defense, and to be protected against excessive bail, excessive fines, and cruel and unusual punishment (Amendments VI and VII to the Constitution of the United States). The Soviet government reports much less difficulty in coping with the enumerated crimes. Shall we import their expeditious system for dealing with deviants of all sorts, a system unhampered by legal trivia? Allegiance to the Bill of Rights is not the advocacy of criminality.

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References

1. See, for example, R. A. Winett and R. C. Winkler, *J. Appl. Behav. Anal.* 5, 499 (1972); N. Chomsky, *Cognition* 1, 11 (1972); W. K. Estes, *Amer. Sci.* 60, 723 (1972); D. Premack, in *Nebraska Symposium on Motivation: 1965* (Univ. of Nebraska Press, Lincoln, 1965), pp. 123–179; but also compare K. D. O'Leary, *J. Appl. Behav. Anal.* 5, 505 (1972); A. Bandura, *Principles of Behavior Modification* (Holt, Rinehart & Winston, New York, 1969).
2. C. Darwin, *The Origin of Species by Means of Natural Selection* (Burt, London, ed. 6, undated), p. 59.
3. R. J. Harrison, *Behavior and Physiology of Pinnipeds* (Appleton-Century-Crofts, New York, 1969); B. J. LeBoeuf and R. S. Peterson, *Science* 163, 91 (1969); B. J. LeBoeuf, *Nat. Hist.* 80, 83 (1971).
4. A. Jolly, *The Evolution of Primate Behavior* (Macmillan, London, 1972).
5. J. F. Eisenberg and W. S. Dillon, *Man and Beast: Comparative Social Behavior* (Smithsonian Institution Press, Washington, D.C., 1971).
6. L. Eisenberg, *Science* 176, 123 (1972).

Population Density

The study by Galle, Gove, and McPherson, "Population density and pathology: What are the relations for man?" (7 Apr. 1972, p. 23), needs a good dose of humanism. While humans might become convinced that they are living in impacted areas, and that it is bad to be in that predicament, it remains to be proved that such is necessarily the case. There are many cities of the world where the population is more dense than it is in American cities.

Having lived in such places, I can vouch that the negative results of high density as reported by Galle and his colleagues are often lacking. In this connection, I know of three languages (Spanish, French, and Italian) which do not even have words or expressions for the English notion of "privacy," the deprivation of which is supposed to lead to "irritability, weariness, and withdrawal." In fact, in many cultures, excessive wish to be alone can be interpreted as a sign of alienation and antisocialism.

It appears that, while density of population can be quantified, its relationship to social pathologies must be established on other grounds. My own suspicions are that this relationship, where it exists, is culture-bound and dependent on the value system of a given population. I am reminded of the words of one ghetto-dweller who said, "Dispair is when you hear on the radio that where you live is a slum—and you always thought it was home."

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