strate that x determines y." (iii) When the observations are not occurring randomly about the regression line, then the usual probability statements are not valid.

3) When several values are constrained—for example, total 100 percent—then probability statements about the last value are dependent on those made about the earlier values.

4) Subdivision of an "observation" into several "readings" does not increase the number of "observations."

5) Experimental groups composed of members each treated somewhat differently from the others provide a dubious basis for probability statements.

One report cited *P* values although there was no clue to how they could have been obtained. In none of the 16 reports was there any discussion of whether results that were nonsignificant were based on sufficient observations so that an effect of interest or concern could reasonably have been expected to be demonstrated. I refrain from commenting on more "subtle" problems, such as the validity of probability statements based on planned vs. unplanned comparisons, on multiple comparisons, or multiple analyses of the same observations.

There seem to be too many weekend statisticians, who don't know much about the art but know what they like.

ARTHUR F. JOHNSON
Biostatistics Research Support Center, Veterans Administration Hospital, Hines, Illinois 60141

Car Safety: Another View of Science

In the picture it presents of the relations between science and society, *Unsafe at Any Speed*, Ralph Nader's book about lagging automobile safety, runs directly counter to other views of science-and-society of recent years. The trend has been to view science and technology as plowing ahead, guided only by their own internal value systems, applying new knowledge hastily without regard to human and esthetic consequences. In the force of this advance, according to the usual indictment, not only the individual but even organized institutions are almost helpless.

Nader finds almost the exact opposite. Application of scientific knowledge to automobiles is slow and limited . . . the tastes of the common man win out, in least-common-denominator design that is technologically stagnant. Despite the acres of buildings symbolizing devotion to science, despite the giant proving grounds, the one revolutionary car in 25 years is treacherous on the road and remains uncorrected 5 years later. The institutions of traffic safety . . . are busily directing attention away from science; they have even captured the imprimatur of the President of the United States with which to oppose the spread of knowledge. A group of physicians desperately erects a picket line before the showplace of industry, demanding not freedom from dehumanization by overweening science but some small use of scentific design principles that have been known for over a decade. The picture is of a world-turned-upside-down, and suddenly reverted to the 19th century. Yet the facts are there. . . .

The book constantly reminds one of the struggles of science and technology to aid human welfare 50 to 100 years ago. Those efforts also met powerful adversaries. . . . The time between the first invention of the railroad air brake and its full adoption exceeded 25 years. Long delay in the use of the automatic railroad-car coupler exacted tens of thousands of workers' lives before the Railway Safety Appliance Act of 1893. . . . Even the promulgation by an uncritical automotive technical society of comfortable recommendations for the industry which funds its work has a historical ring; the same sort of "professional" engineering phenomenon was attacked in even greater detail by the English sociologists Sidney and Beatrice Webb more than 50 years ago. . . .

Nader's implied solution is federal control, but he also notes the lack of an organized constituency of informed scientists and engineers. There are two such organizations in the medical profession, neither beholden to the automobile manufacturers. In effect, they are carrying the entire burden of representing the consumer's interest wherever there is a need to speak out about automobile safety. Similar organizations among engineers and scientists would provide a fitting opportunity for public service. In a world which misunderstands the role of the scientist in shaping society, an organized voice demanding scientific reform for human benefit would fill a great need.

HENRY H. WAKELAND
179 Rockaway Avenue, Garden City, New York 11530