28 January 1983, Volume 219, Number 4583 **SCIENCE**

"Science Is Sciencing"

"Science is not merely a collection of facts and formulas. It is preeminently a way of dealing with experience." Thus wrote the late Leslie A. White, when he concluded in an important essay* that "science is sciencing." Today, as we consider how to improve the public understanding of science, it seems useful once more to point out that the social, cultural, and behavioral domains are as much a part of the universe as are the physical and biological, and if we are to have the kind of understanding and predictive power science can give us, we must teach our children to consider social facts as things and to treat them as such, as Emile Durkheim suggested.

As we struggle to improve the science curriculum in our schools and colleges, we tend to focus on mathematics—with which no one can quarrel, since it is one of the languages all scientists use in expressing the relationships they observe and postulate between variables. New developments such as catastrophe theory, for example, hold great promise for bringing greater rigor to our understanding of social and behavioral events. But is it sensible to present other subject matter by discipline, as though it were possible to subdivide the universe into phenomena which are subject to scientific investigation and those which are not? Even though most (but not all) physical and biological scientists give at least lip service to the possibility of "social science," and it is true that the social sciences are represented in the National Science Foundation and the National Academy of Sciences, it is nevertheless the case that social facts in the schools tend to be presented as "social studies" rather than as science.

Now, this distinction has the potential advantage of indicating that there are also humanistic and artistic ways of interpreting sociocultural phenomena (just as there are, of course, for sunsets, earthquakes, icebergs, stars, or the human body), but unfortunately the scientific element in social studies often gets lost. Too often, popular and schoolroom discussions of social phenomena are cast in emotional terms which lead people of all ages and educational levels to confuse their own values about what ought to be with what is or what might be. Politicians sometimes find it convenient to bolster their positions by reference to the findings of social scientists, sometimes inappropriately. This leads some to declare that social science cannot or should not be used in policy formation, since it is all "subjective" anyway.

It is not subjective, of course, but it is apparently very difficult, even for the scientifically sophisticated, to keep in mind that there is an external social and cultural world independent of the perceiving subject, a belief which, as Einstein said, is the basis of all natural science. Furthermore, there is a distinct tendency to seek explanations of things and events in the social and cultural domain in the actions of particular individuals—the "great man" or the all-powerful tyrant. Even the educated and highly credentialed may be so ignorant of what social science is all about that they see science only in the dating or identification of artifacts, or in the demonstration of statistical correlations, such as those between divorce and educational level or between crime and urban congestion. These views are often enhanced by the selection of topics presented as social science in the popular press, even the scientific popular press.

What is desperately needed is a better understanding of how rigorous, impartial investigation of social and cultural facts, including acts, objects, ideas, and sentiments, leads to increased knowledge of the patterns and processes which affect how we and others think and behave. How we use our knowledge is a completely different matter and should not be confused with scientific discovery and analysis. If there is order anywhere, it is everywhere. And if we are to discover it, we must improve our scientific capabilities across the board.—NANCIE L. GONZALEZ, *University of Maryland, College Park 20742*

**Philosophy of Science*, vol. 5, pp. 369–389 (1938).