

tions about the impact of selected factors. However, those who will have significant influence on the political and social processes of the next 20 years are alive today. Consequently, they share to some large degree the values prevailing now, and this is important if we want to explore the significance of the computer for our kinds of privacy and freedom. The years beyond the realm of a 20-year period, may find us dealing with a population a significant proportion of which holds values quite different from today's. Since we are not likely to know what those values might be, further speculations than we are about to undertake would hardly be worth the effort in the context of this Symposium.

One approach to the kind of speculations we shall pursue herein would be to review with great precision and perspicacity the history and ramifications of the concepts of privacy and personal freedom, and in this light, to look at the possible effects of computers on them. We will not follow this approach; space and the author's knowledge are too limited, and the concepts, whether they are refined philosophical, legal, ethical, or political formulations, undoubtedly will have their day when it is time to inhibit or facilitate the impact of the computer. Before then, the impact of computers on man will be reflected much more in the commonplace responses of our pluralistic society to these frequently misunderstood and misapplied concepts. In particular, it should be understood that the writer's grasp of these concepts is also of the "common" variety.

This paper should be read, then, as no more than a stimulus to further speculation and much hard work. It is a preliminary exercise, an attempt to delineate some circumstances where computers and the concepts of personal freedom and privacy may come together in the day-to-day environment of the next couple of decades to enhance or detract from the practice and preservation of freedom and privacy. We shall concentrate on the role of computers as the technological agents for these developments. The microphone, tape recorder, miniature camera, and questionnaire are other formidable technological agents; their uses are well documented in two recent books and we need not review the matter here.¹ We shall be concerned more with the implications for privacy and freedom implicit in the means and capacities of computers for processing and evaluating information, however collected. Our goal is to identify the interactions and the circumstances to look for if we wish to anticipate the impact of computers on freedom and privacy.

In order to grasp fully the potential impact of computers, we must be clear about our versatility. In their simplest forms they can sort punched cards and preform, at high speed, routine arithmetical and statistical calculations. In their more elaborate versions, computers can—

"be built to detect and correct errors in their own performance and to indicate to men which of their components are producing the error. They can make judgments on the basis of instructions programed into them. They can remember and search their memories for appropriate data, which either has been programed into them along with their instructions or has been acquired in the process of manipulating new data. Thus, they can learn on the basis of past experience with their environment. They can receive information in more codes and sensory modes than men can. They are beginning to perceive and to recognize * * *. Much successful work has been done on computers that can program themselves. For example, they are beginning to operate the way man appears to when he is exploring ways of solving a novel problem. That is, they apply and then modify, as appropriate, previous experiences with and methods of solution for what appear to be related problems. Some of the machines show originality and unpredictability."²

Let us also recognize that the impact of computer technology will not be unilateral. Rather, it will be profoundly affected by attitudes held by significant portions of the public and their leaders—attitudes favorable, indifferent, or antagonistic to privacy and freedom. There are, of course, great social pressures already operating which run counter to the preservation of privacy. We shall not explore the sources of these pressures and anxieties; they are recognized as chronic states of mind and action for a large part of our population and its leadership. But they result in conformity and in the justification of exposure, and in order to conform or to assure that others meet certain standards of conformity, people need to know what other people are doing, especially in their less easily observable lives. Our mass media in particular stimulate and cater to this need, and they revel in the publicizing of personalities by stripping

¹ Packard, *The Naked Society* (1963), and Brenton, *The Privacy Invaders* (1964).

² Michael, *Cybernation: The Silent Conquest* 6-8 (1963).