

computer file with readout of the records controlled from a single point. Step 3: Information is read into and out of the file from a large number of different points.

Baran envisages connection of one remote-access computer with other similar computers, and through this, "danger of loss of the individual's right to privacy as we know privacy today." "The composite information data base may be so large and so easily accessible that it would permit unscrupulous individuals to use this information for unlawful means," he warns. "Modern organized crime should be expected to have the financial resources and skills necessary to acquire and misuse the information."

He expresses concern not only over the possible creation of "automated blackmail machines" but over the potential addition of "inferential relational retrieval techniques" now being developed which, "when fully refined, could determine relationships of any person, organization, event, etc., to any other person, organization, or event." Noting that "humans, by their day-to-day necessity of making decisions on totally inadequate evidence, are innately prone to jump to conclusions when presented with very thin chains of inferred relationships," he predicts an increase in the already growing practice of unearthing defaming information about candidates for political office.

The Baran forecast of computer hazards is fortified by the studies of another Rand researcher, M. R. Maron.

"Consider," suggests Maron, "what could happen as machines are used to make decisions about people. For example, consider a situation where a computer is programed to decide who should get a security clearance from the Government, or who should get an education loan, or whether someone's driver's license should be suspended, or who should get a passport, or who should be accepted for the Peace Corps or the Job Corps, etc.

"As larger files (of machine-language data, stored in computer memories, linked cross-country by telephone) become accessible there will be a natural tendency to use machines for the automatic selection (or rejection) of people according to some preprogramed set of criteria. Supposedly these criteria will have been carefully thought out before programing the machine. Even so, the implications are dangerous.

"In such a mechanized situation, how does an individual get an opportunity to 'tell the system' that its selective criteria don't apply to his own special case? Each individual is different, each has certain extenuating circumstances, each has information which he believes to be relevant to the selection decision and which the system does not consider relevant. And so on. If an individual does not have the opportunity to be judged on the circumstances of his own special (individual) situation, then he is being treated as a machine.

"Will there be a tendency in the future to create an environment where we treat each other as machines; i.e., where there is no opportunity to 'change the system's mind'? How can we create a society where we treat our citizens as people and not as machines? How can we create a society where each individual has the opportunity to explore and unfold his own special potentials—to realize what he is?

"These questions lead to further questions—to questions about who we are and what it means to be a person. And this brings us to the problem of values. What kind of a life do we want? What kind would we value—ought we to have? How can we create a society that fosters those actions and goals that we value? How define and explicate values? How measure and compare and rate values? How select among competing values? How can we estimate the impact of computers on our values?

"And if our projections into the future suggest that we are heading toward a future society which is not conducive to a 'good' life, what can be done to isolate the trouble spots and to influence those changes that will prevent the possible 'evils'? Such analysis of future prospects implies prediction, evaluation, and then some attempt at control. Can the process of control be made democratic so that a small professional elite does not dominate in influencing the shape of the future?

"Finally, there is the problem of time—the time that it takes to initiate and complete corrective action. Given an analysis of the impact of computers on society and given some corrective action that must be taken in order to avoid some future situation, how long a timelag will occur between corrective action and modification of the situation?"

The positive cultural potential of computers was emphasized last January in a report to President Lyndon B. Johnson by the National Commission on Tech-