Letters

Who Gets the Word?

I am surprised that scientists and the representatives of scientific organizations have not publicly protested the newly instituted system in the Department of Health, Education, and Welfare of releasing information concerning scientific grants and contracts through the offices of congressmen. In my opinion, several dangers are inherent in this system.

First, the scientist's earliest knowledge of the success of his application is less likely to come through the regular channels of the agency awarding the grant than from a local reporter who wants "background information," or even from a neighbor who reads all the minor notices and promptly asks, "What are you going to do with all of that money?" After all, everybody *knows* what happens to government funds for swamp drainage, steam control, and highways. The reporter wants to *know* also what the results of the scientist's study are going to be—and if the scientist isn't willing to stick his neck out now, then early next month. The statements that emerge can be devastating.

Second, the announcements in the newspapers are often inadequate and misleading. No distinction is made between a grant of $20,000 for each of 10 years and a grant of $200,000 for 1 year; each is "a $200,000 grant." The headlines can be a source of amusement. (After a headline like "Ten Tons of Topaz-Tinted Fruit Flies Subject of Research Grant," the scientist can expect biological contributions in the mail for months.)

Third, the suspicion arises that the congressman helped to obtain the grant. This leads to the additional suspicion that scientific projects are being furthered with the aid of politicians. This, in turn, leads to suspicions that are even more unsettling.

Lastly, the official announcement of the grant award may be greatly delayed, and the project—the original object of all this attention—is off to a slow start, although with its future conclusions already printed and the lab chockful of equipment salesmen.

Apparently this situation is due to the efforts of the Department of Health, Education, and Welfare to pacify congressmen. Such a policy may only increase their curiosity about why the gesture was made in the first place.

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Automated Decision Making: A Threat, or a Promise?

Apparently Cowan ["Decision theory in law, science, and technology," *Science* **140**, 1065 (1963)] believes he has discovered something important in his generalization that the focus of scientific inquiry is shifting and that today the scientist *"is being recognized as a decision maker"* (his emphasis). Has this ever been doubted among wise men during the past 400 years? Did we really need game theory or computers to make us aware of this? What Cowan seems unable to state clearly is that vast amounts of quite subtle decision making, requiring comparison, inference, judgment, and so on, are at bottom quite banal and trivial and that mankind will gladly hand over such operations to machines, while retaining for itself increasingly more challenging and creative levels of decision making about how decisions are to be fed into machines. That this is bound to transform legal processes as well as other human disciplines is neither to be wondered at nor feared. It has long been the impression of many of us that at least 90 percent of what is traditionally considered the "creative" employments of physicians, judges, lawyers, editors, is no less sheer hackwork than the physical exertions of day laborers. Why not let it go with shouts of hurrah rather than with dire forebodings?

This brings us to what was doubtlessly intended to be the core of Cowan's discussion, that is, his justification of why there is no cause for the legal community to get "so aroused at the extravagant claims of computer enthusiasts." On the one hand he claims too much for the computers, and on the other he claims too little. His ambiguous stance is neatly conveyed in his observations concerning the United States Supreme Court. He agrees that there is merit in scientific studies of legal decision making and speaks of the motives behind them as "unimpeachable." Later appears this sentence: "But we are hardly prepared to turn that august body [the Supreme Court] into a group of experimental subjects to test the results of factor analysis!" This evades the crucial point. No responsible scientist would suggest that we do violence to any social body or grouping—be it very august or very humble—by transforming it into experimental subjects for test purposes. But it may very well happen that we will one day achieve, with the help of computers, a legal and social system in which something called a supreme court is no longer needed. Why is the United States Supreme Court any more hallowed than scores of sanhedrins, general courts, and privy councils which have long since passed into oblivion even without the aid of computers?

Cowan's excessive claims for the computers have to do with his concept of "brain power." Here his tendency to make facile dichotomies (thinking and feeling, arts and sciences, man and nature) leads him into the trap of thinking that the automation of all muscle processes is good but that the automation of "brain power" is a "much more serious matter." We are told that "man willingly substitutes mechanical energy for muscle power wherever he can," but this of course is only superficially true. No man who likes to garden or play golf, or who enjoys indulging in sexual intercourse, for example, is going to deprive himself of utilizing certain kinds of muscle power no matter what the automation experts may yet have up their sleeves. Cowan correctly points out that high-speed computers have relieved man of staggering amounts of mental calculations, but he tries to save his case by referring to this as "finger work." It can be predicted that for generations to come school children will continue to get some pleasure out of that homey brain-power function known as "mental arith-