

rarely mobilized to bear on the . . . problems of a state."

He is entitled to challenge these judgments. But his arguments should be addressed to these points, not to imaginary slights. There are no "belittling" references to research workers in agricultural experiment stations in my review. I did *not* say that the experiment station research workers might be "chasing the wrong rabbits," but rather that the *states* might be doing just that in the over-all pattern of their research effort. And I am at a loss to see the relevance of the prideful reference to Academy and Nobel Prize winners at Wisconsin. To dispose briefly of another straw man, I did not—as Clark implies—assert that federal officials "pressure the research workers," nor did I suggest that administrators of experiment stations "take dictation from officials of the U.S. Department of Agriculture." These are your own windmills, Don Quixote, not mine.

First, "shared responsibility" between the federal government and the states for research. Let's look at the facts. Does such a phrase really describe the various ways in which research programs are financed by the Department of Defense, the Atomic Energy Commission, the National Science Foundation, or even the Department of Agriculture? Is there sharing with the state when the Defense Department buys research from the Rand Corporation, or the University of Wisconsin? Is there "sharing" in the proposal that a \$100-million linear accelerator be financed at Stanford University, in the National Science Foundation grants for support of the National Radio Astronomy Laboratory, in the AEC grants to universities for building nuclear reactors? Is there "sharing" with the states in the medical research programs of the National Institutes of Health? In 1960, the state-government contribution to medical and health-related research is estimated at \$20 million; this is 3 percent of the total bill, of which the federal government pays over half. Moreover, the federal share is increasing steadily, with the latest estimates that by 1970 \$2 billion of the \$3 billion for medical research will in all likelihood be provided by the federal government (see the testimony of the Committee of Consultants on Medical Research; Labor-Health, Education, and Welfare Appropriations for 1961; Hearings before the Subcommittee of the Committee on Appropriations, U.S. Senate, 86th Congress, Second Session on H.R. 11390).

In none of these large grant programs, which constitute the bulk of federal research effort, are the grants shared—or even cleared, processed, or channeled through the states. Shared responsibility indeed!

As for agricultural research, is not the phrase *shared responsibility* more likely to obscure than to illuminate this complex relationship? See Charles Hardin's book *The Politics of Agriculture* for an analysis of some of the forces shaping the nation's agricultural research programs. Surely if we are to critically appraise the many complex and different ways that federal research grants are made, we cannot be content with rhetorical phrases such as *shared responsibility* and the conventional wisdom which indulges such cliché-thinking.

Second, the federal dominance in research. Who calls the piper, Washington or 50 state capitols? In fiscal 1959–60, the federal government will spend more than \$750 million to finance university research. Seventy percent of all research conducted by universities is federally financed.

The "pace and pattern" is set by Washington.

Example: The major research efforts in health have been launched because the Congress chooses to invest larger and larger sums in medical research: \$3 million in 1940, \$380 million (estimated) in 1960.

Example: The pattern in medicine has been that of individual project grants. The National Institutes of Health are now pressing for "institutional grants," to restore to the universities some freedom in determining which investigators and which research interests they wish to support.

Example: In physics, 90 percent of university research is supported by federal funds; the pattern is set in Washington, on the advice of scientists, not in the state capitols.

Example: Federal research is heavily concentrated. Five universities have over \$20 million of federal research funds, and one is reputed to have over \$90 million.

The issue is not whether federal officials lay hands on university researchers and control their individual research effort. Rather, the point is that the pattern of university research is profoundly shaped by the availability of federal funds. And these federal funds may encourage applied research to the detriment of basic research, may tempt universities to rely unduly on the interests of federal agencies in shaping their research programs. In many fields, as Charles Kidd points out [*American Universities and Federal Research* (Harvard Univ. Press, 1959)], "one of the most significant effects of federal research funds has been to remove from universities the authority to make some decisions they formerly made. Which faculty members are to receive aid for their research and what amounts are they to receive? Such questions are now decided generally by scientific

groups meeting in Washington, not by persons or groups within the institution."

We need not deplore this, for there may be no other way to mobilize the nation's research talent in pursuit of nation goals. But surely there is no sense in playing the ostrich and denying the powerful impact of federal funds on the life of our universities.

Third, that scientific activity in the states "reflects the traditional obsessions, notably the heavy emphasis on agricultural research and on applied research generally." Let's put this to a practical test. Who has the best chance of getting money from the state legislator, the experiment station director seeking research funds to study the diseases of cranberries, or the sociologist looking for the causes and cures of juvenile delinquency? Agricultural research will win out most of the time for the simple reason that rural groups exercise disproportionate power in the state legislatures. I do not think it "belittles" the fine efforts of the experiment station workers when I reiterate my point: that "research on urban development, housing, and smog may be more urgent than the search for new varieties of rust-resistant wheat."

If this be heresy, I suspect it's the sort of heresy George Sarton might have enjoyed.

HAROLD L. ENARSON
Western Interstate Commission for Higher Education,
Boulder, Colorado

Information on Drugs

"Science in the News" in your 29 April issue [*Science* 131, 1299 (1960)], in commenting on the Kefauver drug hearings, reports the lack of a "convenient index of information" that would allow physicians "to sort out the misleading from the meaningful messages among the barrage of promotion to which they are subject. . . ."

A beginning in providing just such information has, in fact, been made in the form of a newsletter called "The Medical Letter on Drugs and Therapeutics." This fortnightly publication is issued by a nonprofit organization, it carries no advertising, and it is supported solely by the fees of its 14,000 subscribers, most of them physicians. With the aid of a distinguished advisory board of medical clinicians and investigators and a broad panel of special consultants, the editors of "The Medical Letter" provide subscribers with concise, authoritative, and unbiased appraisals of both new and old drugs.

PAUL H. LAVIETES
Drug and Therapeutic Information, Inc.,
New York, New York