

his American counterparts would consider a heresy: he publicly contested the "significance" of a good deal of past spending for academic research, even with the term generously defined to include "the development of the subject itself . . . the development of contiguous areas of science . . . industrial, economic or social progress, or . . . the preparation of postgraduate science and engineering students for careers whether inside or outside research laboratories."

"This may seem a liberal interpretation of what is meant by 'significant,'" Flowers stated, "but the fact is that too much of our university research has not been significant in any of these senses, it has had little relevance to the development of the subject itself, and none to any broader objective. It has often been too trivial to inspire the younger research worker with any sense of purpose or of responsibility. Much of this situation," he continued, "has arisen at a time when all over the world the emphasis has been on expanding the sheer volume of research and of numbers of scientists trained in the methods of research. There has been too little thinking, too passive an attitude of the SRC [and its predecessor organization] toward grant applications, and our resources have consequently been spread too thinly. In spite of rapidly rising expenditure, our contributions in many branches of science have therefore been less than effective."

Waning Faith in Science

In addition, he said, science has done itself political injury by failing to recognize that the great postwar growth of support for research derived from public belief in the utility of science. "Until about five years ago, budgets for university science were rising at almost the maximum rate that could be absorbed, about 12 percent per annum in real terms. The high growth rates were an indication that the nation believed—and wartime experience had given it some grounds for its belief—that science could solve many of its problems. The economic ills of recent times, and the growing recognition that scientific priorities seemed to be amiss, have now been followed by smaller growth rates. . . . But the demand on science goes on—for better communications, better health, a better environment. Whereas until recently funds for science have kept in step with demands for scientific results, we now find ourselves in a situation where the

funds are falling behind. In some way, we have to learn to improve our productivity so that even with less cash we can produce the goods. If we fail, science will seem more discredited and the funds will become even scarcer."

How is the productivity of academic research to be increased? The answer, Flowers said, is to put greater emphasis on selectivity of subjects and concentration of resources, with full recognition that great inequalities will inevitably result among Britain's 44 full-fledged universities. "The choice," he continued, "is to spread our resources of money and manpower indiscriminately, and thereby achieve excellence only rarely, if at all, or to concentrate it in the way we are doing. . . . The big question, it seems to me, is whether we should openly admit that there are at most a dozen or so universities outstanding at scientific research; that this is only to be expected, and that it is what we should plan for." Flowers added that he would sidestep the question, but went on to say that concentration of resources could in large measure be balanced by collaborative use of facilities. But he left no doubt that, while the effects of concentration might be eased to assist the have-nots, the SRC is aiming to pool its funds for excellence, rather than for equality of distribution. And he also made clear that concentration will be achieved by redistributing funds, rather than by relying on the relatively painless procedure of retaining the old and creating new activities out of new funds. "In the present financial situation," he explained, "this concentration of resources will be planned by shifting to favored areas from less favored areas rather than by simple addition. . . . With a limited growth rate for SRC as a whole it will, however, be necessary to reduce support in major areas where programs have been completed or have lost their impetus in order to provide backing for new major groups."

Flowers emphasized that selection of subjects for support would be based on surveys of scientific needs and potentialities that the SRC has been conducting over the past 2 years. And, possibly in response to allegations that small groups set British science policy behind closed doors and then emerge to confront their colleagues with immutable decisions, he noted that the criteria for these decisions will be made public and that all parties involved will be invited to make known their views. Also, he made clear that, while

NEWS IN BRIEF

● BROWN NAMES HORNIG PRESIDENT

Dr. Donald F. Hornig, former science adviser to President Johnson, was named president of Brown University last week. He will assume office shortly after the 1 June commencement ceremonies. Dr. Hornig served as a group leader in the Manhattan Project from 1944 to 1946. He then began his teaching career at Brown and moved to Princeton, leaving in 1963 to advise President Johnson. At the end of the Johnson Administration, Hornig became a vice president of Eastman Kodak Company and professor of chemistry at the University of Rochester.

● VIET DEFOLIATION CUT:

The defoliation program in South Vietnam has been gradually cut since last November by about 25 percent, according to the *Los Angeles Times*. A Pentagon official confirmed this, saying the reduction was decided at U.S. headquarters because of a lessening need for defoliation missions and because of budgetary restrictions. The 25-percent cut refers to a decrease in missions and in gallons of herbicides sprayed.

● QUARANTINE FOR APOLLO 13:

The crew of Apollo 13 will be subjected to the usual 21-day quarantine placed on crews of lunar landings. NASA had been expected to abandon the quarantine since no signs of life have been detected in materials brought from the moon. The quarantine was recommended by a panel of the Space Sciences Board—National Academy of Sciences because the landing will be on a different area of the moon and because one of the scheduled experiments involves drilling a hole 10 feet below the surface of the moon.

● EDUCATION REFORM:

President Nixon has sent Congress a message on educational reform that criticizes current programs and emphasizes research. He declared that "we are not getting as much as we should out of the dollars we spend." Nixon asked for establishment of a National Institute of Education for research into learning; renewal of the charter of the Corporation for Public Broadcasting; formation of a presidential commission on school finances; experiments with a network of child development projects; and an endorsement of the Office of Education's right-to-read program.