pinnings, which the panelists regarded as relatively neglected. They also emphasized the need for research on methodology and standardized methods of diagnosis, as well as agreement on definitions of diseases.

The communications science division was seen as applying advanced information-handling techniques and computer technology to the needs of the center and of WHO at large. According to the panel's original design, the division would carry out its own research program in addition to giving assistance in research to other parts of the organization. It was recognized that the demand for statistical and computing services in an organization like WHO will be heavy, and that one of the problems of the communications science division will be to avoid becoming simply a service facility.

In setting forth its recommendations for a division of biomedical research, the expert panel also put stress on the dangers of chemical mutagens and toxic agents. To meet a developing need, the division was conceived as a world center for research on methods of testing drugs and for the collection and dissemination of information on drug safety.

Research on the somatic and genetic effects of mutagenic and toxin agents, including chemicals and viruses, was also to be emphasized. This would entail tests on animals on a scale which, the panelists argued, could probably be achieved only through an international effort. The experts had in mind as a model the studies of radiation effects on mice carried out over a long period and on a large scale at the Oak Ridge National Laboratories.

In addition, the panelists recommended a substantial program in cellular and subcellular research, on the theory that, to understand the action of drugs and other extrinsic substances on biological systems, it is necessary to understand basic biology. According to the planners, not all branches of fundamental biology should be represented; rather, they sought the establishment of a core of activities on aspects of molecular biology which are peculiarly relevant to the studies of the effects of extrinsic substances.

Opposition to the proposal came most explicitly from the British Government. In June of 1964 the Secretary of State for Education and Science of the Conservative Government then in power gave a written answer to a question in the House of Commons which still

Getting Off the Road to Technology Gap: McNamara's View

Defense Secretary Robert S. McNamara last week went to one of the underdeveloped lands—the State of Mississippi—and advised an assemblage of its leaders that they might well join Western Europe in considering the causes and cures of the much-discussed "technology gap."

McNamara, whose Department's $7-billion-a-year research and development budget is often cited as a major underpinning of U.S. technological supremacy, spoke in connection with a fund-raising drive at Millsaps College. He did not offer the Mississippians any promise of the Defense Department's wealth, but he did set forth his own diagnosis and prescription for the "gap," arguing that it is more a managerial than a technological gap, and that the basic ingredient for closing it is simply an expansion of the quantity and quality of education.

"Europe is weak educationally," McNamara stated, "and that weakness is seriously crippling its growth. It is weak in its general education; it is weak in its technical education; and it is particularly weak in its managerial education. . . .

"In the United Kingdom, France, Germany, and Italy—for example—about 90 percent of the 13- and 14-year-old students are enrolled in school. But after age 15, there is a tremendous drop-off. Then, less than 20 percent remain in school.

"In the United States, 99 percent of the 13- and 14-year-olds are in school. But what is more important, even at age 18 we still have more than 45 percent pursuing their education.

"In the United Kingdom, there are some 366,000 students enrolled at the university level. Thus only about 10 percent of college-age individuals are attending institutions of higher learning.

"In Germany, there are about 270,000 students at the university level, and this represents only about 7 percent of all the college-age youngsters.

"In Italy, there are about 240,000 students at the university level; which, again, is only about 7 percent of the college-age group.

"In France, the picture is somewhat brighter. Some 400,000 students, about 15 percent of the college-age group, are actually receiving higher education.

"But compare these figures of industrialized Europe with the United States. Here we have more than 4 million students in college and this represents some 40 percent of our college-age population.

"What is also to the point is that modern managerial education—the level of competence, say, of the Harvard Business School—is practically unknown in industrialized Europe."

Turning to the educational situation in Mississippi, McNamara observed that while the state has increased its expenditures, its relative standing nevertheless remains dismal.

"Though it places 14th among the 50 states in the expenditure of personal income going to education, it ranks last among the states in average expenditures per pupil.

"The dropout rate is high, as is the illiteracy rate. The median of 8.9 years of schooling is substantially below the nation's average of 10.6 years.

"The State's college-bound students rank well below the national average in scores achieved on the American College Testing program. Recent national scholarship tests show Mississippi to be last in the country in the percentage of students achieving a passing score."

McNamara limited his gifts to advice. Mississippi, he said, might profitably adopt the Employee Matching Plan, under which business firms match, dollar-for-dollar, contributions that their employees make to educational institutions.—D.S.G.