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State Involvement in Science and Technology

Much has been accomplished over the last 30 to 40 years by our prevailing structure of science and technology. Now, however, a crisis is emerging: U.S. output per man-hour has leveled off or declined in recent years. Results of basic research no longer percolate through our economy fast enough or effectively enough to increase productivity substantially. Education in the United States is less rigorous than that of several other nations. And we have not devised the organizational means to generate and use knowledge of how to manage land, water, and air resources properly and to minimize dangers associated with toxic, hazardous, and low-level radiation waste.

In dealing with the emerging crisis, we must foster throughout society the creative potential of science and technology by technical and organizational innovation, which together constitute technological innovation. I contend that the center of gravity for technological innovation must shift from the federal government to state governments.

Of the 184 research universities of this nation, 119 are public institutions, most of which are supported by state governments. Elementary and secondary educational systems are the responsibility of state and local governments, who (regardless of action by the federal government) must take the lead if significant improvements are to be achieved. State and local governments are the prime points of contact with the many aspects of economic activity that entail industry-government interaction. Finally, people are essential in technological innovation, and people can more easily relate to state and local governments than to distant federal agencies.

The experience of North Carolina and a few other states illustrates how a state government can forge these various interrelations. The North Carolina Board of Science and Technology is the unit that maps much of our strategy, building on the work of our universities and the influence of our Research Triangle Park. I chair this 15-member board; the remaining members are scientists from our public and private research institutions and officials from state and local government. Other groups advise me; one is a council of business leaders from across North Carolina. As a consequence, new industrial investment in North Carolina has averaged approximately $2 billion per year for the past 5 years. Our unemployment rate is about 2 percent below the national rate.

In North Carolina we are also investing in people, particularly young people. In our elementary and secondary schools, we have introduced competency testing, raised the level of teacher training and pay, reduced class size, and taken other measures to improve education. Significant improvements in national test scores are one indication that these changes are having an effect. In addition, we have established the North Carolina School of Science and Mathematics, a residential high school for students with very high aptitudes in these subjects. In its first year, with 150 students enrolled, this school had the second largest number of National Merit Scholarship semifinalists of any school in the nation.

My last example consists of our Microelectronics Center and our Biotechnology Center. The former is designed to enable six leading research institutions in North Carolina to have access to sophisticated microelectronics research equipment on a sustained basis. The latter is beginning on a relatively small scale, but represents a long-run commitment to this field. Other states, such as California, Minnesota, Michigan, and Florida, are taking significant action in relation to such fields of exploration.

Technological innovation must be construed as more than an end in itself. Its larger purpose is meeting the needs and desires of people. This is a function of values and beliefs and of political and economic processes. The emerging crisis I have mentioned is a reflection of such concerns. Government—particularly state government in partnership with academia, industry, and people—has a clear responsibility in resolving this crisis.—JAMES B. HUNT, JR., *Governor, State of North Carolina, Raleigh 27611*

Adapted from an address presented on 4 January 1982 at the AAAS Annual Meeting.