Historian of Science States Case for Catching Up on Basic Research

Derek de Solla Price, historian of science and a chief expositor of the phenomenon of exponential growth in science, took the occasion of a congressional hearing held at the AAAS meeting in Washington to pronounce such growth at an end. Ironically, Price provided some living evidence for his thesis; his own department at Yale is being phased out as an economy measure (see page 1189).

The hearings, a first for AAAS, were held jointly by the science subcommittees of the Senate Commerce Committee and House Science and Technology Committee. Senator Adlai Stevenson III (D–Ill.) presided over the morning session and Representative George E. Brown, Jr., chaired the afternoon session.

Price's testimony was an updated statement of the traditional case for support of R & D, particularly of basic research. But it also had some of the flavor of Frederick Jackson Turner's valedictory on the passing of the American frontier and a dash of Oswald Spengler's *Decline of the West*.

What happened, said Price, was that in 1967, "at least three long-term progressions of our society came simultaneously to a screeching halt when the brakes were slammed on at a blank wall of total impossibility of future growth."

The three culminations Price noted were the practical termination of the movement of workers out of agriculture, the end of the expansion of universities, and the plateauing of R & D expenditures.

For 200 years, says Price, agricultural workers have moved into industrial production and service industry at an average annual rate of 0.5 percent of the labor force. By 1967, "agriculture had been reduced to a virtual minimum of a tiny fraction of the population. Since then the only change possible has been a slow transformation from industrial production to service industry."

Describing what he called "the saturation of higher education," Price said that around 1967 the universities and colleges which had been growing for more than a century from elitist education to a democratized university system came to the stage where half of each age cohort entered college. The intensity of higher education had doubled every fifteen or so years and obviously could never double again. The situation was masked by the Vietnam War crisis in the colleges but the change was sudden. Universities would never expand again and the need for teachers declined sharply from 7–8% per annum to a replacement rate of about 2% per annum. Since college teaching is the major locus of basic scholarship in the nation, this activity suffered a potential slash by a factor of 3 to 4, about half of which has already emerged from the academic pipeline.

Turning to what he termed "the R & D ceiling," Price said, "at the same date, and working on the same population, an inevitable decision had to be made to hold the national R & D expenditure to a ceiling. This expenditure had reached by that time a magic number of about 2½% of the GNP. This proportion had been steadily doubling every fifteen years; it had been only about 1% of the GNP in 1953 and a tiny fraction of a percent before World War II."

Price went on to say that "this peaking out of our national funding in R & D coupled with the problems of a service economy and a saturated university system have the gravest consequences and are probably responsible for a declining economy and increasing inflation and unemployment."

Price observed that federally funded R & D (some $28 billion worth) amounts to about 14 percent of "controllable" expenditures in the total federal budget. "This is a high proportion, about 1/7 of the total expenditure. Essentially, the brakes had to be put on at some point near this, for at the long-term conventional growth rate the entire allocable

FBI—Privacy Fight Flares Up

The Federal Bureau of Investigation (FBI) has proceeded with plans to add a "message switching" capacity to its national computerized crime files, despite previous written assurances to Congress that it would be consulted before any such move was made. The FBI's action seemed defiant enough of congressional prerogatives to spark an angry letter to Attorney General Griffin Bell from three senators concerned with the privacy implications of message switching: James Abourezk (D-S.Dak.), Charles Percy (R-Ill.), and Charles Mathias (R-Md.).

Message switching is the capacity by which the FBI's existing computerized files would also become the central communications point for law enforcement officials around the country to query other jurisdictions about suspects, stolen property, or missing persons. While the FBI has said this would make the criminal justice system more efficient, congressional critics for more than 4 years have been arguing that it would concentrate Big Brother style powers in the hands of the FBI. They say the existing, decentralized telecommunications system used by the states should continue.

The three senators were angered by some recently released documents showing that last December, the FBI issued a request for proposals to computer companies to bid on new equipment to upgrade the National Crime Information Center (NCIC), the central data bank in Washington that now contains both the FBI's records and those of about a dozen states. Among other things, the FBI request asked bidders "to include in their proposals the hardware and software components necessary for message switching."

But at the same time the request was working its way through channels at the FBI and General Services Administration, two high-level officials in the Justice Department gave written assurances to Representative John Moss (D-Calif.) that "approval" from Congress would be sought before the department, which includes the FBI, took "any initiatives" on message switching.

Spokesmen at the FBI note that although the request asked for hardware and software, they will be bought only at a later stage, after the Attorney General's approval has been obtained. Staffers for the interested congressmen say, however, that the government should not start procuring such equipment before a policy decision on message switching is made.

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