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ABM RATIONALE SHIFTING AGAIN SS-9 PRODUCTION DOWN

From 1960 to 1966, America was told we needed an ABM to protect cities against Soviet missiles. In 1967, it was Chinese missiles. In 1968, ABM was a program needed to get the Soviets to open SALT talks. In 1969, we needed ABM to protect our Minuteman missiles. In 1970, we needed to continue our ABM program to keep pressure on the Soviet Union to negotiate a ban on ABMs under which we would protect only Washington, D.C. But Congress declined to authorize a defense of Washington. Now "top Pentagon officials" are talking of deploying 60 or 70 SPARTAN ABM interceptors around Cheyenne Mountain—the control center for the North American Air Command—under agreements with the Russians that permitted their 64 Galosh ABM launchers around Moscow. These Pentagon sources would not count the smaller Sprint missiles in such an ABM agreement. Since the Spartan interceptors would cover the Minuteman fields, the Administration Safeguard program could then continue under an agreement limiting the Soviet side to what it now has.

SS-9 DEPLOYMENT HALVED

In early 1969, the Defense Department extrapolated a buildup of Soviet SS-9 missiles of 50 per year for five years. News reports now reveal that only 25 SS-9s were built in 1970. American officials insist that this is not part of any agreement with the Soviets. But the slowdown has important implications since a central argument for the American Safeguard program has been the possibility that it might be halted in return for a halt to Soviet SS-9 production.

SYMINGTON SUBCOMMITTEE FIGHTS FOR INFORMATION

The Executive Branch is now ever more openly opposed to answering questions by the Senate Foreign Relations Committee. Hearings on European force levels recently released by the Symington Subcommittee on Commitments show that written but secret instructions were provided to four star general David A. Burchinal to avoid answering certain questions. General Burchinal would not reveal the nature of the questions to be avoided or whether the instructions applied to other committees of Congress. He did concede that he could not discuss "any contingency plans".

The Subcommittee was especially interested in this because of the possibility that such plans might have embodied national commitments, and some military exercises had seemed to suggest preparations to defend the Franco regime against insurgents. General Burchinal denied believing that "the present understanding of our Government" included defending the Spanish Government against internal subversion. Later, however, he formulated American interests in Europe by saying that "the industrial base, the population, and the *institutions*" were "essential to the continued health and security of the United States". (Italics added because "Institutions" could be threatened without outside invasion.)

General Burchinal said he was instructed not to tell the Foreign Relations Committee in what European countries we have our 7,000 European-based tactical nuclear weapons or what arrangements have been made concerning them. Asked to say in a few words why a lot fewer than 7,000 tactical nuclear weapons would not suffice to deter, General Burchinal simply said curtly: "No; I would prefer not to."

Continued on page 4.

SCIENCE POLICY HEARINGS RELEASED

Resolved by the House of Representatives (the Senate concurring), That the Congress hereby finds and declares that there is an increasing need for the development of a national science policy . . .

Proposed Resolution H. Con. Res. 666, 91st Cong.,
Second Session, House of Representatives.

From July 7 to September 17 the House of Representatives Subcommittee on Science, Research, and Development heard 29 witnesses on science policy and took statements from 32 others. Unquestionably triggered by the current funding problems of science, the hearings touched also on the structure

of science administration, the priorities to be accorded to various kinds of scientific research, the production of scientists, the role of science more generally, and so on. The most widely discussed issue in the hearing arose from section 203 of the 1970 Department of Defense authorization—the Mansfield amendment. It stated that "none of the funds authorized to be appropriated by this act may be used to carry out any research project or study unless such project or study has a direct or apparent relationship to a specific military function or operation". And it raised the question of the suitability of mission-agency basic research from whence so many funds had come. (DOD has been supporting 10 percent of academic science and much higher percentages in certain fields and in certain institutions.)

Senator Mansfield's statement in support of his amendment said: "I suppose the question really is whether adequate government support of science can be carried on if there is a permanent shift away from the role of the military in the conduct of research". He noted that "well over half" of the Government's contribution to defense has been "channeled through the Department of Defense". Why, he asked, should DOD support federal research that has "no apparent relationship to the security needs of this nation?" Senator Mansfield felt that the scientific community had "come to rely upon the immunity of Defense funding from close scrutiny and occasional budgeting squeezes". He hoped that the NSF would "Develop as the primary source for these research funds" and noted that his amendment had been "intentionally imprecise" in an effort to give the Executive Branch leeway to transfer resources to civilian agencies. Senator Mansfield argued that "all this is required under section 203 is relevance" and noted that it did not preclude agencies from funding basic research.

Committees of the Federation will be proposing policy for FAS in due course with regard to these points and others and they need the comments of interested members. For that reason, as well as others, this issue of the newsletter carries short summaries of the major points made by about half of the witnesses heard by the Daddario committee. Write the Federation your views.

* * *

Dean Don K. Price of Harvard's J. F. Kennedy School of Government, opened the hearings by remarking that the scientific community was "fundamentally" quite well off. Suggesting that the existing general science policy was "no longer tenable", he expressed fear that four of its good characteristics might be lost in the necessary transition to a new science policy. These characteristics were: a) it "provided money" if only by hypocritically linking its demands to military projects; b) it "discouraged federal officials from interfering in the conduct of basic research that they financed"; c) it "ignored the distinction between public and private institutions for most practical purposes"; and d) it did not separate basic research "too completely or too neatly" from applied research.

Dr. A. Hunter Dupree of Brown University described the disarray in science policy as "dismal" and noted in particular that few who built the present structure for advising the President (OST, PSAC, FCST, etc.) contemplated a "serious change of attitude on the part of those who man the institutional Presidency itself". Calling on scientific leaders to adapt the "science of their day to the problems of their day", he noted present day factors that would shape the new science policy: a) DOD had lost the ability to justify support for basic research; b) more attention had to be paid to environmental problems; c) the space program had to be oriented toward scientific objectives and a steady state of funding; d) the social sciences needed greater emphasis; e) Federal support for university research must extend to more disciplines and emphasize building healthy institutions. Dr. Dupree suggested as a "utopian solution", an interdisciplinary Manhattan District devoted to social problems.

Testifying as Director of the Office of Science and Technology (OST) Dr. Lee A. DuBridge sought to put the problem of science policy in historical perspective. Noting that pressures for an overall comprehensive science and technology policy were "not very great" from 1946-68, he went on to note that restrictions on the levels of funding or methods of funding during that period would have been "severely limiting". While the decline in R&D appropriations had made everyone "keenly aware" of the need for a science policy that

would determine the rate of growth of these funds, it was "not realistic" to think of a fixed ceiling, fixed floor, or even a fixed formula for this purpose. Expenditures on technology had to be determined by "cost-benefit analysis" and national goals. Expenditures on basic science had to be based on "the faith that knowledge is important" to human progress. Denying that policy formulation could be achieved by "restructuring science support" Dr. DuBridge said that "policy formulation is a Presidential role" and the only question was how the President could be "given greater assistance" in formulating that policy.

In answer to questions, Dr. DuBridge said "it is wrong to exclude an agency like DOD or NASA or AEC from basic research irrelevant to their missions because we do not know what is relevant to the mission of defense or space or atomic energy. The result of basic research cannot be predicted."

Dr. Jerome B. Wiesner, Presidential Science Adviser to President Kennedy and now Provost of MIT, said the "world position" of American science was "already deteriorating" as a result of a crisis in science whose consequences could become "disastrous".

At present levels of funding a "very effective research program" would be possible but only with "ruthless elimination" of many present programs. Given the present inflation, budget growth on the order of "10 percent" was a minimum to continue the "present diversity" of research and educational activities. Dr. Wiesner argued that the record of applied research in "vital civilian fields" had been "uniformly poor" because the efforts were "too diffuse", with inefficient "contracting processes", "too little continuity" of effort and much too small scale. He noted the enormously larger efforts needed to put a man on the moon. He urged Federal support of higher education through a new agency built on the National Science Foundation.

Dr. John S. Foster, Jr., Director of the Pentagon's Defense Research and Engineering endorsed "first-rate" science and technology as "vital" ingredients to our national security and noted that estimates for Federal expenditures for research and development in 1970 were 15% below that in 1968 in real terms. Projecting trends from 1955, Dr. Foster argued that the USSR would surpass the United States in investment in R&D "within the next few years". He argued that proposals for re-organization of Federal science activities were based on the "welfare of science" rather than a "higher criterion—the welfare of our Nation and its people". Under that criterion, support of research by mission agencies was "essential". He argued that national security would be "seriously weakened" if DOD support of university research were "significantly curtailed". On the basis of prior experience, he feared that programs of technological assessment would result in "another large staff of reviewers, not engaged in productive effort, but hampering the work of those who are".

Dr. George B. Kistakowsky, President Eisenhower's Presidential Science Adviser, and now Vice President of the National Academy of Science, attacked the Mansfield amendment (section 203). He rejected its philosophy of requiring technology oriented Federal agencies from justifying their expenditures on basic research by showing an "explicit and direct" connection between research and ongoing practical projects. "Extensive industrial experience" justified a "close coupling" of mission-oriented and basic research and the alternative of segregating all scientific research under a separate agency (e.g. the National Science Foundation) would "erect impenetrable walls to the spread of information". Dr. Kistakowsky did urge the President to include a total annual science budget as an "explicit part" of the annual budget message.

Dr. Philip B. Handler, President of the National Academy of Sciences warned that our national apparatus for the conduct of research and scholarship was "falling into shambles".

THE BUDGET IS CUT BUT THE SPENDING CONTINUES

Senator Proxmire: . . . The Appropriations Committee staff now tell me that the \$2.4 billion cut in the Defense bill will more than offset any increases which the Congress has made for health, education, housing, and the environment . . .

Congress has done its job. It has cut appropriations by over \$13.5 billion [in the last three years] and by over \$11 billion before this year. But the President and his administration have cut only \$4.6 billion from actual spending.

One of the reasons for this difference is the huge backlog of obligated balances which the Department of Defense has squirreled away. According to Special Analysis G. in this year's budget statement, the Department of Defense had on hand on June 30, 1970, obligated balances of \$30.4 billion. . . . The procurement backlog alone is over \$19.5 billion. These are funds which have been obligated but not yet actually spent. It is from these huge balances that the President and the Pentagon keep spending even while Congress cuts their budget.

Congressional Record—Senate S19645, December 8, 1970

bles", that the American lead in science was "in jeopardy" and that all this boded ill for our "future national security" and the "vigor of our economy". Calling attacks on science "self-indulgence in hyperbole", he urged Congress to make an "explicit, ringing statement" declaring the importance of science and shaping the attitude of the Federal Government toward science. But he considered the question of a "rational formula" for science support to be "intrinsically unanswerable and probably meaningless". He considered the present system of mission-agency support for "fundamental and applied research" to have been "eminently successful" and urged its continuation.

Dr. Alvin M. Weinberg, Director of the Oak Ridge National Laboratory questioned the need for re-examining most major premises of existing science policy and saw the present crisis as primarily one of science "funding". Mission-oriented agencies "must continue to accept responsibility" for basic research but the budget of the National Science Foundation should be tied to the GNP at something like .1 percent with corresponding support of NIH.

Dr. Myron Tribus, Assistant Secretary of Commerce for science and Technology warned that "Many people are espousing a need for a better definition of science policy, when in fact they want more money". His testimony discussed three examples of national objectives and the demands they placed on science policy; these were "Environmental Protection", a "Favorable Balance of Trade", and "Culture and the Quality of Life". Illustrative tables indicated that enormous percentage increases in R&D spending on environmental problems would be necessary to offset small percentage declines in the much larger defense spending budgets.

Dr. Harvey Brooks, Dean of Harvard's School of Engineering and Applied Physics, said that it is "not the resources for R&D that constitute the bottleneck in transfer of scientific effort but rather the resources for the investments to embody the results of R&D". And he noted that spending on civilian activities would induce a "much lower rate of R&D spending" since these activities were less "research intensive". Dean Brooks believed that we had "relied too exclusively" on mission oriented research in the past but argued that "substantial involvement" of mission-oriented agencies in support of basic and academic research was necessary to integrate such research with applications of it.

Hon. Robert C. Seamans, Jr., Secretary of the Air Force noted that the Air Force Research Development, Test and Evaluation budget had fallen 40% since 1965 in real terms and its budget for research by 10%. Only 3 percent of the dollar value of its research had failed to meet the "direct and apparent" relationship test proposed by section 203. But section 203 had led to "significant changes" in the Air Force research program. Secretary Seamans supported giving the mission agencies "free and independent" judgement of their science needs and using the national Science Foundation as a "balancing force".

Dr. W. D. McElroy, Director of the National Science Foundation, supported mission agency involvement in basic research but suggested that the national science foundation

share of support of academic science be raised from 18% to 35 or 40%. He called for "interdisciplinary, problem-oriented curricula" at all levels of education and for the establishment of problem-oriented national research centers. To ensure stable funding of universities, he urged Federal support of a "continuing and relatively unspecific nature".

The Chairman of the National Science Board, **Dr. H. E. Carter**, joined with **Dr. McElroy** in calling for "large scale, formula grants to colleges and universities" and urged universities to develop interdisciplinary centers, schools and/or institutes. Referring to an NSF report (Science and Engineering Doctorate Supply and Utilization) he suggested that projected supply and demand of PhD's over the next decade "may not be too far out of balance". He said it would be the "height of folly" if on the basis of "present perturbations" of the 'market' a "drastic reduction" were made "immediately" in numbers of PhD candidates. However he urged a "doctor of whatever-the-subject-matter" degree for those who did not have the "creative capabilities" required of an "outstanding" PhD candidate.

Dr. Donald F. Hornig, former Presidential Science Adviser to President Johnson, now President of Brown University, supported mission agency research as a "duty" to lay a foundation of knowledge in the areas of their concerns for problem-solving one or two decades hence. For that part of the Federal effort that was "knowledge related", he supported a "central research organization" built around NSF, and certain activities now supported by AEC, the National Institutes of Health and DOD.

Dr. James R. Killian, Jr., Chairman of the Corporation of MIT proposed that a national commission review science policy and proclaim new goals, in order to create a "new consensus". He feared the separation of basic research from mission-oriented agencies and noted that so far "only partial compensatory actions" have been taken to pick up basic research not directly related to military missions. Among other things, Dr. Killian urged a wider role in policy making for engineers, multidisciplinary teams under new institutional arrangements, and greater emphasis on maintaining a high level of productivity in American industry.

As interesting as the statement of any witness heard were the remarks submitted for the record by **Dr. Derek J. de Solla Price** of Yale University. Dr. Price recalled his calculations of 20 years ago that science had been growing exponentially for 300 years in Europe and 100 years here, doubling every 10 or twelve years in manpower. His prediction that twenty years from the first onset of saturation would be required before exponential growth turned to linear growth seemed fulfilled. He suggested that the "new state of linear growth will probably last for another 30 to 40 years . . . before the next stage of virtual saturation is attained." There now existed "over-developed" countries where one must "somehow learn to say no to at least some of the reasonable demands of the scientific community". However, he regretted the "sudden dislocation" in total funding which will "certainly damage the military and civil technology of the country" at some future date if not soon. He recommended "an adequately staffed

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Council of Science and Technology Policy Advisors”.

Of interest also was a conclusion, quite candid by contrast to much of the testimony provided, of Dr. Eugene B. Skolnikoff, Chairman of the Department of Political Science of MIT. Dr. Skolnikoff argued that “the political resources to obtain adequate support for basic science are inadequate . . . This is to me the most important reason to consider afresh a move to a Department of Science”.

Symington — Continued from page 1.

Senator Symington wrote Deputy Secretary of Defense Packard for a copy of General Burchinal’s instructions and was told in a letter of June 11 that these could not be released because “intended solely for internal use” within the Department of Defense. Obviously anything that DOD does not want to release is going to be “intended solely for internal use”! Secretary Packard went on to say that the instructions in question contained “for the most part” topics “not normally discussed outside the Executive Branch” and included such items as “military contingency plans, National Security Council documents, Inspector-General Reports of investigations, matters still in the planning, proposal stage upon which no decision has been reached, operational procedures and methods involving the risk of life or safety of military personnel, and so forth”. Depending on the exact circumstances, these gross categories often contain matters upon which the Congress must appropriate funds, or approve treaties. Blanket prohibitions on release of information of these categories to the Congress is patently absurd. And Deputy Secretary Packard asserted that such prohibitions applied to “all testimony” not just to testimony before Symington’s subcommittee.

Senator Fulbright announced during these same hearings that, for the first time in 27 years, an ambassador (indeed two) had been instructed by the Secretary of State not to answer

questions before his Committee.

During related hearings of the Symington Committee on Greece and Turkey, Senator Fulbright was moved to tell a reluctant State Department witness that he was not keeping information from them but only “showing the contempt of your department” for the Committee and the Senate.

When the Symington Committee tried to get its hearings on the Republic of China declassified it discovered that the traditional reason for deleting information (harm national security) had been expanded to include:

Information probably known to a potential enemy country but if printed and thus acknowledged might cause political problems if misinterpreted by either our enemies or our friends;

Information once publicly acknowledged but now classified because it resulted in some embarrassment to a friendly country when it was published in the past;

Information of an historic nature which refers to private inter-governmental understandings which have since been published by one or more of the participants but not officially announced by this Government.

Control over defense spending and the foreign policy that underlies it cannot be established without more cooperation from the Executive Branch than Congress is now getting.

FAS CRITICAL YEAR HALF COMPLETED

Since July, 1970, FAS has shown that it can be an effective force on Capital Hill, in ways that it has not been able to pursue for twenty years. Whether or not it can continue to maintain its national office depends upon YOU.

If you find us one additional member, in the next six months we can continue. Use the inner page to recruit one.

NEW PUBLICATION: SCIENCE AND GOVERNMENT REPORT

Dan Greenberg, who for many years was news editor of Science, the weekly journal of the American Association for the Advancement of Science, will soon be producing his own publication. It is to be a twice-monthly newsletter, titled, Science & Government Report. The new publication will concentrate on Washington political affairs of interest to scientists, physicians, university administrators, and research leaders. Greenberg covered such affairs for Science for nearly a decade, with two years time out to serve as the magazine’s foreign editor in London. He is generally considered to be responsible for much of the success of Science magazine through his energetic and thoughtful reporting. Subscriptions are \$25 a year (\$35 for overseas). The address is: Science & Government Report, Post Office Box 23123, Washington, D.C. 20009. Publication will begin in February.

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