Science Legislation

Domestic Control of Atomic Energy

Howard A. Meyerhoff

Executive Secretary, AAAS, Washington, D. C.

From the standpoint of scientific achievement, the war's climax came with the atomic bomb. It was inevitable that such a devastating weapon should arouse mixed feelings of alarm and admiration for the brains which conceived it and for the nation that had the ingenuity to produce it and the audacity to use it—sparingly, but with telling effect.

When the first bomb exploded in New Mexico, it ceased to be the possession of scientists and became the problem of the nation. When the second bomb exploded over Hiroshima, it was no longer a national problem but a matter of international concern. Inevitably the journalists took possession of it, and politicians and statesmen quickly followed suit. The lay public can talk almost as intelligently as scientists themselves on the principles of the bomb and on its potential implications to all mankind.

Legislation designed to develop and also to control the use of atomic energy was inevitable, and three bills have been introduced into Congress with this general purpose. S. 1463 (known as the May-Johnson Bill), S. 1557 (the Ball Bill), and S. 1717 (the McMahon Bill) are now before the Senate, and it is desirable that scientists know not only the provisions of the separate bills, but specifically the points wherein they differ. In so far as scientists are concerned, there are important and serious questions to be faced and to be decided. So powerful a weapon as atomic energy calls for restriction of use, and restriction of use in turn demands certain restrictions upon freedom of research and freedom of publication.

The major differences of opinion among individual scientists and between scientists and members of the Government were featured, with some distortion, in the press when the hearings on the first two of these bills were held. It is not the purpose of this brief article to favor any one of the bills presented here, but rather to offer the readers of *Science* an analysis of the three bills as a basis for the formulation of sound judgment.

Fortunately, such an analysis has been prepared in chart form by Senator McMahon and his staff. This comparative summary is reproduced herewith with the permission of his office.

COMPARATIVE SUMMARY OF KEY SENATE BILLS

FOR

DOMESTIC CONTROL OF ATOMIC ENERGY

S. 1717 (SENATOR McMAHON)	S. 1463[1] (SENATOR JOHNSON)	S. 1557 (SENATOR BALL)
I. CONTROL OF ATOMIC ENERGY IN GENERAL		
Bill incorporates specific policy decisions on nature and extent of Government control. Commission's powers are specifically tailored and limited to fit these decisions.	Bill incorporates no specific decisions on nature and extent of Government control. Commission's powers are adequate, but broad enough to permit the extremes of either too great or too little Government control.	Bill incorporates no specific decisions on nature and extent of Government control. Commission is given authority to "control" raw materials, production, and finished active materials with no implementing provisions.
A. *Production of Fissionable Materials*		
Commission to have monopoly of production of fissionable materials. Production in minor quantities incident to research permitted subject to frequent inspection and reports.	Commission permitted to authorize private production of fissionable materials.	Commission permitted to authorize private production of fissionable materials.

[1] The so-called "May–Johnson Bill" as introduced. After amendment by the House Military Affairs Committee the bill was reported out as H.R. 4566.

S. 1717	S. 1463	S. 1557
B. *Fissionable Materials*		
Exclusive Government ownership of fissionable materials but to be made available for research and licensees (see E) for use in devices.	Private ownership of fissionable materials permitted. Commission may permit *any* private use of fissionable materials (see E).	Private ownership of fissionable materials permitted. Commission may permit *any* private use of fissionable materials (see E) but required to allocate for peaceful and military uses.
C. *Source Materials*		
Commission licenses movement of ingredients essential for production of fissionable materials to assure adequate supplies and prevent diversion inconsistent with national welfare. Commission has authority to buy or condemn.	Commission's only authority over source materials is power to buy or condemn.	Production, sale or allocation of source materials unlawful unless authorized by Commission. Commission to allocate for peaceful and military uses.
D. *By-product Materials*		
Commission shall distribute for constructive uses, giving preference to research and medical therapy.	Commission may dispose of by-product materials as it sees fit.	See B. By definition, by-product materials are treated same as fissionable materials.
E. *Atomic Energy Devices* (i.e. ***devices utilizing fissionable materials)***		
Use not permitted until after report to and opportunity for Congress to legislate on the basis of specific knowledge of utility, practicability, and consideration of economic, political and social implications of marketing such devices. Licensing of atomic energy devices for private use permitted if Congress fails to act in 90 days but such licenses may not extend to the production of fissionable materials.	Commission has broad authority to license any private use (including power, heat, transportation, when and if feasible), whether or not fissionable materials are produced incident to such use.	Operation of private devices not prohibited unless pursuant to authority to "control." Commission has broad authority to license any private use, whether or not fissionable materials are produced incident to such use.
F. *Patents*		
1. All private patent rights on production processes must be sold to Government (see A). 2. Private patents on devices utilizing fissionable materials permitted subject to compulsory licensing at reasonable royalty rates determined by Commission. (Subject also to E above.)	No specific provision on patents. Commission may buy or condemn private patents or may permit their restrictive use.	No specific provision on patents unless within general authority to "control" production and "finished active materials."
II. Stimulation of Research and Development		
Research responsibility and powers of Commission include social, political and broad economic effects of atomic energy developments, as well as military, industrial and scientific research aspects.	Research responsibility and powers of Commission limited to military, industrial, and scientific research.	Research responsibility and powers of Commission limited to atomic energy research.
A. *Independent Research*		
1. No license or permission from Commission required to do research. Private research must comply with safety regulations, and be subject to inspection.	1. If research involves release of atomic energy in amounts militarily or industrially significant, permission from Commission must be obtained and research will be subject to conditions prescribed by Commission.	1. License required for research; may be issued only to qualified organizations. Shall be revoked if research is not competent or wasteful of materials. Conduct of research must comply with safety regulations.
2. Commission shall give preference to independent research in allocating fissionable materials (see I B).	2. Commission has authority to license the use of Commission-owned fissionable materials for private research (see I B).	2. Commission shall allocate fissionable materials for private research to competent applicants upon proof that purposes of research are consistent with Act.
3. Provides for grants-in-aid, contracts and other forms of assistance.	3. Provides for grants-in-aid, loans and other forms of assistance.	3. Provides for grants-in-aid, contracts and other forms of assistance.

S. 1717	S. 1463	S. 1557
	B. *Dissemination of Information*	
1. *Basic scientific information* is free of restriction.	1. Commission given full authority to & issue restrictive regulations (over	1. No security regulation to be issued affecting fundamental research.
2. Commission is directed to provide for dissemination of *related technical information* with utmost liberality. Commission by regulation may free such information from all restriction, or, with approval of President, may restrict its dissemination on finding that Espionage Act is applicable.	2. and above Espionage Act) on dissemination of scientific information, with criminal penalties for violation.	2. Security regulations on military research and military utilization may be issued by Secretaries of War and Navy, and approved by Commission. Criminal penalties for violation.
3. Scientists work under Espionage Act as in peacetime and may, if they desire, obtain clarification of the Espionage Act by action of Commission. Subject only to regular criminal prosecution under Espionage Act.	3. Commission may direct the dismissal of any scientist from public or private employment if Commission believes him to have violated security regulations, without regard to criminal prosecution or conviction therefor.	3. Scientists work under Espionage Act and security regulations issued under 2.
	C. *Government Research*	
Commission authorized to conduct any type research related to purposes of Act. Takes over Manhattan District Property.	Commission authorized to conduct research but is directed to make maximum use of private and other Government research facilities. Takes over Manhattan District Property.	Commission authorized to develop its own facilities for research only if existing private and Government facilities are inadequate. Takes over Manhattan District Property.
III. Integration with Foreign Policy in General		
Bill emphasizes peacetime uses of atomic energy. Provides affirmatively for dissemination of information to create atmosphere of international confidence. Provides for anticipation of long-range developments through social, political and economic studies. Provides for all-civilian administration of the Act.	Bill emphasizes military uses of atomic energy. No provision for dissemination of information other than restrictive security regulations. Permits military membership on Commission and members of armed forces on active status to serve as Administrator and Deputy Administrator.	Bill contains emphasis on neither military nor peacetime aspects. Provides for free dissemination of fundamental scientific information and limits security regulations to the military field. Provides for two military members of Commission.
	A. *Bombs and Military Weapons*	
1. Manufacture permitted only if express approval of President obtained for each quarter. No private or military manufacture permitted.	1. No specific provision on bomb production. Commission may manufacture as it sees fit, or authorize manufacture by the military or by private concerns.	1. No specific provision on bomb production. Uncertain whether Commission permitted to manufacture but no limitation on manufacture by Armed Forces.
2. Commission has custody of all bombs and military weapons subject to direction of President.	2. No specific provision on custody of bombs. Either the Commission or the Armed Forces may have custody.	2. No specific provision on custody of bombs.
3. Commission may not conduct research in military uses of atomic energy contrary to international agreement.	3. Commission is directed to conduct research for the exploitation of atomic energy for military purposes. No reference to international agreement.	3. Army and Navy conduct military research with Commission serving in advisory role. No reference to international agreement.
	B. *Preservation of Freedom to Act Internationally* (See A *re* Bombs)	
1. Government monopoly of production prevents creation of private interests which might be inconsistent with or deter international agreement.	1. Private interests in production of fissionable material may be created.	1. Private interests in production of fissionable material may be created.
2. Prohibition of atomic energy devices (see I E) prevents private activities which might be inconsistent with or deter international agreement.	2. Private operation of devices (power plants, etc.) permitted.	2. Private operation of devices permitted.
	C. *International Control of Fissionable Materials*	
1. Private export or import of fissionable materials forbidden.	1. Commission may permit private export or import of fissionable materials.	1. No specific provision on export or import of fissionable materials.
2. Private participation in production of fissionable materials in another country forbidden.	2. No specific provision on foreign production of fissionable materials.	2. No specific provision on foreign production of fissionable materials.

S. 1717	S. 1463	S. 1557
	IV. ORGANIZATION	
	A. *Structure*	
Bill creates five-man Commission, all members serving full-time. Four subordinate Directors to have functions as assigned by Commission. Express provisions against conflict of interests.	Bill creates nine-man Commission, all members serving on a part-time basis. Administrator and Deputy Administrator. Administrator given powers fully as broad as those of Commission.[2] Commission members exempted from statutes prohibiting dealings with Government by Government employees.	Bill creates nine-man Commission consisting of five Cabinet members and four public members. Public members serve on a part-time basis. Administrator and Deputy Administrator function under direction of Commission.
	B. *Appointment and Removal*	
1. Members of Commission and four Directors appointed by President.	1. Members of Commission appointed by President. Administrator and Deputy Administrator appointed by Commission.	1. Four public members of Commission appointed by President. Administrator and Deputy Administrator appointed by Commission.
2. All must be civilians.	2 All may be members of the Armed Forces.	2. Neither public members nor Administrator nor Deputy Administrator may be members of the Armed Forces.
3. All serve at pleasure of President.	3. Members of Commission appointed for nine-year terms. Removable only for cause.	3. Public members of Commission appointed for six-year terms. No restrictions on President's removal authority.

[2] H.R. 4566 makes Administrator clearly subject to directions of Commission.

Association Affairs

The Science Writers Annual Award

The George Westinghouse Science Writing Award Fund, to give national recognition to newspaper writers and newspapers contributing most to better popular understanding of the achievements of science and technology, has been announced by Dr. F. R. Moulton, permanent secretary. The fund has been provided by the Westinghouse Educational Foundation, which is supported by the Westinghouse Electric Corporation, in commemoration of the 100th anniversary of the birth of George Westinghouse. The fund will be administered by the AAAS, Dr. Moulton said, "to help develop closer cooperation between scientists and news writers in keeping the public informed of scientific developments which more and more affect our lives in this atomic age."

The fund provides two annual awards: (1) a cash award of $1,000 to a newspaper writer for outstanding science reporting of the year; (2) a citation to the newspaper whose science news coverage in the preceding year is adjudged most complete and authoritative and most interestingly presented. In addition, there may also be awarded at the direction of the Awards Committee special citations in recognition of distinguished service in science journalism.

The first annual awards, covering the year 1946, will be made at the winter meeting of the AAAS in December 1946. Details of the judging and presentation of awards will be made at the spring meeting of the Association in St. Louis, 27–31 March. Members of the Awards Committee which will administer the fund include: Dr. Anton J. Carlson, chairman of the Executive Committee; Dr. Otis W. Caldwell, general secretary; Dr. Moulton; Watson Davis, director of Science Service and a past president of the National Association of Science Writers; Robert Potter, science editor of the *American Weekly* and a founder of the National Association of Science Writers; Dr. Morris Meister, principal of the Bronx (New York) High School of Science; G. Edward Pendray, public relations counsel; and James A. Baubie, public relations director of the Westinghouse Electric Corporation.

"Heretofore," said Dr. Moulton, "prizes, medals, and citations in the fields of science have been given only for distinguished scientific researches or for contributions to scientific theories. The science writing award is something different from previous recognitions of contributions to the advancement of science. It will be an award for superior science writing for lay readers."