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TEXT

INTRODUCTORY REMARKS, ANALYSIS, AND TEXT OF S. 1860

By Mr. NELSON (for himself, Mr. WEICKER, Mr. BAYH, Mr. DOLE, Mr. NUNN, Mr. CULVER, Mr. HUDDLESTON, Mr. BUMPERS, Mr. SASSER, Mr. STEWART, Mr. BAUCUS, Mr. LEVIN, Mr. HATCH, Mr. HAYAKAWA, Mr. DURKIN, Mr. JOHNSTON, Mr. LEAHY, Mr. PRESSLER, Mr. CHAFEE, and Mr. PACKWOOD):

S. 1860. A bill to establish a Federal program to assist innovative small businesses by strengthening the role of such businesses in federally funded research and development and by fostering the formation and growth of such business; to the Select Committee on Small Business solely to consider titles I, II, and IV, and if, and when reported, the bill be referred to the Committee on the Judiciary solely to consider titles II and IV, and if and when reported, the bill be referred to the Committee on Finance solely to consider title III, by unanimous consent.

SMALL BUSINESS INNOVATION ACT OF 1979

Mr. NELSON. Mr. President, technological innovation is at the heart of our free enterprise system. More innovation means more jobs, a higher rate of productivity, reduced inflation, and an improved export performance. Innovation enables us to create a cleaner environment to be less dependent on foreign energy sources, and to have safer and more satisfying work. There can never be too much innovation.

That is why I am today introducing the "Small Business Innovation Act of 1979." The comprehensive legislation will assist small businesses, our country's best innovators, by strengthening their role in federally funded research and development and by fostering the formation and growth of independent enterprises.

I am pleased to be joined by Senators LOWELL P. WEICKER, BIRCH BAYH, BOB DOLE, SAM NUNN, JOHN CULVER, WALTER D. HUDDLESTON, DALE BUMPERS, JIM SASSER, DONALD STEWART, MAX BAUCUS, CARL LEVIN, ORRIN HATCH, S. I. HAYAKAWA, JOHN DURKIN, BENNETT JOHNSTON, PATRICK LEAHY, LARRY PRESSLER, JOHN CHAFEE, and BOB PACKWOOD in introducing this bill.

Title I of the bill addresses the problem of inadequate Federal Government research and development support for small business. Under the bill, each Federal department or agency would be required to target a 1-percent increase in R. & D. procurement set-asides of prime contracts for small business. The increase would begin in fiscal year 1980 and would continue until small business receives a prime contract dollar volume equal to at least 10 percent of each department total R. & D. budget. This proposal would add more than $310 million annually in Federal research and development support to small businesses, enabling them to provide a needed boost to American innovation.

Title II of the bill is modeled on the patent legislation introduced earlier this year by Senators BAYH and DOLE. It is extremely significant because this bill addresses two major patent problems facing small business. First, this title allows small business to retain, under certain provisions, patent rights on inventions made under federally sponsored research. This provision would allow small businesses to keep the patent rights to their inventions and prohibit Federal agencies from assuming those rights.

This title reflects improvements that will be offered as amendments by Senators BAYH and DOLE, when the Judiciary Committee marks up the Bayh-Dole bill later this month. I am grateful for the cooperation of these Senators in making those amendments as part of the present legislation.

Second, the title also reflects legislation introduced earlier this year by Senator BAYH which authorizes the U.S. Patent and Trademark Office to reexamine contested patents and obviates the need for expensive litigation in U.S. District Court. Patents upheld by the office could not be appealed. Patents invalidated by the office would be appealed. The average patent litigation costs now run approximately $250,000. Few small businesses can afford the time or money to defend themselves against patent infringements. This proposal would substantially reduce their costs while providing a fair, equitable procedure for deciding patent disputes.

Title III of the bill is a series of amendments to the Internal Revenue Code. First, it allows for capital gains realized on the sale of securities of a small business to be deferred if "rolled over" or reinvested in another small business within an 18-month period.

Second, a small business which spent an average of 3 percent of its gross revenues on R. & D. in each of 3 taxable years, or spent 6 percent of its gross revenues on R. & D. in any one of 3 taxable years could; first have a loss carry forward of 10 years instead of the present 7-year period; second, write off in 1 year specialized equipment and instrumentation for R. & D. and write off over a minimum 10-year period facilities used for R. & D. purposes; and third, to allow shareholders selling securities of such small firms would pay only half the normal capital gains tax provided the securities had been held for at least 5 years.

In addition, title III allows small businesses to establish a limited tax-free cash reserve for future R. & D. expenditures, allows subchapter S corporations to increase their number of shareholders from 15 to 100, and reinstates the pre-1976 qualified stock option provision which was recently included in a bill introduced by Senator PACKWOOD. The tax proposals in title III may need some future modifications, but they all deserve serious consideration and debate in the Senate.

And finally, title IV of the bill is modeled after the Regulatory Flexibility Act which Senator CULVER and I introduced earlier this year. This bill authorizes all Federal agencies to consider the size of a firm when issuing regulations and to tailor the regulations according to firm size so that the regulatory burden on small business is reduced.

Three Federal task forces have concluded that Federal policies systematically exclude small firms from fully participating in Government sponsored or initiated research and development. This despite the fact that numerous Government and academic studies have conclusively demonstrated that small companies are producing a disproportionately large share of innovative ideas and products.

There are untold economic benefits if we can foster innovation among small businesses. For example, in the period of 1969 to 1974, a series of small firms experienced sales growths of 42.5 percent—roughly three times as great as their larger counterparts. Their employment in that period grew by 40.7 percent—almost 10 times the rate of large innovative firms and some 65 times as much as large, mature firms. Small firms have a special role in securing for society the benefits of technological innovation.

However, while a National Science Foundation study shows conclusively that smaller firms were responsible for half of all major industrial inventions and innovations since World War II, these firms received only 3.4 percent of Federal research and development money. This, in spite of the fact that small firms produced 24 times as many major innovations per research dollar as did large firms.

Small, innovative firms are being placed in the middle of a closing vice. They receive an inadequate and disproportionate share of Federal research and development dollars, they are being strangled by unnecessary regulations and a prohibitively costly patent litigation system, and are being starved of necessary venture capital. The Small Business Innovation Act directly addresses and helps to solve each of these problems.

Because we are taking our technological superiority for granted in this country, we are in danger of losing it. Other nations are competing hard to capture world markets and our own domestic market.

The ability to innovate is what has kept us ahead and small business has been in the vanguard. It is in the national interest to strengthen the ability of small business to be innovative. More innovation means more jobs, a higher

rate of productivity, reduced inflation, and an improved export performance and balance of trade.

A comparison of technology-intensive manufacturing industries with other industries in the period 1957–73 shows that:

Technology-intensive industries grew 45 percent faster;

Employment in technology-intensive industries grew 88 percent faster;

Productivity in technology-intensive industries grew 38 percent faster; and

The ratio of price to units produced increased 44 percent less in technology-intensive industries.

Recently, some disturbing trends have appeared in the Nation's inventiveness, entrepreneurship, productivity, inflation rate and world trade.

According to the Commerce Department, the U.S. share of patents filed worldwide and the number of U.S. patents awarded to U.S. citizens has decreased in the last decade.

The number of innovative technology based companies that are starting in the United States is much less than a few years ago.

The U.S. worldwide lead in productivity has been narrowed by 50 percent since the 1950's and current U.S. productivity growth is below its historical trend.

The Nation's large favorable balance of trade in R. & D. intensive industries has come to depend more and more on exports to developing countries and lands.

This startling combination of facts is indicative of the situation we are getting ourselves into and which we must pull out of immediately.

Small Business can play an important role in boosting American technology and solving our country's problems.

Antibiotics, pesticides, helicopters, Polaroid cameras, automatic transmissions, and air conditioners are just a few of the innovations pioneered by independent inventors and small businessmen.

We can multiply these benefits in other industries if we encourage the ideas of small enterprises and help them develop into the marketplace.

Mr. President, I ask unanimous consent that the text of the Small Business Innovation Act of 1979 and a section-by-section analysis of the bill be printed in the RECORD.

There being no objection, the bill and analysis were ordered to be printed in the RECORD, as follows:

S. 1860

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Small Business Innovation Act of 1979".

STATEMENT OF FINDINGS

SEC. 2. The Congress finds and declares that—

(1) technological innovation creates jobs, increases productivity, competition, and economic growth, and is a valuable counterforce to inflation and to the United States balance of payments deficit.

(2) small business is a principal source of the Nation's major innovations;

(3) small businesses receive less than four percent of Federal funds for research and development;

(4) private technology expenditures in the United States are highly concentrated in certain fields and industries, as only six industries account for over 85 percent of all industrial research and development spending and only 31 companies, many of them multinational companies, account for 60 percent of total United States research and development;

(5) the tax structure of the Internal Revenue Code of 1954 provides insufficient support for the formation, growth and long-term independent operation of small businesses; and

(6) it is in the national interest—

(A) to strengthen the ability of small businesses to be innovative;

(B) to increase private sector commercialization of innovations derived from Federal research and development;

(C) to increase the proportion of Federal research and development expenditures which go to small businesses;

(D) to assure small businesses of the opportunity to compete for Federal research and development contracts; and

(E) to stimulate technological innovation by all possible means.

TITLE I—RESEARCH AND DEVELOPMENT CONTRACTS

SMALL BUSINESS SET-ASIDE; SMALL BUSINESS INNOVATION RESEARCH PROGRAM

SEC. 101. The Small Business Act (15 U.S.C. 631 et seq.) is amended by inserting immediately after section 9 the following new section:

"SEC. 9A. (a) The Administration shall—

"(1) advise and assist Federal agencies in meeting the small business research and development set-asides required under subsection (b), and monitor the activities of Federal agencies in meeting such set-asides;

"(2) develop and maintain a source file and an information program to assure each qualified and interested small business concern the opportunity to participate in Federal agency Small Business Innovation Research (SBIR) programs;

"(3) coordinate the development of a schedule for release of SBIR solicitations with participating agencies, and prepare a master release schedule to preclude several Federal agencies from releasing such solicitations at one time and thereby limiting the opportunities of small business concerns to respond to some solicitations;

"(4) independently survey and monitor the operation of SBIR programs within participating Federal agencies; and

"(5) report annually to the Select Committee on Small Business of the Senate and the Committee on Small Business of the House of Representatives on the activities of Federal agencies in meeting the small business research and development set-asides required under subsection (b), the SBIR programs of the Federal agencies, and the information and monitoring efforts of the Administration related to the SBIR programs.

"(b) For fiscal year 1980, each Federal agency shall set-aside for award to small business concerns a percentage of the total dollar amount of its budget for prime research and development contracts equal to the percentage of the total dollar amount of such contracts awarded to such concerns in fiscal year 1979 plus one percentage point. In fiscal year 1981 and in each succeeding fiscal year, each Federal agency shall increase the percentage of the total dollar amount of such contracts set-aside for small business concerns pursuant to this subsection by one percentage point, until such percentage set-aside for award to such concerns equals 10 percent of the total dollar amount of such contracts. The set-asides required by this subsection apply to contracts for basic research and development and applied research and development.

"(c) Each Federal agency which has a research or research and development budget in excess of $100,000,000 for any fiscal year beginning with fiscal year 1980 shall establish an SBIR program which meets the requirements of this section and section 102 of the Small Business Innovation Act of 1979 and shall expend not less than 1 percent of such budget for fiscal year 1980 and for each succeeding fiscal year with small business concerns specifically in connection with such Act. Contract awards under this subsection shall be considered as meeting the set-aside requirement of subsection (b). Contract awards to small business concerns for research or research and development which result from competitive or single source selections other than under an SBIR program shall not be counted as meeting any portion of the percentage requirements of this section.

"(d) Each Federal agency required by subsection (c) to establish an SBIR program shall, in accordance with this Act and regulations issued under this Act—

"(1) determine categories of projects to be in its SBIR program;

"(2) issue SBIR solicitations in accordance with a schedule determined cooperatively with the Administration;

"(3) receive and evaluate proposals resulting from SBIR proposals;

"(4) select awardees for its SBIR contracts;

"(5) administer its own SBIR contracts (or delegate such administration to another agency);

"(6) make payments to SBIR contractors on the basis of progress toward or completion of the contract requirements; and

"(7) make quarterly reports on the SBIR program to the Administration.

"(e) Each Federal agency subject to the requirements of subsection (b) or (c) of this section shall report quarterly to the Administration the number of research and development contract awards to small business concerns under this section (for contracts over $10,000 in amount) and the dollar value of all such contract awards, identifying SBIR awards and comparing the number and amount of all research and development contract awards with awards to concerns which are not small business concerns.

"(f) For purposes of this section—

"(1) the term 'contract' means any contract, grant, or cooperative agreement entered into between any Federal agency and any organization or person for the performance of experiments, developmental, or research work and includes the assignment of any such contract, the substitution as parties to any such contract, and the letting of any subcontract to any such contract;

"(2) the term 'Small Business Innovation Research program' or 'SBIR' means a program under which a portion of a Federal agency's research or research and development effort is reserved for award to small business concerns through a simplified, standardized acquisition process having a phase for determining, insofar as possible, the practicability of ideas proposed under the program, and a phase for the principal research effort to develop the proposed idea to the product production level, in order to promote greater utilization of small science and technology firms in United States Government research and development and conversion of that research to technological innovation in the private sector or for technological innovation in products intended for Government use; and

"(3) the terms 'research' and 'research and development' have the meanings given to such terms by the Cost Accounting Standards Board.".

REGULATIONS FOR THE SBIR PROGRAM

SEC. 102. (a) The Administrator for Federal Procurement Policy, in conjunction with the Small Business Administration and the National Science Foundation, is authorized and directed to promulgate and issue appropriate regulations, in accordance with the provisions of this Act and within one hun-

dred and twenty days of its enactment, for conduct by Federal agencies of Small Business Innovation Research programs established pursuant to section 9A of the Small Business Act. Such regulations shall—

(1) provide for simplified standardized and timely SBIR solicitations, proposals, and evaluation processes;

(2) require Federal agencies to coordinate SBIR solicitation release schedules with the Small Business Administration; and

(3) include uniform requirements for patent rights and rights in data that are commensurate with the intent of this Act.

(b) The National Science Foundation and the Small Business Administration shall provide the Administrator of the Office of Federal Procurement Policy with advice and assistance in the promulgation of regulations under this section.

RESEARCH AND DEVELOPMENT CONTRACT REGULATIONS

SEC. 103. (a) The Administrator for Federal Procurement Policy, in cooperation with the Small Business Administration, shall establish simplified regulations for all Federal agencies for the award of research and development contracts to small business concerns and procedures for insuring compliance with such regulations by all Federal agencies. In establishing such regulations, the Administrator shall consider means which will facilitate the participation of small business concerns in the research and development contracts of Federal agencies.

(b) The Administrator shall insure that regulations established pursuant to subsection (a) shall—

(1) provide for the elimination of provisions of Federal research and development contracts which require businesses to absorb expenses of performance of the contract, and require that a Federal agency, when awarding any such contract to a small business concern, negotiate fees for all services and expenses provided to the agency under such contract;

(2) prohibit each Federal agency and each office or component thereof from excluding any small business concern from competition for any research and development contract on the same terms and conditions as any other business concern;

(3) require each Federal agency to consider unsolicited research and development proposals from small business concerns and to promptly and fairly review such proposals based upon their merits;

(4) require each Federal agency to consider small business concerns on an equal basis with any other business concern in the award of sole source research and development contracts;

(5) require that, for purposes of determining expenses of a research and development contract, the independent research and development costs and the bid and proposal costs incurred by small business concerns shall be attributable to expenses of the contract in the fiscal year in which such expenses are incurred;

(6) require each Federal agency to evaluate the fesability of dividing all proposed large scale research and development contracts into smaller segments in order to facilitate the participation of small business concerns in such contracts;

(7) require each Federal agency which lets research and development contracts to develop, in cooperation with the Small Business Administration, programs to—

(A) inform the staff and consultants of the agency of the need to provide fair and equal opportunity to small business concerns owned by women and minorities for participation in the research and development contracts of the agency; and

(B) require such staff and consultants to provide guidance and counseling to small business concerns to strengthen the ability to such firms to compete for and receive research and development contracts of the agency;

(8) require each Federal agency to include in the evaluation of personnel involved with the awarding of research and development contracts an appraisal of the achievements and attitudes of such personnel in carrying out the provisions of paragraph (7); and

(9) establish the responsibility of each Federal agency to identify and study the areas of agency procedures for the award of research and development contracts which discriminate against small business concerns and to take such action as may be necessary to change or eliminate such discriminatory procedures.

DEFINITIONS

SEC. 104. For purposes of this title—

(1) the term "Federal agency" means an Executive agency as defined in section 105 of title 5, United States Code, or a military department as defined in section 102 of such title;

(2) the term "contract" means any contract, grant, or cooperative agreement entered into between any Federal agency and any organization or person for the performance of experiments, developmental or research work and includes the assignment of any such contract, the substitution of parties to any such contract, and the letting of any subcontract to any such contract;

(3) the term "small business concern" has the same meaning as in section 3 of the Small Business Act;

(4) the term "Small Business Innovation Research program" or "SBIR" means a program under which a portion of a Federal agency's research or research and development effort is reserved for award to small business concerns through a simplified, standardized acquisition process having a phase for determining, insofar as possible, the practicability of ideas proposed under the program, and a phase for the principal research effort to develop the proposed idea to the product production level, in order to promote greater utilization of small science and technology firms in United States Government research and development and conversion of that research to technological innovation in the private sector or for technological innovation in products intended for Government use; and

(5) the terms "research" and "research and development" have the meanings given to such terms by the Cost Accounting Standards Board.

TITLE II—PATENTS

Subtitle A—Patent Procedure for Small Business

SEC. 201. AMENDMENT OF TITLE 35, UNITED STATES CODE, PATENTS.

(a) Title 35 of the United States Code is amended by adding after chapter 17, a new chapter as follows:

"Chapter 18.—PATENT RIGHTS IN INVENTIONS MADE WITH FEDERAL ASSISTANCE

"Sec.
"200. Policy and objective.
"201. Definitions.
"202. Disposition of rights.
"203. March-in rights.
"204. Return of Government investment.
"205. Preference for United States industry.
"206. Confidentially.
"207. Uniform clauses.
"208. Domestic and foreign protection of federally owned inventions.
"209. Regulations governing Federal licensing.
"210. Restrictions on licensing of federally owned inventions.
"211. Precedence of chapter.
"212. Relationship to antitrust laws.

"§ 200. Policy and objective

"It is the policy and objective of the Congress to use the patent system to promote the utilization of inventions arising from federally supported research or development; to encourage maximum participation of small business firms in federally supported research and development efforts; to promote collaboration between commercial concerns and nonprofit organizations, including universities; to ensure that inventions made by nonprofit organizations and small business firms are used in a manner to promote free competition and enterprise; to promote the commercialization and public availability of inventions made in the United States by United States industry and labor; to ensure that the Government obtains sufficient rights in federally supported inventions to meet the needs of the Government and protect the public against nonuse or unreasonable use of inventions; and to minimize the costs of administering policies in this area.

"§ 201. Definitions

"As used in this chapter—

"(a) The term 'Federal agency' means any executive agency as defined in section 105 of title 5, United States Code, and the military departments as defined by section 102 of title 5, United States Code.

"(b) The term 'funding agreement' means any contract, grant, or cooperative agreement entered into between any Federal agency and any person for the performance of experimental, developmental, or research work funded in whole or in part by the Federal Government. Such term includes any assignment, substitution of parties, or subcontract of any type entered into for the performance of experimental, developmental, or research work under a funding agreement as herein defined.

"(c) The term 'contractor' means any person that is a party to funding agreement.

"(d) The term 'invention' means any invention or discovery which is or may be patentable or otherwise protectable under this title.

"(e) The term 'subject invention' means any invention of the contractor conceived or first actually reduced to practice in the performance of work under a funding agreement.

"(f) The term 'practical application' means to manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is being utilized and that its benefits are to the extent permitted by law or Government regulations available to the public on reasonable terms.

"(g) The term 'made' when used in relation to any invention means the conception or first actual reduction to practice of such invention.

"(h) The term 'small business firm' means a small business concern as defined at section 2 or Public Law 85–536 (15 U.S.C. 632) and implementing regulations of the Administrator of the Small Business Administration.

"(i) The term 'nonprofit organization' means universities and other institutions of higher education or an organization of the type described in section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c)) and exempt from taxation under section 501(a) of the Internal Revenue Code (26 U.S.C. 501(a)).

"§ 202. Disposition of rights

"(a) Each nonprofit organization or small business firm may, within a reasonable time after disclosure as required by paragraph (c)(1) of this section, elect to retain title to any subject invention: *Provided, however,* That a funding agreement may provide otherwise (i) when the subject invention is made under a contract for the operation of a Government-owned research or production facility, or (ii) in exceptional circumstances when it is determined by the agency that restriction or elimination of the right to retain title to any subject invention will better promote the policy and objectives of this chapter. The rights of the nonprofit organization or small business firm shall be subject to the provisions of

paragraph (c) of this section and the other provisions of this chapter.

"(b)(1) Any determination under (ii) of paragraph (a) of this section shall be in writing and accompanied by a written statement of facts justifying the determination. A copy of each such determination and justification shall be sent to the Comptroller General of the United States within thirty days after the award of the applicable funding agreement. In the case of determinations applicable to funding agreements with small business firms copies shall also be sent to the Chief Counsel for Advocacy of the Small Business Administration.

"(2) If the Comptroller General believes that any pattern of determinations by a Federal agency is contrary to the policy and objectives of this chapter or that an agency's policies or practices are otherwise not in conformance with this chapter, the Comptroller General shall so advise the head of the agency. The head of the agency shall advise the Comptroller General in writing within one hundred twenty days of what action, if any, the agency has taken or plans to take with respect to the matters raised by the Comptroller General.

"(3) At least once each year, the Comptroller General shall transmit a report to the Committees on Judiciary of the Senate and House of Representatives on the manner in which this chapter is being implemented by the agencies and on such other aspects of Government patent policies and practices with respect to federally funded inventions as the Comptroller General believes appropriate.

"(c) Each funding agreement with a small business firm or nonprofit organization shall contain appropriate provisions to effectuate the following:

"(1) A requirement that the contractor disclose each subject invention to the Federal agency within a reasonable time after it is made and that the Federal Government may receive title to any subject invention not reported to it within such time.

"(2) A requirement that the contractor make an election to retain title to any subject invention within a reasonable time after disclosure and that the Federal Government may receive title to any subject invention in which the contractor does not elect to retain rights or fails to elect rights within such time.

"(3) A requirement that a contractor electing rights file patent applications within reasonable times and that the Federal Government may receive title to any subject inventions in the United States or other countries in which the contractor has not filed patent applications on the subject invention within such times.

"(4) With respect to any invention in which the contractor elects rights, the Federal agency shall have a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States any subject invention throughout the world, and may, if provided in the funding agreement, have additional rights to sublicense any foreign government pursuant to any existing or future treaty or agreement.

"(5) The right of the Federal agency to require periodic reporting on the utilization or efforts at obtaining utilization that are being made by the contractor or his licensees or assignees: *Provided*, That any such information may be treated by the Federal agency as commercial and financial information obtained from a person and privileged and confidential and not subject to disclosure under the Freedom of Information Act.

"(6) An obligation on the part of the contractor, in the event a United States patent application is filed by or on its behalf or by any assignee of the contractor, to include within the specification of such application and any patent issuing thereon, a statement specifying that the invention was made with Government support and that the Government has certain rights in the invention.

"(7) In the case of a nonprofit organization, (a) a prohibition upon the assignment of rights to a subject invention in the United States without the approval of the Federal agency, except where such assignment is made to an organization which has as one of its primary functions the management of inventions and which is not, itself, engaged in or does not hold a substantial interest in other organizations engaged in the manufacture or sale of products or the use of processes that might utilize the invention or be in competition with embodiments of the invention (provided that such assignee shall be subject to the same provisions as the contractor) (b) a prohibition against the granting of exclusive licenses under United States Patents or Patent Applications in a subject invention by the contractor to persons other than small business firms for a period in excess of the earlier of five years from first commercial sale or use of the invention or eight years from the date of the exclusive license excepting that time before regulatory agencies necessary to obtain premarket clearance unless, on a case-by-case basis, the Federal agency approves a longer exclusive license. If exclusive field of use licenses are granted, commercial sale or use in one field of use shall not be deemed commercial sale or use as to other fields of use, and a first commercial sale or use with respect to a product of the invention shall not be deemed to end the exclusive period to different subsequent products covered by the invention; (c) a requirement that the contractor share royalties with the inventor; and (d) a requirement that the balance of any royalties or income earned by the contractor with respect to subject inventions, after payment of expenses (including payments to inventors) incidental to the administration of subject inventions, be utilized for the support of scientific research or education.

"(8) The requirements of sections 203, 204, and 205 of this chapter.

"(d) If a contractor does not elect to retain title to a subject invention in cases subject to this section, the Federal agency may consider and after consultation with the contractor grant requests for retention of rights by the inventor subject to the provisions of this Act and regulations promulgated hereunder.

"(e) In any case when a Federal employee is a coinventor of any invention made under a funding agreement with a nonprofit organization or small business firm, the Federal agency employing such coinventor is authorized to transfer or assign whatever rights it may acquire in the subject invention from its employee to the contractor subject to the conditions set forth in this chapter.

"(f)(1) No funding agreement with a small business firm or nonprofit organization shall contain a provision allowing a Federal agency to require the licensing to third parties of inventions owned by the contractor that are not subject inventions unless such provision has been approved by the head of the agency and a written justification has been signed by the head of the agency. Any such provision shall clearly state whether licensing may be required in connection with the practice of a subject invention and/or specifically identified work objects. The head of the agency may not delegate the authority to approve provisions or sign justifications required by this subparagraph.

"(2) A Federal agency shall not require the licensing of third parties under any such provision unless the head of the agency determines that the use of the invention by others is necessary for the practice of a subject invention or for the use of a work object of the funding agreements and that such action is necessary to achieve the practical application of the subject invention or work object. Any such determination shall be on the record after an opportunity for a hearing. Any action commenced for the judicial review of such determination shall be brought within sixty days after notification of such decision.

"§ 203. March-in rights

"With respect to any subject invention in which a small business firm or nonprofit organization has acquired title under this chapter, the Federal agency under whose funding agreement the subject invention was made shall have the right, in accordance with such procedures as are provided in regulations promulgated hereunder to require the subject inventor, an assignee or exclusive licensee of a subject invention to grant a nonexclusive, partially exclusive, or exclusive license in any field of use to a responsible applicant or applicants, upon terms that are reasonable under the circumstances, and if the contractor, assignee, or exclusive licensee refuses such request, to grant such a license itself, if the Federal agency determines either—

"(a) that such action is necessary because the contractor or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention in such field of use; or

"(b) that such action is necessary to alleviate health or safety needs which are not reasonably satisfied by the contractor, assignee, or their licensees; or

"(c) that such action is necessary to meet requirements for public use specified by Federal regulations and such requirements are not reasonably satisfied by the contractor, assignee, or licensees; or

"(d) that such action is necessary because the agreement required by section 205 has not been obtained or waived or because a licensee of the exclusive right to use or sell any subject invention in the United States is in breach of its agreement obtained pursuant to section 205.

"§ 204. Return of Government Investment

"(a) If after the first United States patent application is filed on a subject invention, a nonprofit organization, a small business firm, or an organization to whom such invention was assigned for licensing purposes receives $70,000 in gross income for any one calendar year from the licensing of a subject invention or several related subject inventions, the United States shall be entitled to fifteen (15) percent of all additional such income for that year other than any such additional income received under non-exclusive licenses (except where the non-exclusive licensee previously held an exclusive or partially exclusive license).

"(b) If after the first United States patent application is filed on a subject invention, a nonprofit organization, a small business firm, or an assignee of a subject invention of such an organization or firm receives gross income of $1,000,000 on sales of its products embodying or manufactured by a process employing one or more subject inventions, the United States shall be entitled to a share, to be negotiated but not to exceed five (5) percent, of all additional gross income for that year accruing from such sales; provided, however, that in no event shall the United States be entitled to an amount greater than that portion of the Federal funding under the funding agreement or agreements under which the subject invention or inventions was or were made that was expended on activities related to the making of the invention or inventions less any amounts received by the United States in accordance with paragraph (b) of this section 204. In cases when more than one subject invention is involved, no expenditure funded by the United States shall be counted more than once in determining the maximum amount to which the United States is entitled.

"(c) The Director of the Office of Federal Procurement Policy is authorized and di-

rected to revise the dollar amounts in paragraphs (b) and (c) of this section 204 at least every three years in light of changes to the Consumer Price Index or other indices which the Director considers reasonable to use.

"(d) This section applies only to subject inventions upon which United States patents are granted and in effect.

"§ 205. Preference for United States Industry

"Notwithstanding any other provision of this chapter, no small business firm or nonprofit organization which receives title to any subject invention and no assignee of any such nonprofit organization shall grant to any person the exclusive right to use or sell any subject invention in the United States unless such person agrees that any products embodying the subject invention or produced through the use of the subject invention will be manufactured substantially in the United States. However, in individual cases, the requirement for such an agreement may be waived by the Federal agency under whose funding agreement the invention was made upon a showing by the small business firm, nonprofit organization, or assignee either that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible.

"§ 206. Confidentiality

"Federal agencies are authorized to withhold from disclosure to the public information disclosing any invention in which the Federal Government owns or may own a right, title, or interest (including a nonexclusive license) for a reasonable time in order for a patent application to be filed. Furthermore, Federal agencies shall not be required to release copies of any document which is part of an application for patent filed with the United States Patent and Trademark Office or with any foreign patent office.

"§ 207. Uniform Clauses and Regulations

"The Office of Federal Procurement Policy, after receiving recommendations of the Office of Science and Technology Policy, may issue regulations which may be made applicable to Federal agencies implementing the provisions of sections 202 through 206 of this Chapter and the Office of Federal Procurement Policy shall establish standard funding agreement provisions required under this chapter.

"§ 208. Domestic and Foreign Protection of Federally Owned Inventions

"Each Federal agency is authorized to—

"(1) apply for, obtain, and maintain patents or other forms of protection in the United States and in foreign countries on inventions in which the Federal Government owns a right, title, or interest;

"(2) grant nonexclusive, exclusive, or partially exclusive licenses under federally owned patent applications, patents, or other forms of protection obtained, royalty-free or for royalties or other consideration, and on such terms and conditions including the grant to the licensee of the right of enforcement pursuant to the provisions of chapter 28 of this title as determined appropriate in the public interest;

"(3) undertake all other suitable and necessary steps to protect and administer rights to federally owned inventions on behalf of the Federal Government either directly or through contract; and

"(4) transfer custody and administer, in whole or in part, to another Federal agency, of the right, title, or interest in any federally owned invention.

"§ 209. Regulations Governing Federal Licensing

"The Administrator of General Services is authorized to promulgate regulations specifying the terms and conditions upon which any federally owned invention may be licensed on a nonexclusive, partially exclusive, or exclusive basis.

"§ 210. Restrictions on Licensing of Federally Owned Inventions

"(a) No Federal agency shall grant any license under a patent or patent application on a federally owned invention unless the person requesting the license has supplied the agency with a plan for development and/or marketing of the invention, provided, that any plan may be treated by the Federal agency as commercial and financial information obtained from a person and privileged and confidential and not subject to disclosure under the Freedom of Information Act.

"(b) A Federal agency shall normally grant the right to use or sell any federally owned invention in the United States only to a licensee that agrees that any products embodying the invention or produced through the use of the invention will be manufactured substantially in the United States.

"(c)(1) Each Federal agency may grant exclusive or partially exclusive licenses in any invention covered by a federally owned domestic patent or patent application only if, after public notice and opportunity for filing written objections, it is determined that—

"(A) the interests of the Federal Government and the public will best be served by the proposed license, in view of the applicant's intentions, plans, and ability to bring the invention to practical application or otherwise promote the invention's utilization by the public;

"(B) the desired practical application has not been achieved, or is not likely expeditiously to be achieved, under any nonexclusive license which has been granted, or which may be granted, on the invention;

"(C) exclusive or partially exclusive licensing is a reasonable and necessary incentive to call forth the investment of risk capital and expenditures to bring the invention to practical application or otherwise promote the invention's utilization by the public; and

"(D) the proposed terms and scope of exclusivity are not greater than reasonably necessary to provide the incentive for bringing the invention to practical application or otherwise promote the invention's utilization by the public.

"(2) A Federal agency shall not grant such exclusive or partially exclusive license under paragraph (1) of this subsection if it determines that the grant of such license will tend substantially to lessen competition or result in undue concentration in any section of the country in any line of commerce to which the technology to be licensed relates, or to create or maintain other situations inconsistent with the antitrust laws.

"(3) First preference in the exclusive or partially exclusive licensing of federally owned inventions shall go to small business firms submitting plans that are determined by the agency to be within the capabilities of the firms and as likely, if executed, to bring the invention to practical application as any plans submitted by applicants that are not small business firms.

"(d) After consideration of whether the interests of the Federal Government or United States industry in foreign commerce will be enhanced, any Federal agency may grant exclusive or partially exclusive licenses in any invention covered by a foreign patent application or patent, after public notice and opportunity for filing written objections, except that a Federal agency shall not grant such exclusive or partially exclusive license if it determines that the grant of such license will tend substantially to lessen competition or result in undue concentration in any section of the country in any line of commerce to which the technology to be licensed relates, or to create or maintain other situations inconsistent with the antitrust laws.

"(e) The Federal agency shall maintain a record of determinations to grant exclusive or partially exclusive licenses.

"(f) Any grant of a license shall contain such terms and conditions as the Federal agency determines appropriate for the protection of the interests of the Federal Government and the public, including provisions for the following:

"(1) periodic reporting on the utilization or efforts at obtaining utilization that are being made by the licensee with particular reference to the plan submitted: *Provided*, That any such information may be treated by the Federal agency as commercial and financial information obtained from a person and privileged and confidential and not subject to disclosure under the Freedom of Information Act;

"(2) the right of the Federal agency to terminate such license in whole or in part if it determines that the licensee is not executing the plan submitted with its request for a license and the licensee cannot otherwise demonstrate to the satisfaction of the Federal Agency that it has taken or can be expected to take within a reasonable time, effective steps to achieve practical application of the invention;

"(3) the right of the Federal agency to terminate such license in whole or in part if the licensee is in breach of an agreement obtained pursuant to paragraph (b) of section; and

"(4) the right of the Federal agency to terminate the license in whole or in part if the agency determines that such action is necessary to meet requirements for public use specified by Federal regulations issued after the date of the license and such requirements are not reasonably satisfied by the licensee.

"§ 211. Precedence of chapter

"(a) This Chapter shall take precedence over any other Act which would require a disposition of rights in subject inventions of small business firms or nonprofit organizations contractors in a manner that is inconsistent with this chapter, including but not necessarily limited to the following:

"(1) section 10(a) of the Act of June 29, 1935, as added by title 1 of the Act of August 14, 1946 (7 U.S.C. 427l(a); 60 Stat. 1085);

"(2) section 205(a) of the Act of August 14, 1946 (7 U.S.C. 1624(a); 60 Stat. 1090);

"(3) section 501(c) of the Federal Coal Mine Health and Safety Act of 1969 (30 U.S.C. 951(c); 83 Stat. 742);

"(4) section 106(c) of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1935(c); 80 Stat. 721);

"(5) section 12 of the National Science Foundation Act of 1950 (42 U.S.C. 1871(a); 82 Stat. 360);

"(6) section 152 of the Atomic Energy Act of 1954 (42 U.S.C. 2182; 68 Stat. 943);

"(7) section 305 of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2457);

"(8) section 6 of the Coal Research Development Act of 1960 (30 U.S.C. 666; 74 Stat. 337);

"(9) section 4 of the Helium Act Amendments of 1960 (50 U.S.C. 167b; 74 Stat. 920);

"(10) section 32 of the Arms Control and Disarmament Act of 1961 (22 U.S.C. 2572; 75 Stat. 634);

"(11) subsection (e) of section 302 of the Appalachian Regional Development Act of 1965 (40 U.S.C. App. 302(e); 79 Stat. 5);

"(12) subsection (a)(2) of section 216 of title 38, United States Code;

"(13) section 9 of the Federal Nonnuclear Energy Research and Development Act of 1974 (42 U.S.C. 5901; 88 Stat. 1878);

"(14) section 3 of the Act of June 22, 1976 (42 U.S.C. 1959d, note; 90 Stat. 694);

"(15) subsection (d) of section 6 of the Saline Water Conversion Act of 1971 (42 U.S.C. 1959(d); 85 Stat. 161);

"(16) section 303 of the Water Resources Research Act of 1964 (42 U.S.C. 1961c-3; 78 Stat. 332);

"(17) section 5(d) of the Consumer Product Safety Act (15 U.S.C. 2054(d); 88 Stat. 1211);

"(18) section 3 of the Act of April 5, 1944. (30 U.S.C. 323; 58 Stat. 191);

"(19) section 8001 of the Solid Waste Disposal Act (42 U.S.C. 6981; 90 Stat. 2829);

"(20) section 306(d) of the Surface Mining and Reclamation Act of 1977 (30 U.S.C. 1226(d); 91 Stat. 455);

"(21) section 21(d) of the Federal Fire Prevention and Control Act of 1974 (15 U.S.C. 2218(d); 88 Stat. 1548);

"(22) section 6(b) of the Solar Photovoltaic Energy Research, Development and Demonstration Act of 1978 (42 U.S.C. 5585 (b); 92 Stat. 2516); and

"(23) section 12 of the Native Latex Commercialization and Economic Development Act of 1978 (7 U.S.C. 178(j); 92 Stat 2533).

The Act creating this chapter shall be construed to take precedence over any future Act unless that Act specifically cites this Act and provides that it shall take precedence over this Act.

"(b) Nothing in this chapter is intended to alter the effect of the laws cited in paragraph (a) of this section or any other laws with respect to the disposition of rights in inventions made in the performance of funding agreements with persons other than nonprofit organizations or small business firms.

"(c) Nothing in this chapter is intended to limit the authority of agencies to agree to the distribution of rights in inventions made in the performance of work under funding agreements with persons other than nonprofit organizations or small business firms in accordance with the Statement of Government Patent Policy issued by the President on August 23, 1971 (36 Fed. Reg. 16887), agency regulations, or other applicable regulations or to otherwise limit the authority of agencies to agree to allow such persons to retain ownership of such inventions.

"§ 212. Relationship to Antitrust Laws

"Nothing in this chapter shall be deemed to convey to any person immunity from civil or criminal liability, or to create any defense to actions, under any antitrust law.".

SEC. 202. AMENDMENTS TO OTHER ACTS.

The following Acts are amended as follows:

(a) Section 156 of the Atomic Energy Act of 1954 (42 U.S.C. 2186; 68 Stat. 947) is amended by deleting the words "held by the Commission or".

(b) The National Aeronautics and Space Act of 1958 is amended by repealing paragraph (g) of section 305 (42 U.S.C. 2457(g); 72 Stat. 436).

(c) The Federal Nonnuclear Energy Research and Development Act of 1974 is amended by repealing paragraphs (g), (h), and (i) of section 9 (42 U.S.C. 5908 (g), (h), and (i); 88 Stat. 1889-1891).

SEC. 203. EFFECTIVE DATE.

This title shall take effect one hundred and eighty days after the date of its enactment, except that the regulations referred to in section 201, or other implementing regulations, may be issued prior to that time.

Subtitle B—Reexamination of Patents

SEC. 210. PRIOR ART CITATIONS AND REEXAMINATION.

(a) Title 35 of the United States Code is amended by adding after chapter 29 the following chapter:

"Chapter 30—PRIOR ART CITATIONS TO PATENT OFFICE AND REEXAMINATION OF PATENTS

"Sec.

"§ 301. Rules established by Commissioner of Patents

"The Commissioner shall establish rules and regulations for the citation to the Office of prior art patents or publications, pertinent to the validity of patents, and for the reexamination of patents in the light of such prior art.

"§ 302. Citation of art

"Any person may, at any time within the period of enforceability of a patent, cite to the Office prior patents or publications which may have a bearing on the patentability of any claim of the patents: *Provided*, That the person citing such prior art identifies in writing the part(s) of the same considered pertinent and the manner of applying the same to at least one claim of the patent. The writing identifying and applying the same shall become a part of the official file of the patent. The identity of the person citing the prior art will be excluded from such file upon his request to remain anonymous.

"§ 303. Request for examination

"Any person may, at any time within the period of enforceability of a patent, request reexamination of the patent as to the patentability of any claim thereof in the light of any prior art cited under the provisions of section 302 of this chapter, by filing in the Office a written request for such reexamination accompanied by a reexamination fee prescribed according to this title and by a statement of the relation of such prior art to the patentability of the claim or claims involved. Unless the requesting person is the patentee, the Commissioner shall promptly send a copy of such request and statement to the owner of the patent appearing from the records of the Office at the time of the filing of the request.

"§ 304. Determination of issue by Commissioner of Patents

"(a) Within 90 days following the filing of a request for reexamination under section 303 of this chapter, the Commissioner shall make a determination as to whether a substantial new question of patentability affecting any claim of the patent concerned, not previously considered in examination or reexamination of such claim, is raised by the consideration, with or without any other prior art, of the prior art which has been cited in relation to the patent according to section 302 of this chapter. The Commissioner on his own initiative may make such a determination at any time.

"(b) A record of the Commissioner's determination under paragraph (a) of this section shall be made in the file of the patent, and a copy of it sent promptly to the owner of the patent.

"(c) A determination by the Commissioner pursuant to paragraph (a) of this section that such a new question of patentability is not so raised shall be final and nonappealable.

"§ 305. Reexamination ordered by Commissioner of Patents

"If, in a determination made pursuant to paragraph (a) of section 304, the Commissioner finds that a substantial new question of patentability affecting a claim or claims of the patent is raised by consideration of the patents and publications that have been cited in relation to the patent according to section 302 of this chapter, he shall order a reexamination of the patent for the resolution of the question, and shall proceed to resolve it as though the claim or claims involved were present in a pending application. The patent owner shall be given a reasonable period, not less than two months, after the filing of the reexamination order within which he may file a statement on such question for consideration in the reexamination. The patentee shall serve a copy of such statement on any person who has requested examination according to section 303 of this chapter and such person shall have the right, within a period of two months from such service, to submit a reply to the patentees statement. Any reexamination proceeding under this section shall be conducted with special dispatch within the Office.

"§ 306. Response or amendment by patent owner

"The patent owner shall be provided an opportunity in any reexamination proceeding under this chapter to amend any claim of his patent in order to distinguish the claim from prior art cited according to section 302 of this chapter, or in response to a decision adverse to the patentability of the claim, but no amendment enlarging the scope of a claim shall be permitted in a reexamination proceeding under this chapter.

"§ 307. Appeals

"The owner of a patent involved in a reexamination proceeding under this chapter may appeal from a final decision in such proceeding adverse to the patentability of any claim, or amended claim, of the patent.

"§ 308. Certificate of patentability; unpatentability and claim cancellation

"When in a reexamination proceeding under this chapter the time for appeal has expired or any appeal proceeding has terminated, the Commissioner shall issue and publish a certificate canceling any claim of the patent finally determined in such proceeding or on appeal therein to be unpatentable, confirming any claim of the patent so determined to be patentable, and incorporating in the patent any amended claim thereof so determined to be patentable.

"§ 309. Reliance on art in court

"(a) No patent or (printed) publication may be relied upon as evidence or nonpatentability in a civil action involving an issue of validity or infringement of a patent unless (a) the patent or publication was cited by or to the Office during prosecution of the application for the patent or was submitted for consideration by the Office in accordance with sections 302 and 303 of this chapter and was actually considered in accordance with section 304, or (b) the court, upon motion, concludes such submission and reconsideration to be unnecessary for its adjudication of the issue of validity or infringement.

"(b) The limitation provided by this section shall apply in any civil action in which a pleading presents a claim for infringement or for adjudication of the validity of a patent, upon the basis of the contents of the patent file as it existed on the date of the filing of such pleading, excepting that a party may rely upon a patent or publication cited later, and upon the final determination had on a request for reexamination in the light of such patent or publication if such patent or publication was cited and such request was filed in the Office within the period of a stay ordered by the court in accordance with section 310 of this chapter.

"§ 310. Stay of court proceedings to permit Office review

"(a) Any party to a civil action against whom a pleading presents a claim for infringement or for adjudication of the validity of a patent shall have the right, by motion brought before any responsive pleading, to secure a stay of all proceedings in the action by order of the court for a period, not less than four months, sufficient to enable such party to search for and cite patents or publications considered pertinent to the patent and to request reexamination of the patent in view of such prior art according to sections 302 and 303 of this chapter. If such party files a request for such reexamination in the Office and serves and files a copy of it in the action within the period of the stay

provided by such order, the stay shall be extended by further order of the court until at least 20 days after the final determination of the request for reexamination.

"(b) The court, on motion and upon such terms as are just, may at any time stay the proceedings in a civil action in which the validity of a patent is in issue for a period sufficient to enable the moving party to cite to the Office newly discovered additional prior art in the nature of patents or (printed) publications and to secure final determination of a request for reexamination of the patent in the light of such additional prior art, provided the court finds that such additional prior art, in fact, constitutes newly discovered evidence which by due diligence could not have been discovered in time to be cited to and considered by the Office within the period of a stay of such proceedings that was or could have been secured according to subsection (a) of this section.

"§ 311. Dismissal of complaint

"The party or parties whose complaint commencing a civil action presents a claim for infringement or for adjudication of the validity of a patent shall have the right, by notice served upon the other party or parties and filed in the action at any time within the period of a stay ordered by the court pursuant to section 310 of this chapter, to dismiss such complaint without prejudice and without costs to any party.".

TITLE III—AMENDMENTS TO THE INTERNAL REVENUE CODE OF 1954

SHORT TITLE; AMENDMENTS TO 1954 CODE

SEC. 301. (a) This title may be cited as the "Small Business Research and Development Tax Incentive Act of 1979".

(b) Except as otherwise expressly provided, whenever in this Act an amendment or repeal is expressed in terms of an amendment to, or repeal of, a section or other provision, the reference shall be considered to be made to a section or other provision of the Internal Revenue Code of 1954.

RECOGNITION OF GAIN ON SALE OF SMALL BUSINESS STOCK

SEC. 302. (a)(1) Part III of subchapter C of chapter 1 (relating to nontaxable exchanges) is amended by adding at the end thereof the following new section:

"SEC. 1041. SALES OF SMALL BUSINESS STOCK.

"(a) NONRECOGNITION OF GAIN.—If small business stock is sold, gain (if any) from such sale shall, at the election of the taxpayer, be recognized only to the extent that the taxpayer's sale price exceeds the cost of small business stock purchased by the taxpayer within 18 months after the date of such sale.

"(b) DEFINITIONS; SPECIAL RULES.—For purposes of this section—

"(1) SMALL BUSINESS STOCK.—The term 'small business stock' means common or preferred stock issued by a small business concern.

"(2) SMALL BUSINESS CONCERN.—

"(A) IN GENERAL.—The term 'small business concern' means a domestic corporation or small business investment company (other than an electing small business corporation as defined in section 1371(b))—

"(i) which does not, for the taxable year in which such stock is issued, have passive investment income (as defined in section 1372(e)(5)(C)) in excess of the limitation set forth in section 1372(e)(5)(A), and

"(ii) the equity capital (within the meaning of the last sentence of section 1244(c)(2), as in effect on November 5, 1978) of which does not exceed $25,000,000.

"(B) CONTROLLED CORPORATIONS.—In the case of a corporation which is a member of a controlled group of corporations (as defined in section 1563(a)(1)), the equity capital of all members of the controlled group shall be treated, for purposes of paragraph (1)(A) of this subsection, as the equity capital of the issuing corporation.

"(3) STOCK ACQUIRED BY UNDERWRITER.—No acquisition of stock by an underwriter in the ordinary course of his trade or business as an underwriter, whether or not guaranteed, shall be treated as a purchase for purposes of subsection (a).

"(4) DEFINITION OF SMALL BUSINESS INVESTMENT COMPANY.—The term 'small business investment company' has the same meaning as when such term is used in title III of the Small Business Investment Company Act of 1958 (15 U.S.C. 681 et seq.), except that such term shall not include an electing small business corporation (as defined in section 1371(b)).

"(c) LIMITATION.—Subsection (a) shall only apply to gain attributable to sale of small business stock with respect to which the taxpayer's holding period is more than 12 months.

"(d) BASIC OF SMALL BUSINESS STOCK.—The basis of small business stock purchased by the taxpayer during the 18-month period shall be reduced by the amount of gain not recognized solely by reason of the application of subsection (a). If more than one share of small business stock is purchased, such reduction in basis shall be applied to each such share in chronological order of purchase. The amount of the reduction applicable to each share shall be determined by multiplying the maximum gain not to be recognized pursuant to subsection (a) by a fraction the numerator of which is the cost of such share and the denominator of which is the total cost of all such shares.

"(e) STATUTE OF LIMITATIONS.—If during a taxable year a taxpayer sells small business stock at a gain, then—

"(1) the statutory period for the assessment of any deficiency attributable to any part of such gain shall not expire before the expiration of 3 years from the date the Secretary is notified by the taxpayer (in such manner as the Secretary may by regulations prescribe) of—

"(A) the taxpayer's cost of purchasing small business stock which the taxpayer claims results in nonrecognition of any part of such gain,

"(B) the taxpayer's intention not to purchase property within the period specified in paragraph (2), or

"(C) a failure to make such purchase within such period; and

"(2) such deficiency may be assessed before the expiration of such 3-year period nothwithstanding the provisions of any other law or rule of law which would otherwise prevent such assessment.".

(2) Section 1223 of such Code is amended by redesignating paragraph (12) as paragraph (13) and by inserting a new paragraph (12) as follows:

"(12) In determining the period for which the taxpayer has held small business stock the acquisition of which resulted under section 1041 in the nonrecognition of any part of the gain realized on the sale of small business stock, there shall be included the period for which small business stock with respect to which gain was not recognized had been held, and the period such replacement small business stock was held as of the date of such sale or exchange.".

(3) The table of sections for part III of subchapter O of chapter 1 of such Code is amended by adding at the end thereof the following new item:

"Sec. 1041. Sales of small business stock.".

(b) Section 1202 (relating to deduction for capital gains) is amended by redesignating subsection (c) as (d) and by adding after subsection (b) the following:

"(c) SMALL BUSINESS DEDUCTION.—

"(1) IN GENERAL.—If for any taxable year a taxpayer other than a corporation has a net small business capital gain, 80 percent of the amount of such gain shall be a deduction from gross income.

"(2) NET SMALL BUSINESS CAPITAL GAIN.—

"(A) IN GENERAL.—The term 'net small business capital gain' means the excess of—

"(i) an amount equal to the excess of (I) the gain from the sale or exchange of any small business stock held for more than 5 years, over (II) any loss from the sale or exchange of any small business stock held more than 1 year, over

"(ii) the net short-term capital loss from the sale or exchange of small business stock.

"(B) COORDINATOR WITH SUBSECTION (a).—If a taxpayer has net small business capital gain for any taxable year, any gain or loss taken into account in computing such gain shall not be taken into account for purposes of computing net capital gain under subsection (a).

"(3) SMALL BUSINESS STOCK.—The terms 'small business stock' means common or preferred stock issued by a qualified small business concern (within the meaning of section 172(j)).".

(c) The amendments made by this section shall apply with respect to stock acquired after December 31, 1979.

NET OPERATING LOSS CARRYOVERS

SEC. 303. (a) Subsection (b)(1) of section 172 (relating to net operating loss deduction) is amended by adding at the end thereof the following new subparagraph:

"(J) In the case of a qualified small business concern (as defined in subsection (j)), a net operating loss for any taxable year beginning after December 31, 1979, shall not be a net operating loss carryback to any taxable year preceding the year of such loss, but shall be a net operating loss carryover to each of the 10 taxable years following the year of such loss.".

(b) Section 172 is amended by adding at the end thereof the following new subsection:

"(j) QUALIFIED SMALL BUSINESS CONCERN.—For purposes of this section, the term 'qualified small business concern' means a small business concern (within the meaning of section 1041(b)(2)) which during the 3 taxable years preceding the taxable year, or if the concern has not been in existence for 3 taxable years, during all taxable years of the concern (including the taxable year), had research and experimental expenditures (within the meaning of section 174)—

"(1) the average of which was 3 percent or more of gross revenues during such taxable years, or

"(2) which exceeded 6 percent or more of gross revenues during any one of such taxable years.".

(c)(1) Subparagraph (A) of section 172(b)(1) is amended by striking out "and (H)" and inserting "(H) and (J)".

(2) Subpargraph (B) of section 172(b)(1) is amended by striking out "and (F)" and inserting ", (F), and (J)".

(d) The amendments made by this section shall apply to taxable years beginning after December 31, 1979.

RESEARCH AND EXPERIMENTATION DEDUCTION

SEC. 304. (a) Section 174 (relating to research and experimental expenditures) is amended by redesignating subsection (e) as (f) and by inserting after subsection (d) the following new subsection:

"(e) QUALIFIED SMALL BUSINESS CONCERN.—Notwithstanding the provisions of subsection (b)(1)(C) or (C), a qualified small business concern (within the meaning of section 172(j)) may elect—

"(1) for purposes of subsection (a), to treat research and experimental expenditures for the acquisition or improvement of property which is subject to an allowance under section 167 or 611 and which constitutes research equipment as expenses not chargeable to capital account, and

"(2) for purposes of subsection (b), to treat research and experimental expenditures for any property subject to an allowance under section 167 or 611 as deferred expenses, except that in the case of a building or its structural components, the term '120 months'

shall be substituted for '60 months' in paragraph (1) of such subsection.".

(b) The amendments made by this section shall apply to taxable years beginning after December 31, 1979, for expenditures made after such date.

EXCLUSION FOR AMOUNTS DEPOSITED IN RESERVE FOR RESEARCH AND DEVELOPMENT

SEC. 305. (a) Subpart B of part II of subchapter E of chapter 1 of the Internal Revenue Code of 1954 (relating to taxable year in which items of gross income included) is amended by adding at the end thereof the following new section:

"SEC. 459. RESERVE FOR RESEARCH AND DEVELOPMENT.

"(a) EXCLUSION OF CERTAIN DEPOSITS INTO RESERVE FOR RESEARCH AND DEVELOPMENT.—

"(1) IN GENERAL.—In the case of a small business concern engaged in a trade or business other than real estate, the gross income of the taxpayer shall not include the amount of any income received by the taxpayer during the taxable year which is deposited into a reserve for research and development.

"(2) LIMITATION ON EXCLUSION.—Paragraph (1) shall not apply to the amount of income which is deposited in a reserve for research and development during the taxable year to the extent that the amount of such income exceeds the least of the following amounts:

"(A) 10 percent of the gross revenues of the taxpayer for the taxable year from such trade or business,

"(B) $100,000, or

"(C) the amount of research and experimental expenditures which may be taken into account by the taxpayer for such year under section 174.

"(b) EXCLUSION FOR AMOUNTS USED FOR RESEARCH AND DEVELOPMENT.—In the case of any amount which is paid from a reserve for research and development and which is used by the taxpayer for research and experimental expenditures which may be taken into account by the taxpayer for such year under section 174, no deduction shall be allowable for such expenditures.

"(c) INCLUSION IN GROSS INCOME FOR AMOUNTS FROM RESERVE NOT USED FOR RESEARCH AND DEVELOPMENT.—In the case of any amount which is paid from a reserve for research and development for any purpose not described in subsection (b), the gross income of the taxpayer shall include, for the taxable year in which such amount is paid or otherwise made available to the taxpayer or any other person, an amount equal to 150 percent of the amount so paid or otherwise made available during the taxable year.

"(d) SPECIAL RULES.—

"(1) CONTRIBUTIONS TO RESERVE ONLY IN CASH.—A contribution to a reserve for research and development may be made only in cash, and any reserve for research and development to which a contribution other than cash is made shall not be taken into account under this section.

"(2) TREATMENT OF RESERVE WHERE TAXPAYER CEASES TO BE A SMALL BUSINESS CONCERN.—

"(A) IN GENERAL.—In the case of a small business concern which ceases to be a small business concern (other than by reason of the acquisition of stock or assets of such concern by any other person), the reserve for research and development of such concern shall continue to be treated as such a reserve for a small business concern, except that no further contributions may be made to such reserve beginning with the taxable year in which such concern ceases to be a small business concern.

"(3) INCLUSION IN INCOME WHERE SMALL BUSINESS CONCERN ACQUIRED BY OTHER BUSINESS.—In the case of a small business concern which ceases to be a small business concern by reason of the acquisition of the stock or assets of such concern by any other person, 150 percent of the amount of the reserve for research and development of such concern as of the date of such acquisition shall be immediately included in gross income as of such date.

"(e) SMALL BUSINESS CONCERN DEFINED.—For purposes of this section, the term 'small business concern' means any small business concern within the meaning of section 1041 (b)(2).

"(f) RECORDS; REPORTS; REGULATIONS.—

"(1) RECORDS AND REPORTS.—Each taxpayer who maintains a reserve for research and development shall keep such records and make such reports as the Secretary shall by regulation prescribe.

"(2) REGULATION.—The Secretary shall prescribe such regulations as may be appropriate to carry out the purposes of this section.".

(b) The table of sections for such subpart B is amended by inserting after the item relating to section 458 the following new item:

"Sec. 459. Reserve for research and development.".

(c) The amendments made by this section shall apply to taxable years beginning after December 31, 1979.

RESTORATION OF PRIOR LAW FOR QUALIFIED STOCK OPTIONS

SEC. 306. (a)(1) So much of section 422(b) (relating to qualified stock options) as precedes paragraph (1) thereof is amended to read as follows:

"(b) QUALIFIED STOCK OPTION.—For purposes of this part, the term 'qualified stock option' means an option granted to an individual—

"(A) after December 31, 1963 (other than a restricted stock option granted pursuant to a contract described in section 424(c)(3)(A)), and before May 21, 1976 (or, if it meets the requirements of subsection (c)(7), granted to an individual after May 20, 1976, and before January 1, 1980), or

"(B) after December 31, 1979 (other than such a restricted stock option),

for any reason connected with his employment by a corporation, if granted by the employer corporation or its parent or subsidiary corporation, to purchase stock of any of such corporation, but only if—".

(2) Paragraph (7) of section 422(c) (relating to special rules) is amended by inserting "and before January 1, 1980" after "May 20, 1976" each place it appears.

(b) Paragraph (3) of such section 422(b) is amended by striking out "5" and inserting "10".

(c) The amendments made by this section shall apply to options granted after December 31, 1979, in taxable years ending after such date.

SUBCHAPTER S CORPORATIONS MAY INCLUDE 100 SHAREHOLDERS AND SUBCHAPTER C CORPORATIONS

SEC. 307. (a) Paragraph (1) of section 1371 (a) of the Internal Revenue Code of 1954 (defining small business corporation) is amended by striking out "15 shareholders" and inserting in lieu thereof "100 shareholders".

(b) Paragraph (2) of section 1371(a) of such Code is amended—

(1) by striking out "and other than" after "estate" and inserting in lieu thereof a comma, and

(2) by inserting ", or a corporation which is a venture capital corporation described in subsection (f)" after "subsection (e)".

(c) Section 1371 of such Code is amended by adding at the end thereof the following:

"(f) VENTURE CAPITAL CORPORATION.—The term 'venture capital corporation' means any corporation—

"(1) which is engaged or proposes to engage primarily in the business of furnishing capital (other than short-term paper) to industry, financing promotional enterprises, purchasing securities of issuers for which no ready market is in existence, or reorganizing companies or similar activities; and

"(2) at least 60 per centum of the net assets of which (exclusive of Government securities, short-term paper and cash items) at cost consist of securities which were—

"(A) acquired directly from the issuer thereof in a transaction or transactions not involving the registration of the securities under the Securities Act of 1933 or pursuant to the exercise of options, warrants, or rights acquired in such transactions;

"(B) received in a reorganization or in an exchange offer in exchange for securities acquired pursuant to subparagraph (A) of this paragraph; or

"(C) distributed on or with respect to any securities referred to in subpaagraph (A) or subparagraph (B) of this paragraph.".

(d) The amendments made by this section shall apply to taxable years beginning after December 31, 1979.

TITLE IV—REGULATORY FLEXIBILITY

SHORT TITLE

SEC. 401. This title may be cited as the "Regulatory Flexibility Act".

FINDINGS AND PURPOSES

SEC. 402. (a) The Congress finds that—

(1) in numerous instances compliance with Federal regulatory and reporting requirements imposes inequitable demands and burdens on individuals, small businesses, small organizations, and small governmental jurisdictions;

(2) regulatory efforts to protect the health, safety, and economic welfare of the Nation have in many instances imposed unnecessary and burdensome legal, accounting, and consulting costs upon individuals, small businesses, small organizations, and small governmental jurisdictions and are adversely affecting competition in the marketplace;

(3) the scope and volume of rules or regulations have created high entry barriers in many industries and have discouraged potential entrepreneurs from introducing beneficial products and processes;

(4) the practice of treating all regulated individuals, businesses, organizations, and governmental jurisdictions as equivalent has led to inefficient use of regulatory agency resources, enormous enforcement problems, and, in some cases, actions inconsistent with the legislative intent of health, safety, environmental, and economic welfare legislation;

(5) in many instances reasonable alternative rules or regulations could be adopted to minimize adverse economic effects on individuals, businesses, organizations, and governmental jurisdictions subject to regulation without significant loss of regulatory efficiency;

(6) Government information collection has not adequately weighed the privacy rights of individuals and enterprises against the need of the Government for information because the design of the regulatory process has encouraged regulators to treat information as a free good; and

(7) deep public dissatisfaction with the regulatory process has stemmed in large part from a public perception that burdensome rules or regulations fail to correct key national problems.

(b) It is the purpose of this title to establish as a principle of regulatory issuance that regulatory and informational requirements fit the scale of the individuals, businesses, organizations, and governmental jurisdictions subject to a rule and that fewer and simpler requirements be made of individuals, small organizations, small businesses, and small governmental jurisdictions. To achieve such principle, agencies are empowered and encouraged to issue rules or regulations which apply differently to different segments of the regulated population and are required to solicit and consider al-

ternative regulatory proposals from the public prior to the adoption of final rules.

AGENCY RULEMAKING REQUIREMENTS

SEC. 403. (a) Section 553(b) of title 5, United States Code, is amended—

(1) by striking out the word "and" at the end of paragraph (2);

(2) by striking out the period at the end of paragraph (3) and inserting a semicolon; and

(3) by adding immediately after paragraph (3) the following:

"(4) the goals and purposes of the proposed rule;

"(5) the estimated number of individuals, businesses, organizations, and governmental jurisdictions to which the proposed rule would apply;

"(6) a statement that the agency seeks and shall consider alternative proposals to the proposed rule which would accomplish the goals and purposes of the proposed rule while substantially reducing the adverse economic impact of the rule on individuals, small businesses, small organizations, and small governmental jurisdictions affected by the rule through—

"(A) the establishment of differing compliance or reporting requirements that take into account the amount of resources available to individuals, businesses, organizations, and governmental jurisdictions;

"(B) an exemption from coverage of the proposed rule, or any part thereof, for such individuals, businesses, organizations, and governmental jurisdictions whose activities are of a nature which makes the inclusion of such individuals, businesses, organizations, and governmental jurisdictions of minimal value to the realization of the goals and purposes of the proposed rule;

"(C) the clarification, consolidation, or simplification of requirements of the proposed rule; or

"(D) other suitable means, including performance standards and differing timetables for compliance for such individuals, businesses, organizations, and governmental jurisdictions; and

"(7) with regard to any reporting or recordkeeping requirement which the agency anticipates requiring of ten or more members of the public pursuant to the proposed rule—

"(A) a statement of the purpose of the requirement, its form, its length, and the type of professional skills necessary for its completion;

"(B) an estimate of the number of persons who would be required to submit or maintain reports or records;

"(C) a statement of each proposed use of the information required to be recorded;

"(D) a statement of the method to be used to store such information, the length of time such information would be maintained, and the identity of the persons who would have access to such information; and

"(E) an estimate of the average amount of time necessary for each person to comply with the requirement.".

(b) Section 553(c) of such title is amended to read as follows:

"(c) After notice required by this section, the agency shall give interested persons an opportunity to participate in rule making through submission of alternative proposals, written data, views, or arguments with or without opportunity for oral presentation. After consideration of all relevant matter presented, the agency shall incorporate in the rule adopted a concise general statement of its basis and purpose. In addition, the agency shall publish a description of any alternative proposals to the proposed rule which were considered and a statement of the reasons for adopting the final rule rather than any alternative proposals which would have had a lesser adverse economic impact on individuals, small businesses, small organizations, or small governmental jurisdictions. When rules are required by statute to be made on the record after opportunity for an agency hearing, sections 556 and 557 of this title apply instead of this subsection.".

(c) Section 553 of such title is amended by adding at the end thereof the following new subsection:

"(f) For the purposes of this section, the term—

"(1) 'individual' does not include any individual who is affected by a rule primarily in his capacity as an officer or employee of a business, organization, or governmental jurisdiction;

"(2) 'small business' has the same meaning as the term 'small business concern' in section 3 of the Small Business Act (15 U.S.C. 632), and includes such additional businesses as the agency shall establish by rule;

"(3) 'small organization' includes unincorporated businesses, sheltered workshops, not-for-profit enterprises which are not dominant in their fields, and such other groups or enterprises as the agency shall establish by rule;

"(4) 'small governmental jurisdiction' includes—

"(A) governments of cities counties, towns, villages, school districts, water districts, or special assessment districts, with a population of less than one hundred thousand; and

"(B) other governmental jurisdictions which the agency shall establish by rule to be of limited means or resources based on factors such as location in rural or sparsely populated areas or limited revenues due to the population of such jurisdiction.".

DEFINITIONS

SEC. 404. Section 551(4) of title 5, United States Code, is amended by inserting "recordkeeping or reporting requirements estimated to apply to ten or more persons in any calendar year, and" immediately after "includes".

REVIEW OF REGULATIONS

SEC. 405. (a) Within one hundred and eighty days after enactment of this Act, each agency shall publish a plan for the review of the rules or regulations of that agency. The purpose of such review shall be to determine whether the rules or regulations of the agency are achieving, in an efficient and equitable manner, the goals of the legislation under which such rules or regulations were promulgated. Each plan for the review of agency rules or regulations shall include a statement of the criteria the agency will employ to select which rules or regulations shall be reviewed in accordance with the provisions of this section. Each agency shall periodically review its rules and regulations in accordance with the schedule and criteria set forth in its published plan.

(b) In selecting and evaluating rules or regulations, the agency shall consider factors such as—

(1) the continued need for the rule or regulation;

(2) the type and number of complaints or suggestions received concerning the rule or regulation;

(3) the burdens imposed on persons directly or indirectly affected by the rule or regulation, especially the burdens placed on individuals, small business, small organizations, and small governmental jurisdictions;

(4) the need to simplify or clarify language of the rule or regulation;

(5) the need to eliminate overlapping and duplicative rules or regulations;

(6) the need to resolve conflicts between the rules or regulations of the agency and the rules, regulations, or laws administered by other agencies; and

(7) the length of time since the rule or regulation has been evaluated or the degree to which technology, economic conditions, or other factors have changed in the area affected by the rule or regulation.

(c) Each year, each agency shall publish in the Federal Register a list of rules or regulations which it expects to issue during the following twelve months and a list of rules or regulations to be reviewed during the following twelve months. Such publication shall be accompanied by a brief description of the rule or regulation, the need for such rule or regulation, and the legal basis for such rule or regulation.

SECTION-BY-SECTION ANALYSIS

Short-title, legislative findings and purpose:

The bill first states its short-title, and then states the Congressional findings upon which the proposed legislation is predicated. The bill states that Congress has made a number of findings which tend to show that although research and development (R & D) and technological innovation are important, small businesses are largely precluded from involvement in this area.

Section 1. While not numbered in the draft bill, the first section of the bill states that the law may be referred to as the "Small Business Innovation Act of 1979" [the Act].

Section 2. The second section of the Act states that Congress declares and finds that technological innovation is desirable because it "creates jobs, increases productivity, competition, and economic growth, and is a valuable counterforce to inflation and to the United States balance of payments deficit." Furthermore, the Act states that Congress has found that while small business is a principal source of major innovation, it is not permitted to engage substantially in this activity, noting that less than four percent of Federal funds for R & D go to small businesses and that the private expenditures for R & D are highly concentrated in a few industries, with large companies dominating. This section of the Act supports this finding with the fact that six industries account for over 85 percent of all industrial R & D expenditures and only 31 companies, many of which are multinational companies, account for 60 percent of all United States R & D expenditures. The Federal tax structure too, the Congress finds, provides insufficient support for the formation, growth and long term independent operation of small businesses. Act § 2(a)–(5).

Consequently, section two of the Act states a Congressional finding that it is in the interests of the United States to strengthen the ability of small businesses to be innovative, to increase the private sector commercialization of innovations derived from Federal R & D, to increase small businesses' share of all Federal R & D expenditures, to provide small businesses the opportunity to compete for Federal R & D grants, and to stimulate technological innovations by all possible means. Act § 2(6).

Title I. Research and development contracts:

Title I of the Act appears generally designed to correct perceived deficiencies in Federal funding of the R & D activities of small businesses. The Title amends the Small Business Act, which is presently overseen by the Small Business Administration, 15 U.S.C. §§ 631 *et seq.* The Title's four sections relate generally to Federal financing of small business R & D, and to the creation and funding of Small Business Innovation Research Programs.

Section 101. Every Federal agency will be required to set aside a percentage of its total prime R & D contracts budget in fiscal year 1980 for small businesses. The percentage to be set aside is one percentage point over the percentage of the total budget awarded to such businesses in fiscal year 1979. In each

succeeding year, the agency must increase the percentage of its budget set aside for small businesses by another percentage point, until the set aside reaches ten percent. Act § 101(b).

The set aside program for small businesses applies to all "Federal agencies." The Act adopts the definition of a "Federal agency" found in 5 U.S.C. § 105, which includes an "Executive department, a Government corporation, and an independent establishment." An "independent establishment," defined in 5 U.S.C. § 104, includes the General Accounting Office and any establishment in the executive branch of the United States Government, other than the Postal Service, the Postal Rate Commission, Executive departments, military departments, Government corporations, and parts thereof. The Act also requires set-asides by all "military departments," defined in 5 U.S.C. § 102 as the Departments of the Army, Navy and Air Force. Act § 104(1).

Set asides must be made for contracts for R&D, and the Act defines "contract" to include any contract and any "grant, or cooperative agreement entered into between any Federal agency and any organization or person for the performance of experiments, developmental or research work." "Contract" also includes the assignment of any such agreements, the substitution of parties to such agreements, and the letting of subcontracts. Act § 101(f)(1). This is the same definition used generally for this Title of the Act. See Act § 104(2).

Set asides are required for both contracts for basic R & D and contracts for applied R & D. "Research" and 'research and development" are to mean the same thing they mean under interpretations of the Cost Accounting Standards Board. Act § 101(f)(3). This is the same definition used generally for this Title of the Act. See Act § 104(5).

Every Federal agency with a research budget or a R & D budget in excess of $100 million for fiscal year 1980, must establish a Small Business Innovation (SBIR) program and spend at least one percent of its budget for fiscal year 1980 and each succeeding fiscal year in connection with that program. The SBIR program requires competitive contract solicitation for small businesses, modeled after the National Science Foundation program. Act § 101(e).

Under the SBIR program a portion of a Federal agency's research or R & D efforts are reserved for award to small business concerns by way of a "simplified, standardized acquisition process" under which the practicability of ideas proposed will be determined, insofar as possible, and under which also a principal research effort will be made to develop the proposed idea to the product production level. The program's purpose is to "promote greater utilization of small science and technology firms in United States Government research and development and conversion of that research to technological innovation in the private sector or for technological innovation in products intended for Government use." Act § 101(f)(2). This is the same description of the program used generally for this Title of the Act. See Act § 104(4).

A small business concern is defined with reference to the Small Business Act. Under the Small Business Act, such a concern includes, but is not limited to: enterprises that are engaged in the business of production of food and fiber, ranching and raising of livestock, aquaculture, and all other farming and all other farming and agricultural related industries, shall be deemed to be one which is independently owned and operated and which is not dominant in its field of operation. In addition to the foregoing criteria the Administrator [of the Small Business Administration], in making a detailed definition, may use these criteria, among others: Number of employees and dollar volume of business. Where the number of employees is used as one of the criteria in making such definition for any of the purposes of this chapter, the maximum number of employees which a small-business concern may have under the definition shall vary from industry to industry to the extent necessary to reflect differing characteristics of such industries and to take proper account of other relevant factors, 15 U.S.C. § 632.

The regulations of the Small Business Administration would logically be implicitly adopted by reference for purposes of the Act, as well.

Contracts awarded by an agency under the SBIR program will satisfy the set aside requirement under section 101(b) of the Act. Other awards to small businesses for research or R & D which are not made on the basis of competitive contract solicitation do not satisfy the requirements of the SBIR program created in this section of the Act. Act § 101(c).

Agencies required to establish a SBIR program must determine categories of projects to be included in the program, issue SBIR solicitations in accordance with a schedule determined cooperatively with the Small Business Administration, select awardees for its contracts, administer its own contracts or delegate such administration to another agency, and make progress or completion payments to contractors.

Each agency required to establish a SBIR program or to make set asides must make a quarterly report to the Small Business Administration. Act §§ 101(d), (e). These reports must include the number and dollar amount of R & D contract awards to small business concerns for contracts over $10,000 in amount, designation of the awards which were made under the SBIR program, and a comparison of the number and amount of all R & D with those which are not made to small business concerns. Act § 101(e).

The Small Business Administration is required to assist in certain small business R & D programs. It must develop and maintain a source file and an information program to assure that each qualified and interested small business concern has the opportunity to participate in the SBIR program. The Small Business Administration must also advise and assist Federal agenices in meeting the small business R & D set asides required by the Act, and monitor independently, the activities of the agencies in meeting these set aside requirements, as well as their SBIR program requirements. It will also coordinate the development of a schedule for the release of SBIR solicitations with participating agencies, as well as a master release schedule, in order to prevent having several agencies release solicitations at the same time. Such simultaneous release could limit a small business concern's opportunities to respond to the solicitations. The Small Business Administration will also make annual reports to the Senate Select Committee on Small Business and the House Small Business Committee, on the activities of Federal agencies in complying with the set aside requirements and the SBIR program requirements. Act § 101(a).

Section 102. Regulations for the conduct of SBIR programs by Federal agencies will be issued by the Federal Procurement Policy Administrator, in conjunction with and with the advice of the Small Business Administration and the National Science Foundation, within 120 days of the date of enactment of the Act. The regulations will provide for simplified, standardized and timely SBIR solicitations, proposals and contract evaluation, require all Federal agencies to coordinate their SBIR solicitation release schedules with the Small Business Administrator, and provide uniform requirements for patent rights and rights in data that are commensurate with the intent of this Act. Act § 102.

Section 103. The Federal Procurement Policy Administrator, again in cooperation with the Small Business Administration, must also establish simplified regulations for Federal agencies governing the award of R & D contracts to small business concerns, considering the means which will facilitate the participation of small business concerns in the R & D of all Federal agencies. The Federal Procurement Policy Administrator will also establish procedures to insure compliance with tht regulations. Act § 103(a).

The regulations established by the Federal Procurement Policy Administrator in conjunction with the Small Business Administration must require each Federal agency to eliminate from its R & D contracts any provisions requiring a business to absorb expenses of performance, require the agency to negotiate fees for all services and expenses under the contract when awarding such contracts to small business concerns, and require that the independent R & D costs and the bid and proposal costs incurred by small business concerns will be attributable to expenses of the contract in the fiscal year in which they are incurred, for purposes of determining the expenses of a R & D contract. Act § 103(b)(1), (6).

These regulations must also prohibit Federal agencies and their offices or components from excluding any small business concern from competiting for any R & D contracts on the same terms as other concerns and require each agency to consider small business concerns on an equal basis with any other business concerns in the award of sole source R & D contracts. They must also require each agency to consider unsolicited R & D proposals from small business concerns and to review such proposals promptly and fairly on their merits. Under the regulations, furthermore, every Federal agency which lets R & D contracts must be required to inform its staff and consultants of the need to provide fair and equal opportunity to small business concerns owned by women and minorities for participation in R & D contracts, and to require such staff and consultants to provide guidance and counseling to small business concerns to strengthen the ability of these firms to compete for and receive R & D contracts. The agency must include in the evaluation of personnel who award or grant contracts their compliance or noncompliance with these objectives. Act § 103(b)(2)-(4), (7).

The regulations must also require every Federal agency to evaluate the feasibility of dividing all proposed large scale R & D contracts into smaller segments in order to facilitate participation of small business concerns, and establish the responsibility of every Federal agency to identify and study the areas of agency procedures for the awarding of R & D contracts which discriminate against small business concerns. Act § 103(b)(6), (9).

Section 104. Section 104 of the Act defines terms used in the first Title of the Act. With the exception of the definition of a "small-business concern," all of the other definitions are also separately stated in identical language elsewhere in the first title of the Act, making section 104 largely surplusage.

Title II. Certain patents and inventions:

The second title of the Act generally permits small businesses to retain, under certain conditions, patent rights to their inventions made under Federally-sponsored research projects. This is a modified version of S. 414, introduced by Senator Bayh in the 96th Congress and referred to the Senate Committee on the Judiciary.

Presently, a number of specific Federal statutes require that inventions and discoveries created under certain Federal projects are the sole property of the Government. See

e.g., Tennessee Valley Authority Act of 1933, 16 U.S.C. § 831(d), as examined in *Alco Standard Corp.* v. *Tennessee Valley Authority*, 448 F. Supp. 1175 (D. Tenn. 1978); and the National Aeronautics and Space Act, 42 U.S.C. § 2457(a). Generally, further, Executive Order Number 10096, 15 Fed. Reg. 389 (Jan. 23, 1950), establishes a basic policy for all Federal agencies that inventions by Government employees inure to the United States Government if the invention was developed during working hours, if it was developed with a contribution by the Government of facilities, equipment, materials, funds, or information, or of time or services of other Government employees on official duties, or if it bears a direct relation to or is made in consequence of the inventor's official duties. See also 37 C.F.R. 100.4 *et seq.*

The Act woud also permit the Patent and Trademark Office to reexamine contested patents rather than require potentially expensive litigation in a Federal District Court. This is identical to S. 1679, also introduced by Senator Bayh in the 96th Congress and referred to the Senate Committee on the Judiciary. Presently, contested patent claims must be litigated by the parties in the United States District Court. 28 U.S.C. § 1338(a).

Section 201. This section of the Act adds a new chapter, consisting of twelve sections, to the United States Patent Code. The chapter governs the rights to patents created under Federal projects and grants. In this summary and analysis, the sections of this new chapter will be referred to by the citation "Chapter §," rather than by reference to section 201 of the Act.

Chapter § 200. The new patent chapter is based on a series of Congressional policies: to use the patent system to promote the utilization of inventions from Federally supported R. & D. to encourage maximum participation of small business concerns in Federally funded R. & D. efforts, to promote collaboration between commercial and nonprofit concerns, including universities, to insure that inventions made by nonprofit organizations and small business firms are used in a manner designed to promote free competition and enterprise, to promote the commercialization and public availability of inventions but also to ensure that the United States obtains sufficient rights in patents derived from Federally sponsored R. & D. to meet its needs and to protect the public against non-use or unreasonable use of such inventions, and to minimize the costs of administering these policies.

Chapter § 201. The patent chapter adopts the same definitions of "Federal agency" and "small business firm" used in Title I of the Act. Chap. § 201 (a), (i). Other definitions will be discussed throughout this summary and analysis.

Chapter § 202. The new patent chapter authorizes the execution of certain funding agreements between a Federal agency and a person, containing specific provisions regarding rights to subject inventions created under the project. Chap. § 202. Under the Act a "funding agreement" is a contract, grant or cooperative agreement entered into between any Federal agency and any person for the performance of experimental, developmental, or research work funded in whole or in part by the Federal Government Chap. § 201(b). The other party to the funding agreement with the Government is the "contractor" and the agreement includes any assignment, substitution of parties, or subcontract of agreement work. Chap. § 201 (b), (c).

Under the Act an "invention" is any invention or discovery which is or may be patentable and a "subject invention" as any invention of the contractor "conceived or first actually reduced to practice in the performance of work under a funding agreement." Chapt. § 201 (d) (e).

The Act provides that a nonprofit organization (which includes a university or other institutions of higher learning and a public charity exempt from Federal income taxes and described in section 501(c)(3) of the Internal Revenue Code of 1954) or a small business firm may elect to retain the title to a subject invention within a reasonable time after making required disclosure to the Federal agency of the existence of such invention.

However, a funding agreement may provide that the nonprofit organization or small business firm cannot obtain rights to the patent if the subject invention is made under a contract for "the operation of a Government-owned research or production facility" or if there are exceptional circumstances and the agency determines that the restriction or elimination of the organization's and firm's right to the patent would "better promote the policy and objectives of this chapter." Chapt. § 202(a).

Such a determination must be made in writing and accompanied by a written statement of its justification, and will be sent to the Comptroller General of the United States within 30 days after the award of the applicable funding agreement. If the agreement is applicable to a small business firm, a copy shall also be sent to the Chief Counsel for Advocacy of the Small Business Administration. Chapt. § 202(b)(1).

The Comptroller General is directed to advise the head of any Federal agency when he or she finds a pattern of determinations or policies and practices of that agency are inconsistent with this chapter's policies or objectives and the head of the agency is to respond within 120 days as to what action, if any, has or will be taken with respect to this issue. Chapt. § 202(b)(2). Annually or more often the Comptroller General will report to the Judiciary Committees of the House and Senate on the manner of implementation of these patent policies and practices. Chapt. § 202(b)(3).

If a contractor does not elect to retain title to a subject invention the Federal agency may consider and, after consultation with the contractor, may grant requests for retention of rights by the inventor subject to the other provisions of the Act and regulations which may be promulgated thereunder. Chapt. § 202(d). A Federal agency may transfer or assign any rights it may acquire in the subject invention from one of its employees who is a co-inventor with a small business firm or nonprofit organization, to the contractor subject to the other conditions set forth in this chapter. Chapt. § 202(e).

Funding agreements with a small business firm or nonprofit organization must contain provisions stating the requirements imposed on the parties under section 203 through 205 of this chapter (march-in rights, return of the Government's investment, and preference for United States industry), and to require that the contractor disclose each subject invention to the Federal agency within a reasonable time after it is made and that the Government may receive title to any subject invention not reported to it within such time, that the contractor elect to retain title within a reasonable time after disclosure of the existence of the subject invention and that the Federal Government may have title if no timely election is made, that any contractor who elects to retain the invention must file a patent application within reasonable times and that the Government receives title to any subject invention in the United States or another country in which the contractor has not filed a timely patent application. These agreements must also give the United States a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf itself any subject invention worldwide and, if provided in the agreement, the right to sublicense any foreign government pursuant to treaty. Chapt. § 202 (c)(1)-(4), (8).

The agreement will also insure the Federal Government's right to require periodic reporting on the contractor's utilization or efforts to utilize the patent and such reports will be confidential for purposes of the Freedom of Information Act, and obligate the contractor to include the specification in any patent application that the invention was made with Government support and that the United States has certain rights in the invention and patent. Chapt § 202(c)(5), (6).

If the agreement is entered into with a nonprofit organization, it will prohibit the assignment of the subject invention within the United States unless the Federal agency grants approval. An exception is made for assignment of the patent to an organization which manages inventions as one of its primary purposes and which does not itself and does not hold a substantial interest in other organizations which manufacture or sell or produce or use the processes of the invention or are in competition with the "embodiments of the invention." Additionally, such assignees are always treated as contractors for purposes of the provisions of the funding agreement. Chapt. § 202(c)(7)(a).

A funding agreement with an exempt organization will also prohibit any exclusive licensing of the patent or patent application in a subject invention by the contractor other than to a small business firm for five years from the first commercial sale or use of the invention or, if earlier, eight years from the date of exclusive license, not counting the time before the necessary Federal regulatory agencies grant pre-market clearance, on a case-by-case basis. If an exclusive field-of-use license is granted, the timing noted above shall be determined separately for each field-of-use. Chapt. § 202(c)(7)(b).

If the funding agreement is made with a nonprofit organization, the contractor will be required to share royalties with the inventor and the balance of any net royalties or income earned by the contractor with respect to the subject invention must be utilized for the support of scientific research or education. Chapt. § 202(c)(7)(c).

Funding agreements with small business firms and nonprofit organizations cannot, however, contain provisions permitting a Federal agency to require the licensing of the contractor's inventions to third parties unless the agency head determines that such use of the invention by others is necessary for the practice of a subject invention or for the use of a work object of the funding agreement, and that such action is needed to achieve the practical application of the subject invention or work object. Such special licensing requirements must be approved in writing and signed by the head of the agency in a statement clearly setting forth whether the requirement relates to the practice of a subject invention, to specifically identified work objects or both. The obligation to sign and authorize this exception cannot be delegated by the agency head to any other person. Opportunity will exist for a hearing on such determinations in accordance with 5 U.S.C. ch. 7, to be brought within 60 days from notification of the determination. Chapt. § 202(f).

Chapter § 203. In certain cases a Federal agency may require a subject inventor or the inventor's assignee or exclusive licensee, to grant a nonexclusive, partially exclusive, or exclusive license in any field-of-use to a responsible applicant on reasonable terms and, if the inventor refuses to issue such a license, the agency can issue the license itself. Such licenses may be required if the agency determines that it is necessary because the contractor or assignee has failed to take effective steps to achieve practical application of the subject invention in a field-of-use or because the contractor or assignee is not expected to do so within a reason-

able time. Also, the agency may require licensing of the subject invention if it determines that such act is needed to meet health or safety needs or public use requirements specified by Federal regulations and such standards are not being met by the contractor, licensee or assignee, or if the agency finds that the agreement is in breach or that no statement of preference for United States industry has been made.

Chapter § 204. This portion of the new patent chapter is designed to provide for repayment to the United States of the Federal funding of commercially successful inventions on which United States patents are granted and in effect. Chapt. § 204(d). First, the United States is entitled to fifteen percent of all licensing income over $70,000 received in a single year by a small business firm, a nonprofit organization, or an assignee of one of these, to whom a subject invention or several related subject inventions, the licensing of which generated this income, were assigned. The income upon which the fifteen percent royalty is based does not include additional income received under a non-exclusive license, unless the license was previously held as an exclusive or partially exclusive license. Chapt. § 204(a).

The United States is also entitled to an amount to be negotiated, but not over five percent, of gross income above $1 million received in a calendar year by a small business firm, nonprofit organization, or assignee of one of these, from the sales of its products embodying, or manufactured in a process employing, one or more subject inventions. This amount paid to the United States is not to exceed the share of the funding under the funding agreement attributable to the subject invention, less any amounts previously received by the United States under this provision. Chapt. § 204(b).

The Director of the Office of Federal Procurement Policy is required to revise the $70,000 and $1 million figures at least every three years to correspond with changes in the Consumer Price Index or other indices deemed to be reasonable to measure such changes. Chapt. § 204(c).

Chapter § 205. A small business firm or nonprofit organization which receives a patent under this Act and their assignees cannot grant any exclusive right to "use or sell" any subject invention within the United States unless the licensee agrees that any products embodying the invention or produced through use of the invention will be manufactured substantially in the United States. This agreement may be waived in individual cases if there is a showing that the small business firm or nonprofit organization or their assignee has made reasonable efforts to grant similar rights to licensees who would be likely to produce or use the invention in the United States but that such attempts were unsuccessful, or that its domestic manufacture is not commercially feasible.

Chapter § 206. Information on inventions in which the United States may have any interest may be withheld from the public for a reasonable time in order for the patent application to be filed and Federal agencies are not required to release copies of any document which is part of a domestic or foreign patent application.

Chapter § 207. Regulations implementing Chapter §§ 202 through 205 and standard funding agreement provisions may be issued by the Office of Federal Procurement Policy, after receiving recommendations from the Office of Science and Technology Policy, and the regulations may apply to Federal agencies implementing these sections of this Chapter.

Chapter § 208. Each Federal agency may apply for and maintain domestic and foreign patents for inventions in which the United States has an interest, grant various licenses for Federally-owned patents and applications, with or without royalties or other consideration, and on such terms and conditions as the agency determines appropriate in the public interest. Chapt. § 208(1), (2). Furthermore, each Federal agency may undertake all suitable and necessary steps to protect and administer any Federally-owned invention either directly or through contract, and transfer custody and administration of the interest in such inventions, in whole or in part, to another Federal agency. Chapt. § 208 (3), (4).

Chapter § 209. The General Services Administrator may promulgate regulations specifying the terms and conditions under which Federally-owned inventions may be licensed.

Chapter § 210. Federally-owned inventions cannot be licensed unless the prospective licensee supplies the agency with a plan for development and/or marketing of the invention, which plan is confidential for purposes of the Freedom of Information Act. Chapt. § 210(a). Licenses shall normally be granted on Federally-owned inventions only if the licensee agrees that any products embodying the invention or produced through its use will be manufactured substantially in the United States. Chapt. § 210(b).

Federally-owned inventions (patented or for which a patent application has been made) may be licensed only after public notice and opportunity for filing written objections, and only upon a finding that the interests of the Federal Government and the public will be best served by the proposed license, in view of the applicant's intentions, plans, and ability to bring the invention to practical application or otherwise promote its public utilization. The Government must also find that the desired practical application of the invention has not yet been achieved or that it is not likely to be achieved expeditiously under any nonexclusive license which has or may be granted, that exclusive or partially exclusive licensing is a reasonable and necessary incentive to generate investment capital needed to bring the invention to public utilization, and that the proposed terms and scope of the exclusivity of the license are not greater than reasonably needed to provide such needed capital. Chapt. § 210(c)(1). Federal agencies must retain a record of all determinations to grant exclusive or partially exclusive licenses. Chapt. § 210(e).

The licensing Federal agency will not issue an exclusive or partially exclusive license of a Federally-owned patent (either domestic or foreign patent) if it determines that the license will tend substantially to reduce competition or result in undue concentration in any section of the country in any line of commerce to which the technology relates, or to create situations otherwise inconsistent with antitrust laws. Chapt. § 210(c)(2), (d).

Preference in the licensing of Federal patents will be given to small business firms submitting plans determined by the Federal agency to be within their capability and as likely to bring the invention to practical application as plans submitted by other types of applicants. Chapt. § 210(c)(3).

A Federal agency may grant an exclusive or partially exclusive license in a Federally-owned invention subject to a foreign patent, if it is found that interests of the Federal Government or United States industry in foreign commerce will be enhanced, and written notice and opportunity for comment are afforded. Chapt. § 210(d).

All licenses granted by a Federal agency must contain terms and conditions deemed appropriate by the agency for the protection of the interests of the Federal Government and the public, including required periodic reporting by the licensee on the utilization or efforts at utilization, of the invention, with particular reference to the licensee's submitted plan. This information is confidential and not subject to disclosure under the Freedom of Information Act. Chapt. § 210(e)(1).

Licenses granted by a Federal agency must also contain terms establishing the agency's right to terminate the license in whole or in part if the agency determines that the licensee is not following its submitted plan and that the licensee has not demonstrated or cannot demonstrate that it is able to take steps required to achieve practical application of the patent within a reasonable time, that the United States production clause of the agreement is in breach, or that termination is needed to meet the public use requirements of Federal regulations issued after the date of the license. Chapt. § 210(e)(2)-(4).

Chapter § 211. This Chapter takes precedence over any other Act which requires inconsistent disposition of the rights in subject inventions of small business firms or nonprofit organizations. A non-exclusive list of overridden provisions is provided. Other Federal laws respecting the disposition of rights in inventions made in the performance of funding agreements with persons other than nonprofit organizations and small business organizations are unaffected by this Chapter, and disposition under such agreements made in accordance with the Statement of Government Patent Policy (36 Fed. Reg. 16887), agency regulations or other applicable law is unaffected.

Chapter § 212. This Chapter does not in any way immunize any person from any civil or criminal liability under antitrust laws.

Section 202. Section 202 provides correlative technical amendments to other statutory provisions of Federal law.

Section 203. This new Chapter of the Federal patent law is effective 180 days after its date of enactment. The effective date of any regulations issued after the effective date of this Chapter appears not necessarily to be affected by this effective date.

Section 210. Another additional chapter is added to the United States patent laws authorizing reexamination of certain patents by the Commissioner of Patents. Sections of this new Chapter will be referred to in this summary and analysis by the designation "Chapter §."

Chapter § 301. The Commissioner of Patents must establish rules and regulations for the citation to the Patent Office (Office) of prior art patents and publications pertinent to the validity of existing patents, and for the reexamination of such patents in light of such prior art.

Chapter § 302. Anyone may refer a prior patent or publication relevant to the validity of an existing patent to the Patent Office by a writing which identifies the part or parts of the referred patent or publication which is believed to be pertinent to the validity of the existing patent and how it may be pertinent. This writing becomes part of the official file on the existing patent, but the identity of the person making the referral may be excluded upon his or her request.

Chapter § 303. Anyone may request in writing a reexamination of an existing patent for its patentability in light of the existence of any prior art which has been submitted to the Patent Office. Such a request may be made at any time during the existing patent's period of enforceability, and must be accompanied by a reexamination fee and a statement of the relevance of the submitted material to the unenforceability of the existing patent. A copy of the request is sent to the owner of the existing patent, unless it is that owner who requested the reexamination.

Chapter § 304. The Commissioner of Patents must make a determination as to whether there exists "any substantial new question of patentability" raised by the new art, within 90 days following a request for

reexamination. The Commissioner may make such a determination at any time on his or her own initiative. Chapt. § 304(a). A record of this determination will be made and will be kept in the patent file. The owner of the existing patent will also be sent a copy of this record. Chapt. § 304(b).

A determination by the Commissioner that no new question of patentability has been raised is final and nonappealable. Chapt. § 304(c).

Chapter § 305. If the Commissioner finds that a substantial new question of patentability has been raised by the art and publication submitted, a reexamination of the patent must be ordered for resolution of the question and shall resolve the question as though the claim or claims involved were present in a pending patent application. The owner of the existing patent must be given a reasonable period of at least two months within which to file a statement on the question of reexamination, and a copy of that statement must be served by the patentee on any person who has requested reexamination, who may submit a responsive statement within another two months. Reexamination of the patent shall be conducted "with special dispatch within the Office."

Chapter § 306. The patentee may amend the patent claim during the reexamination proceeding in order to distinguish the patentee's claim from the prior art submitted, or in response to an adverse decision of the Office on patentability. No amendment may be submitted enlarging the scope of a claim in a reexamination proceeding.

Chapter § 307. The owner of the patent may appeal from a final adverse decision of the Office.

Chapter § 308. When the time for appealing from a determination has lapsed or the proceeding in appeal has terminated, a certificate canceling or confirming the patent claim will be issued by the Patent Office.

Chapter § 309. In certain civil actions, no prior patent or printed publication may be relied upon as evidence of the nonpatentability of an invention, unless such items have been cited by or to the Patent Office during prosecution of the patent application or were submitted to the Office in a reexamination request, or the court concludes, upon motion, that such submission or reconsideration is unnecessary for its adjudication of the issue of validity or infringement. Chapt. § 309(a). This limitation applies to any civil action in which a pleading presents a claim for infringement or for adjudication of the validity of a patent on the basis of the contents of the patent file as it existed on the date the pleading was filed. A party may, however, rely on a later cited patent or publication and upon a final determination had on a request for reexamination in the light of such patent or publication if it was cited to the Patent Office and if such request was filed in the Office within the period of a judicial stay order as provided for in the next section of this Chapter. Chapt. § 309(b).

Chapter § 310. A stay of any civil action in which a claim for infringement or adjudication of a patent's validity will be available for at least four months to enable a party to search for and cite patents or publications to the Patent Office and request reexamination of the patent.

If a request for reexamination is filed within the period of the stay, the stay will be extended by further court order until at least twenty days after the final determination of the request for reexamination. If the court finds that such additional prior art to be submitted to the Patent Office constitutes "newly discovered evidence which by due diligence could not have been discovered in time to be cited to and considered by the Office within the period of a stay," it may stay the proceedings for a period sufficient to enable certification of the art to the Patent Office.

Chapter § 311. A party may move to dismiss without prejudice or costs, a complaint which that party filed in any civil action for infringement or adjudication of patent invalidity by notice served upon the other parties and filed within the period of the stay. Chapt. § 311(a).

Title III. Tax changes:

The third Title to the Act would amend the Federal income tax laws to provide further incentives to small business innovation. The first section of the Title, dealing with deferral of recognition of the capital gains realized on the sale of certain small business stock, is similar to S. 653, introduced in the 96th Congress by Senator Nelson and referred to the Senate Finance Committee.

Section 301. The short title for this portion of the Act is the "Small Business Research and Development Tax Incentive Act of 1979." All amendments made by this portion of the Act, unless otherwise noted, are made to the Internal Revenue Code of 1954, as amended to date [hereinafter cited as "Code"].

Section 302. This section of the Act adds a new section to the Code permitting indefinite deferral of any gain recognized by a stockholder in a small business corporation who sells the stock and reinvests the proceeds in stock of another small business corporation. This concept is substantially similar to that embodied in a number of present Code sections, including section 1031 (permitting deferral of gain recognized on the exchange of business or investment property for other property of a like kind), section 1033 (permitting deferral of gain recognized on the destruction of theft or property when the insurance proceeds are reinvested in substantially similar property), and section 1034 (which permits deferral of the gain recognized on the sale of a personal residence if the proceeds are reinvested in an equally expensive or more expensive personal residence).

Under new Code section 1041, a taxpayer could elect not to recognize the gain on a sale of small business stock to the extent that the proceeds are reinvested in other small business stock within 18 months. The nonrecognition would only be available if the taxpayer had held the stock twelve months at the time of the sale, so that only long-term capital gains would not be recognized, rather than short-term capital gains. Additionally, acquisition of stock by an underwriter in the ordinary course of the underwriter's trade or business will not be treated as a satisfactory purchase of stock for purposes of deferral under this section.

Small business stock is, for this purpose, stock of a domestic corporations or small business investment companies which is not a subchapter S corporation, the income of which is taxed directly to the shareholders. A small business investment company, for this purpose, is defined with reference to the meaning of that term in 15 U.S.C. § 681, *et seq.*, the Small Business Act. Additionally, however, this section is inapplicable to a corporation if it has over $25 million in equity capital or if it had more than twenty percent of its gross receipts from passive investment income for the year in which the stock was issued. If the corporation in question is a member of a controlled group, as defined for consolidated tax return purposes, the equity capital of all of the corporations in the group must be combined to meet the $25 million requirement.

Many of the terms used in this new section are defined with reference to other, existing Code sections. Passive income and the twenty percent limitation are derived from the rules of subchapter S. The term "equity capital" is defined with reference to the meaning the term has in section 1244, which permits ordinary loss deduction on the worthlessness of certain small business stock.

Generally, the shareholder will take a basis in the new stock equal to the basis the shareholder had in the old stock, increased by any gain which is recognized and not deferred. If more than one share of small business stock is acquired as a replacement for sold stock, the shares will take a proportionate basis. Additionally, the holding period in the replacement stock, for tax purposes, will include the holding period in the former stock.

If the benefits of this new Code section are elected, the statute of limitations for assessment of deficiency is extended. The I.R.S. could assess a deficiency up to three years from the date on which the Secretary of the Treasury (through the I.R.S., normally) is notified by the taxpayer that the section has been elected and that either replacement stock has been acquired or that the 18 month period has elapsed without such acquisition.

The Act would also permit a noncorporate taxpayer to pay less tax on a gain recognized on the sale of small business stock, as defined for purposes of net operating loss carryover adjustment, discussed below, if the taxpayer's gain is not deferred under new Code section 1041. The taxpayer would be taxed on only twenty percent of the net small business capital gain, as opposed to forty percent under present tax laws. See Code § 1202. The taxpayer's net small business capital gain refers only to the excess of any gain on the sale of small business stock held for more than five years over any losses from all sales of small business stock.

Both the deferral provision and the change in the capital gains rates for small business stock sales would be effective only for stock acquisitions after 1979.

Section 303. This section of the Act would modify the present tax rules relating to net operating loss carryovers, to permit a greater carryover for losses sustained from small business research and experimental (R. & E.) expenditures. Present tax laws generally permit a net operating loss carryback of three years and a carryforward of seven years. Under present law, a net operating loss must be carried back three years before it is carried forward. Code § 172(b)(1).

Under the Act, however, net operating losses for taxable years beginning after 1979 can be carried forward for ten years without any carryback. This would apply only to "qualified small business concerns," defined as a small business concern (as defined for purposes of new Code section 1041, see above) which has made a certain level of R. & E. expenditures for the past three years or, if it has not been in existence for three years, the entirety of its existence. During this period the corporation must have spent an average of three percent or more of its gross revenues on R. & E., or more than six percent of the gross revenues during any single year.

Section 304. This section permits qualified small business concerns, as defined above, to write-off expenditures made after 1979 for specialized R. & E. equipment at a faster rate than would otherwise be allowed under present tax laws. Under this amendment to Code section 174 (dealing with the deductibility of R. & E. expenses), a qualified small business concern may elect either to deduct currently capital expenditures for R. & E. equipment or to treat them as "deferred expenses." A deferred expense is not currently deductible but, rather, is deducted over a 5-year period (or more) after the expenditure has begun to return revenues, under present law. Code § 174(b)(1).

Section 305. A new section 459 would be added to the Code permitting the creation of reserve accounts for R. & D. expenditures, to which currently deductible contributions could be made as a means of pre-funding

R. & D. expenses with deductible payments. A small business concern engaged in a business other than real estate, would be permitted to establish a reserve account for R. & D. expenditures, and to deduct cash payments to the reserve account up to ten percent of the corporation's gross revenues for the taxable year or $100,000, or the amount of R. & E. expenditures which may be taken into account for deduction purposes under Code section 174, whichever is the least.

When amounts are paid from the account, no deduction under Code section 174 will be allowed for expenditure of the money on R. & D. However, if the money is not spent on R. & D., the taxpayer will be required to include in income in the year the money is expended an amount equal to 150 percent of the amount so spent. If the taxpayer ceases to be a small business concern, the reserve continues to be treated as an existing reserve for R. & D. but no further contributions made to it may be deducted. If the corporation ceases to be a small business concern because it is acquired by another corporation, the taxpayer will be treated as if the entire amount in the reserve account were withdrawn and spent on non-R. & D. items.

Each taxpayer maintaining an R. & D. reserve account must keep such records and make such reports as may be required by regulations of the Treasury Department.

This section applies for taxable years beginning after 1979.

Section 306. Prior to the Tax Reform Act of 1976, Pub. L. 94-455 § 603, 94th Cong., 2d Sess. (1976), the income tax treatment of a stock option acquired by an employee of a corporation depended upon which of two types of option the employee received: a qualified stock option or a nonqualified stock option. Generally, if the option was a "qualified" stock option the employee recognized no income on the receipt of the option or on its exercise, but only upon the sale of the stock received from the exercise of the option. Code § 421. If the option was a "nonqualified" stock option, however, the employee recognized gain at the time the option was received, if the option had an ascertainable fair market value, or at the time the option was exercised if the option had no ascertainable fair market value at the time it was received. Code § 422. A qualified stock option had to meet certain statutory requirements: it had to be granted pursuant to a plan approved by the corporate shareholders, it must be exercised, by its own terms, within five years from the date it was granted, the purchase price of the shares could not be less than their fair market value on the date the option was granted, the stock could not be disposed of by the employee within three years of its receipt, and the option holder had to be an employee of the corporation at the time it was exercised or could not have ceased employment for more than three months. Code § 422. The Tax Reform Act of 1976 repealed the provisions for qualified stock options with respect to options granted after May 20, 1976, with certain exceptions.

This section of the Act would reinstate the provisions for qualified stock options with respect to options for stock of a qualified small business concern, as defined for purposes of the deferral provisions of new Code section 1041, for all years beginning after 1979. The old requirements for a qualified stock option, summarized above, would be retained except that the requirement that the stock option must be exercised within five years of the date it was granted is changed to a ten year period.

Section 307. The present income tax laws permit the shareholders of certain small corporations to elect to have the corporate income taxed directly to the shareholders, rather than having it taxed at both the corporate and shareholder levels. Code §§ 1371 *et seq.* This type of corporation is known as a subchapter S corporation because the rules governing it are contained in subchapter S of chapter 1 of the Code.

Two of the requirements for subchapter S status would be changed by this Act. First, present law limits a subchapter S corporation to fifteen shareholders. Code § 1371(a)(1). Prior to the Revenue Act of 1978, the ceiling on subchapter S corporate shareholders was ten. See Pub. L. 95-600 § 341, 95th Cong., 2d Sess. (1978). The Act would permit a subchapter S corporation to have as many as 100 shareholders.

Second, present law limits the type of persons who may hold stock in a subchapter S corporation to individuals who are United States citizens or resident aliens, estates and certain trusts. Code § 1371(a)(2), (3). The Act would permit stock in a subchapter S corporation to be held by a "venture capital corporation." The Act defines a venture capital corporation as a corporation which is engaged or proposes to engage primarily in the business of furnishing capital to industry (not counting short-term paper), financing promotional enterprises, purchasing securities of issuers for which there is no ready market, reorganizing companies or similar activities, and at least 60 percent of the net assets of which (not counting government securities, short-term paper and cash) consist of certain securities. These securities must have been acquired directly from the issuer in a transaction which did not require registration under the Securities Act of 1933, or by the exercise of stock options, warrants, or other rights received in such an unregistered transaction, or in an exchange for or distribution with respect to securities of the type just described.

This provision would apply for taxable years beginning after 1979.

Title IV. Regulatory flexibility:

The fourth Title of the Act is identical to S. 299, introduced in the 96th Congress by Senator Culver, and authorizes all Federal agencies to consider the size of a firm when issuing regulations, in order to reduce the burden of such regulations on small businesses.

Section 401. The short title to this portion of the Act is the "Regulatory Fexibility Act."

Section 402. This section states the Congressional findings and purposes of this Title of the Act. The Congress finds, under this section, that Federal regulatory and reporting requirements may, in many cases, impose disproportionately great burdens on small businesses, organizations and governmental jurisdictions, that regulatory efforts to protect the national health, safety and economic welfare may have adversely affected the marketplace by imposing unnecessarily burdensome legal, accounting, and consulting costs upon individuals and small businesses, organizations and governmental jurisdictions, and that the scope and volume of rules and regulations has discouraged potentially beneficial entrepreneurs by creating high entry barriers in many industries. Act § 402(a)(1)-(3). Furthermore, the Congress finds that the practice of treating as equal all regulated persons, without regard to ability to comply with the regulations, has led to inefficient use of the regulatory agency resources and substantial enforcement problems which, in some cases, were inconsistent with the legislative intent of the underlying legislation, that reasonable alternative rules or regulations could be adopted in many instances to reduce this burden, and that Government information collection has not adequately weighed the need for privacy against the need for information. Act § 402(a)(4)-(6). Finally, the Congress finds that deep public dissatisfaction with the regulatory process has arisen in large part because of a perception that burdensome rules and regulations fail to correct key national problems. Act § 402(a)(7).

Consequently, this section of the Act states that it is the purpose of this legislation to establish a principle for guidance in regulatory issuances that fewer and simpler regulations and rules will be made applicable to individuals and small businesses, organizations and governmental jurisdictions than are generally applicable to large businesses, organizations and governmental jurisdictions. Agencies are encouraged to solicit and consider alternative regulatory proposals in order to accomplish this end. Act § 402(b).

Section 403. This section of the Act amends the Administrative Procedure Act, 5 U.S.C. § 553(b) [A.P.A.] increasing the required contents of a notice of proposed rule making. A notice of proposed rule making would still have to include a statement of the time, place and nature of public rule making proceedings, reference to the legal authority under which the rule is made, and the terms or substance of the proposed rule or a description of the issues involved. 5 U.S.C. § 553(b)(1)-(3). However, under the Act the notice would also have to include a statement of the goals and purpose of the proposed rule and the estimated number of individuals, businesses, organizations and governmental jurisdictions to which the rule would apply. It would have to include a statement that the agency seeks and will consider alternative proposals which would accomplish the same objectives while reducing substantially any adverse economic impact on individuals and small businesses, organizations and governmental jurisdictions through clarification, consolidation or simplification of the proposed rule, the establishment of differing compliance or reporting requirements considering relative available resources of such entities, exemptions from coverage, where such exemptions would not affect the realization of the goals and purposes of the proposed rules, or any other suitable means, "including performance standards and differing timetables for compliance."

The notice of proposed rule making would also have to include a statement of the purpose of any requirement of reporting or recordkeeping which the agency anticipates will apply to ten or more members of the public, as well as its length, its form, and the type of professional skills required to complete the report, and an estimate of the number of persons who would be required to submit reports or maintain records. The notice would also have to state each proposed use of the record or report, the method to be used to store such information, the length of time such information would be maintained, and the identity of the persons who would have access to the information, along with an estimate of the average amount of time needed for each person to comply with the reporting and recordkeeping requirements. Act § 403(a).

For purposes of this section of the Act, the term "individual" does not include persons who are affected by a proposed rule primarily in their capacity as officers of employees of a business, organization, or governmental jurisdiction. The term "small business" is defined to mean the same thing as a "small business concern," as defined in the Small Business Act, 15 U.S.C. § 632. (See discussion above) The term "small organization" is defined to mean any unincorporated business, sheltered workshop, or non-profit enterprise, if the entity is not dominant in its field, as well as other groups the agency shall establish by rule. The term "small governmental jurisdiction" includes cities, towns, counties, villages, school districts, water districts, or special assessment districts, with a population below 100,000, and any other governmental entity which the agency determines by rule is "of limited means or resources

based on factors such as location in rural or sparsely populated areas of limited revenues due to the population of such jurisdiction." Act § 403(c).

The Act would also expand the requirements for agency rule making hearings by requiring that the agency permit persons to suggest alternative rules and by requiring that, the agency publish in its final rule making notice a statement of the alternative proposals which would have had a lesser adverse economic effect on individuals and small businesses, organizations and governmental jurisdictions, and why they were rejected in favor of the rule which was adopted. Act § 403(b).

Section 404. An amendment is made in the A.P.A. definition of a "rule," by including rules setting "recordkeeping or reporting requirements estimated to apply to ten or more persons in any calendar year."

Section 405. The Act also requires each agency to publish within 180 days of the date of enactment of this Act, a plan for the review of rules and regulations, designed to determine whether these rules and regulations are achieving the goals of the underlying legislation in an efficient and equitable manner. These plans must include a statement of the criteria the agency will employ in selecting rules and regulations for review, including such factors as the continued need for the rule or regulation, the type and number of complaints received about the rule or regulation, the burdens imposed upon persons directly or indirectly affected by the rule or regulation, especially individuals and small businesses, organizations, and governments. The factors of review will also include such factors as the need to simplify or clarify language of the rule or regulation, the need to eliminate overlapping or duplicate rules and regulations, and the length of time since the rule or regulation has last been evaluated or the degree to which the affected area may have been altered by technology, economic conditions, or other factors.

Each agency will periodically review its rules and regulations in accordance with the schedule and criteria set forth in its plans. Each year each agency will publish in the Federal Register a list of the rules and regulations it expects to issue during the next 12 months and a list of those rules and regulations it expects to review, accompanied by a brief description of the rule or regulation, the need for it and the legal basis of the rule or regulation.

Mr. NELSON. Mr. President, I ask unanimous consent that the bill be referred to the Select Committee on Small Business solely to consider titles I, II, and IV, and if, and when reported, the bill be referred to the Committee on the Judiciary solely to consider titles II and IV, and if and when reported, the bill be referred to the Committee on Finance solely to consider title III.

The PRESIDING OFFICER. Is there objection?

Mr. ROBERT C. BYRD. Mr. President, reserving the right to object, and I shall not, the request has also been cleared with the majority leader and the minority leader.

The PRESIDING OFFICER. Without objection, it is so ordered.

● Mr. WEICKER. Mr. President, I am pleased to join in introducing the Small Business Innovation Act of 1979. The legislation contains numerous measures designed to strengthen technological innovation and promote increased productivity.

Hearings held by the Select Committee on Small Business over the past 2 years substantiate the conclusion of a 1977 OMB report on small firms and Federal research and development that the ability of America to innovate—for commercial as well as defense purposes—is in "serious decline." Furthermore, as evidenced in the OMB report, "there is now considerable evidence that product innovation has either leveled off or declined."

Mr. President, I am disheartened to say that America is no longer the obvious leader in technology. A National Science Foundation study shows that the U.S. patent balance declined 47 percent between 1966 and 1975 while foreign-origin patents increased 91 percent over that period. The share of U.S. patents granted to foreign residents has more than doubled in 15 years, to a point of more than 35 percent in 1975.

The decline in American innovation manifests itself in the low productivity growth in the United States—which lags behind that of most of our economic competitors—and has contributed to unemployment, inflation and a serious trade imbalance. The measures contained in the Small Business Innovation Act are designed to restore America to a leadership position in innovation.

Mr. President, small businesses have historically been in the vanguard of our Nation's innovative advances. Small businesses and individual inventors have been responsible for the invention of insulin, titanium, helicopters, the Polaroid camera, the ballpoint pen, automatic transmission, pesticides, oxygen steelmaking, and much more.

According to the National Science Foundation, since World War II firms with fewer than 1,000 employees were responsible for one half of the "most significant new industrial products and processes." Firms with less than 100 employees produced 24 percent of such innovations—and developed 24 times as many major innovations per research dollar as did large firms. All this was accomplished despite the fact that these smaller firms received only 3.5 percent of Federal research and development money. Furthermore, according to an OMB study, small firms are far more cost effective, with a cost per scientist or engineer of only half as much as large firms.

Other benefits are derived from these small, innovative enterprises. A study conducted by the Massachusetts Institute of Technology Development Foundation shows that, in sales, large mature companies grew only 11.4 percent during the 1969–74 period, while innovative firms grew 11.4 percent and young, high technology grew 42.5 percent. Furthermore, over that 5-year period small, high-technology firms, with sales equaling only 2 percent of the industry leaders, created almost 35,000 new jobs while the mature companies created 25,000 jobs.

Mr. President, despite these impressive contributions by small, innovative businesses, they are being squeezed out of our national research and development picture. They receive an inadequate and disproportionate share of Federal research and development money. They are prejudiced by regulations and a tax structure which encourages short-term profit at the expense of long-term growth, thereby diminishing the firm's desire to take major risks and plan for the future.

America's genius must be nourished to enable this Nation to maintain its leadership in the worldwide economy. The measures contained in this legislation will help nourish our small, innovative businesses and will improve the climate needed to encourage innovation by increasing Federal research and development assistance, improving the patent system, clearing up the regulatory processes and providing tax incentives for research and development.

Under this legislation, Federal agencies would be required to increase its research and development funding support for small businesses to a point where these firms receive 10 percent of each agency's research and development funds. Small busineses would be able to retain exclusive patent rights on inventions financed by Federal funds.

Additionally, Federal agencies would be authorized to alter their regulations according to the size of the business. Thus, a small firm with limited capital will not have to expend the same amount of funds as a large firm to comply with regulations which, in fact, are unnecessary for the small business. Finally, tax incentives will be given to encourage research and development by small firms. Capital gains realized on the sale of securities of a small business would be deferred if reinvested in another qualifying firm within 18 months. Additionally, qualifying small businesses could have a loss carry forward of 10 years, instead of the 7 under existing law, and would be given a liberalized depreciation schedule for specialized equipment and instrumentation for research and development.

Mr. President, I urge my colleagues to closely examine this legislation. I do not endorse each of the provisions contained in the bill. Nor do I believe that the legislation is exclusive. There are provisions which would be beneficial to small, innovative firms which are not found in this legislation. However, I do feel that this bill will serve to focus our attention on the urgent needs of our Nation's small innovative firms.

Mr. President, the climate for innovation must be improved. Our small, innovative firms must be nourished to enable us to arrest the precipitous decline in research and development. As Dr. Arthur Obermayer of Moleculon Research in Cambridge, Mass., has observed:

> It took five years from the Wright Brothers' first flight to convince the U.S. government to buy an airplane from them. Even then, the government was afraid to take a chance on a little guy with a big idea. As a result, all the U.S. airplanes flown in World War I were made in Europe. So far, we have not learned from our mistakes.

Mr. Obermayer was one member of an SBA Task Force on Small Business and Innovation whose suggestions provide the framework for this legislation.

An Innovation Task Force established by the Secretary of Commerce in 1967

reached conclusions similar to those of the SBA panel. However, no reforms were enacted. I have already mentioned the 1977 OMB study—again similar conclusions and no reforms.

Mr. President, we must not miss the opportunity for reform again. This Congress must enact meaningful reforms to encourage the expansion of small innovative firms.●

● Mr. BAYH. Mr. President, there are few issues which have generated as much concern in the Congress as the increasing evidence that something has gone wrong with the American economy. We have grown so used to being the leading innovators of the world that it comes as a rude awakening to realize that the United States now has one of the slowest productivity rates of any industrialized free nation, that the number of patents filed has been going steadily down since peaking in the early 1970's, that foreigners are now filing about 35 percent of the patents in the United States each year, and that the second highest burden on our economy right behind foreign oil is the importation of foreign manufactured goods.

I have also been concerned that while various studies have shown that small businesses are responsible for approximately one-half of the most important innovations made in this country since World War II, and have also created more new jobs than any other segment of the economy, they have been virtually shut out of our multibillion-dollar Government research and development effort. Small businesses have shown a willingness to take chances that many larger companies simply cannot match. Small businesses have proven their ability to get the maximum return on each research dollar, yet these same small companies receive less than 4 percent of the Government research and development contracts given out each year. This is a loss not only to the small business community, but to all of us, and comes at a time when we should be doing everything that we can to spur innovation and productivity. This is essential if we are going to keep up with our international competition.

I am happy to be joining with Senator NELSON and my other Senate colleagues in introducing the Small Business Innovation Act of 1979. This bill contains two pieces of legislation that I have introduced separately—S. 414, the University and Small Business Patent Procedures Act, which Senator DOLE and I introduced on February 9, 1979, and S. 1679, the Patent Law Amendments Act, which I introduced on August 3, 1979. These items, coupled with the other provisions in the Small Business Innovation Act, will demonstrate that the Congress is sensitive to the special problems of the small business. I think that this legislation wil benefit all segments of the business community by clearing the way for more innovative ideas to reach the marketplace when they can benefit the public.

The version of the University and Small Business Patent Procedures Act contained in this new bill includes a number of amendments that Senator DOLE and I will be offering when S. 414 is considered by the Senate Judiciary Committee sometime this month. These amendments reflect many of the suggestions that were made for improving S. 414 by small business witnesses during the hearings that were held before the Senate Judiciary Committee, over which I presided.

Revising present Government patent policies is crucial if we are to have more small business involvement in the Government's massive research and development efforts. Present patent policies covering ownership of inventions made under federally supported research and development are a good example of the kinds of frustrations that the innovative small company constantly encounters from the Government.

There are at least 24 different patent policies in effect among our agencies right now. Sometimes the same agency will have more than one patent policy depending upon which division of the agency is funding the research. This confusion is very hard on a small business concern interested in participating in a research and development program. The problem becomes even worse when it is learned that the underlying philosophy of all of the patent policies is that the Government is better able to develop and market new products than the private sector.

All of the available evidence shows quite clearly that the agencies have compiled a very poor success ratio for the patents that they hold. Of the more than 28,000 patents now in the Government patent portfolio, less than 4 percent are ever successfully licensed to private industry for development and possible commercialization. The rest are simply left to gather dust on some agency's shelves because of lack of interest and incentive for using them. This is not a good use of the taxpayer's money.

I introduced the University and Small Business Patent Procedures Act along with Senator DOLE and 28 of our colleagues to address this problem and I am happy that Senator NELSON has included it as a part of the present legislation. This new patent policy will allow small businesses, universities, and nonprofit organizations to retain patent rights to the inventions that they make under Government contracting and will allow the funding agency to use the invention without paying any royalties.

The bill also includes language that will prohibit any agency from automatically retaining a small businesses' "background rights" which might include privately held patents or information that the agencies can now require be made available to any future contractors engaged in similar research for the agency. This problem is especially serious to the product oriented small business which has only its technology to use in carving out a place for itself in the marketplace against larger competitors.

By losing background rights to their competitors a small business can find itself unable to successfully compete. Not surprisingly, many of the most innovative small businesses refuse to seek Government contracts because of the patent and background rights problems. The passage of this bill will end this threat and the uncertainty caused by having so many Government patent policies.

The Patent Law Amendments Act will benefit all patent holders by offering an inexpensive, quick avenue for determining the validity of an issued patent. The American Patent Law Association has estimated that it presently costs both parties to a patent validity suit over a quarter of a million dollars apiece, and a considerable amount of time, before any decision can be made in court on a patent's worth. Many independent inventors and small businesses simply cannot afford such costs and are easily "blackmailed" by larger competitors who can use their patents with little danger of a patent infringement suit to stop such unauthorized use. This revision in the patent law will allow the Patent Office to inexpensively reexamine most issued patents in order to determine their validity if it should be questioned. S. 1679 has been endorsed unanimously by the American Bar Association's Patent and Trademark Section, and is supported by the American Patent Law Association and by the Association for the Advancement of Invention and Innovation.

Passage of the patent reexamination idea will also reduce the burden on our overworked courts and will go a long way toward restoring confidence in our patent system which is one of the keys to innovation.

The Small Business Innovation Act will remove many of the barriers to full-scale participation by small businesses in our research efforts. The bill also helps the innovative small business by encouraging more investment in research through a revision in the tax code, and by requiring all Government agencies to consider the impact of any new Government regulations on the small business community before they are adopted. This is the kind of positive, concrete help that small businesses need and deserve. It is time for the Congress to act forcefully in this important area, and I urge my colleagues to give the Small Business Innovation Act their study and support.

I ask unanimous consent to have printed in the RECORD a recent editorial from the Washington Star entitled "Has America Lost Its Genius," which summarizes the problems that we face and the contributions that small businesses could make if we would only allow them to reach their full potential.

There being no objection, the editorial was ordered to be printed in the RECORD, as follows:

HAS AMERICA LOST ITS GENIUS?

How can it be that the land of Thomas Edison, Henry Ford and Alexander Graham Bell—and Xerox and Polaroid—is declining so in technological innovation? No one has a single answer, perhaps, but some recent studies suggest that federal policies are making things harder for small, innovative businesses than they should be.

There is wide agreement that the decline in American research and development (R&D) is serious. It affects jobs, inflation, productivity and the balance of trade. Amer-

ica's ability to innovate will have much to say about all these things, as well as how the nation copes with the energy shortage.

Today, America is no longer the obvious leader in technology. A National Science Foundation (NSF) study showed that the U.S. patent balance declined 47 per cent between 1966 and 1975, with a corresponding 91 percent increase in foreign-origin patents. It showed that the share of U.S. patents granted to foreign residents more than doubled in 15 years, reaching a level of more than 35 per cent in 1975. Since 1970, Japanese patenting has increased more than 100 per cent in almost every major industrial category.

The historic role of small, innovative businesses casts a sharp light on the problem. The NSF concluded, for example, that in the post-World War II period, firms with fewer than 1,000 employees were responsible for half of the "most significant new industrial products and processes." Firms with 100 or fewer workers produced 24 per cent of such innovations—and developed 24 times more major innovations per R&D dollar. Yet these small firms received only 3.5 per cent of federal R&D money.

Such studies are immensely suggestive. Another, by the Massachuetts Insitute of Technology Development Foundation, took three groups of companies—"mature" (such as DuPont and General Electric), "innovative" (such as Xerox and Polaroid) and "young, high technology" (such as Data General)—and compared their average annual growth in the years 1969–74. In sales, the mature category grew some 11.4 per cent, the middle group 13.2 per cent and the high-technology group 42.5 per cent.

The MIT report went on to observe that in a five year period, the high-technology companies, with sales equaling only 2 per cent of the industry leaders, created almost 35,000 jobs compared to the 25,000 jobs created by mature companies.

In spite of such statistics, small, innovative businesses are not doing well. Has there been a deterioration of the climate needed to encourage innovation?

The House Committee on Small Business released in August a collection of reports on the subject, including draft legislation which proposed increased tax incentives to balance the risks of small-scale R&D research and improvements in the patent system to protect a firm's exclusive rights. It also proposed simplified regulations for R&D procurement awards. (Only about 8 per cent of such awards are competitive.)

The reports also tended to fault federal policies, such as regulations which treat large and small firms alike—and which, in effect, discriminate against risk-taking firms. Obviously, regulations and a tax structure which encourage short-term profit at the expense of long-term growth will diminish a desire to take major risks and plan for the future.

It would be pointless here to advocate specific legislative proposals, but perhaps useful to point out again that the tendency to regulate everyone equally can work great unfairness. And it is a bit scary to consider how federal policies may contribute to this, and other, national problems.

There is, we suspect, much truth in the legend of the lone inventor, the productivity of what physicist Freeman Dyson call the "tinkerer" in "the little red schoolhouse." A General Electric study showed that between 1950–74, high-technology companies had three times the output, twice the productivity and one-sixth the price increases of low-technology firms.

But American genius needs to be nourished, and that nourishment affects nothing less than our future. Dr. Arthur Obermayer of Moleculon Research, Cambridge, Mass., who served on a task force for the Advocacy Office of the Small Business Administration, put it another way:

"It took five years from the Wright Brothers' first flight to convince the U.S. government to buy an airplane from them. Even then, the government was afraid to take a chance on a little guy with a big idea. As a result, all the U.S. airplanes flown in World War I were made in Europe. So far, we have not learned from our mistakes."

America's precipitous R&D decline surely suggests that it is time for us to learn from our mistakes.●

● Mr. DOLE. Mr. President, the important role that small business has traditionally played in the promotion of inventions, from the Polaroid Land Camera to the laser beam and xerography, is a fact. The impact that an archaic patent system, added to an assortment of outdated laws has had on these same small businesses who were so instrumental in bringing the United States to the role of leadership it once held in the field of technology, is undeniable.

It is in full recognition of these two factors that I am cosponsoring today the bill introduced by my distinguished colleague from Wisconsin, Senator NELSON, the Small Business Innovation Act of 1979. This is not to say that I am doing so without any reservations. However, I shall address these later in this statement.

The Small Innovation Act of 1979 incorporates, in title II, a major portion of two bills with which I have good reasons to be familiar. The first one is S. 414, the University and Small Business Patent Procedures Act of 1979 which Senator BAYH and I introduced last February, and S. 1679 introduced in August 1979 by my distinguished colleague from Indiana and which I cosponsored. S. 414 aimed at facilitating the transfer to the private sector of technology from the federally funded innovation stage.

More specifically, it allowed universities, nonprofit organizations, and industry to obtain limited patent protection on discoveries they have made under Government-sponsored research. It also established a uniform policy to replace the multiplicity of statutes that now regulate the granting of patent rights throughout governmental agencies. The second part of title II includes the terms of S. 1679, by which the task of reexamining challenged patents would be transferred from the courts to the Patent and Trademark Office, where the particular expertise that this agency has available would be most useful in solving cases both rapidly and correctly. The benefits would be threefold: it would speed up the process by which the decision is handed down to the contestants, it would decrease the costs to both parties considerably, and finally it would greatly ease the burden on our already overworked Federal court system.

The portion of S. 414 and S. 1679 which were incorporated in the Small Innovation Act of 1979 clearly recognize the specific needs of small business who lack the financial resources and legal apparatus available to larger corporations. I take this opportunity to congratulate Senator NELSON on his good judgment in including that legislation in his bill today. I might add at this point that I could hardly oppose a bill that includes S. 414, albeit in part, and S. 1679.

More altruistic reasoning guides my support of title I. While it does not diminish the relationship established between large corporations and the Government in R. & D. programs, it does insure that small business is not left out and receives a fair share of such programs. This has not always been the case under the existing situation.

I feel that more thought needs to be given to title IV, dealing with regulations as they pertain to businesses of varying size. My gravest reservations, however, lie with title III. Without going into the specifics of its provisions, which can be addressed in detail later in committee, I should like, at this time, to merely express my doubts in general terms. I understand too well the special vulnerability of small business not to agree that a need exists to apply fairness and justice to small companies. It is true indeed that the existing system has more or less created two categories of classes: big business on one hand and small companies on the other. The special tax provisions of title III simple perpetuate this situation from a different angle without really solving the problem. While supporting the Small Innovation Act of 1979, I felt an obligation to place these reservations on record.●

● Mr. CULVER. Mr. President, I am pleased to join Senator NELSON and my other distinguished colleagues on the Senate Small Business Commitee in cosponsoring S. 1860, the Small Business Innovation Act of 1979.

For too long, the Federal Government has ignored the ability of small businesses to research, produce, and market new ideas and inventions.

Indeed, the Federal Government often has discouraged the inventiveness of small business through discriminatory tax laws, through overly complex patent laws which have made it difficult to protect inventions in the free marketplace of ideas, through lack of available Federal grant moneys for research and development on a small-scale level, and through overly burdensome Federal regulations.

The bill introduced today does much to reverse this trend. It would finally make it desirable for individuals and owners of smaller enterprises to introduce and protect new ideas in the marketplace.

This bill proposes four major areas of Federal encouragement to small business. First, it would stimulate research and development by redirecting the amount of Federal money available for such programs to small businesses. Second, it would develop tax incentives to encourage the small business owner to reinvest in the marketplace. Third, it would tailor our patent laws to spur innovation, and finally, it would establish the principle that regulations should be designed to fit the scale and abilities of the organizations being regulated.

We are proposing these measures as possible incentives for greater innovation by small businesses, in the hope that a full discussion of its merits and of its costs will be aired.

Of all the efforts Congress can make this year, I feel most strongly about the need to tap this potential in our Nation's small businesses. Earlier this year, in hearings before both the Subcommitee on Administrative Practice and Procedure, which I chair, we heard the same message from each of our witnesses: That billions of dollars in investments are being lost due to the policies of the Federal Government—in unfair tax structures, in lack of available incentive grants, in overburdensome regulations.

No hearing testimony was more compelling than that we heard in Des Moines, Iowa. Iowa's small businessmen, mayors and community officials at that hearing unanimously called for Federal regulatory reform.

One Marshalltown, Iowa, carwash owner testified that "a lot of small business people are getting discouraged and giving up," because they cannot make a profit and comply with Federal regulations.

A Des Moines homebuilder said that regulations "tend to stymie competition and inflate the cost of housing." One county official noted that "the sheer magnitude of regulations and paperwork" deter local governments from applying for Federal grants.

It is time that we act to end the frustration, the anxiety, and the anger generated by Federal policy which has scuttled innovation for far too long.

The Subcommittee on Administrative Practice and Procedure is moving toward enacting regulatory reform legislation which will hopefully remove much of the paperwork, delay, the nonaccountability which has plagued our regulatory process.

Title IV of this bill is based upon a bill I originally introduced in the 95th Congress entitled the Regulatory Flexibility Act. I reintroduced this bill this year as S. 299. Title IV, like S. 299, directs Federal agencies to tailor their regulations to fit the scale and abilities of the institutions being regulated. It encourages agencies to adopt alternatives which reduce the burden of compliance for small businesses and organizations while still accomplishing the goals of the legislation or regulations involved.

The Small Business Innovation Act of 1979 represents a major effort to enhance production on other fronts. By granting incentives to encourage the development of new and marketable ideas, our economy will receive a major boost, our employment will rise dramatically, our attack on inflation will progress, and our society will be able to benefit from technological innovation which we have come to expect from our ingenuity and sense of purpose as American people.●

● Mr. LEVIN. Mr. President, I am pleased to join several of my colleagues on the Senate Small Business Committee in sponsoring the Small Business Innovation Act of 1979.

Small business traditionally has come forth with innovative products and processes and I believe this legislation will continue to encourage that output. Generally, I feel the measures contained in this bill will remove nonproductive bureaucratic barriers and redirect Federal funds to where they can do the most good in increasing productivity, stimulating the job market, and improving small business' share of the export market.

The first section of this bill requires that each Federal agency target a 1-percent increase in research and development procurement set-asides for small business. Increases would begin in fiscal year 1980 and continue until small business receives a prime contract dollar volume equal to at least 10 percent of the department's total R. & D. budget. At this point, small businesses only receive 3.4 percent of Federal research and development contracts, and it is estimated that this section of the bill, if adopted, could add over $300 million annually into the small business community.

The second section of the bill would amend the patent law. Small businesses have been the sector of our economy that has more often come up with new ideas and inventions. This provision would simplify the legal procedures of patent law and allow small business to retain, under certain conditions, patent rights on inventions made under federally sponsored research.

Included is a payback provision that requires, under a number of situations where a profit is being made from the invention, for the small business to pay the Government for the research funds which were used to develop the invention. I believe the Treasury is entitled to some form of repayment if tax money is used to make a profit. However, by permitting the inventor to retain patent rights we encourage the development and marketing of new products and processes that might not occur if the Federal Government retained the patent.

The tax provisions of the bill include some interesting concepts which are certainly worthy of fuller exploration before the Senate Finance Committee. The special tax breaks provided to small firms or investors in those firms which spend a higher than average amount on research and development would help to encourage innovation within small businesses which are already the most innovative segment of the national economy. I am concerned however about some of the proposed changes in the tax code which appear in the bill.

The "roll-over" of capital gains when they are reinvested in another small business has merit; but there is a substantial potential for benefits of this tax provision to flow to firms or investors who are not involved in the growth orientated segment of the economy. Unless a way is found to target this special assistance to those firms which need encouragement, the revenue impact of the provision may greatly outweigh its benefits.

Increasing the number of shareholders in a subchapters corporation from 15 to 100 could have the impact of increasing the availability of capital for high risk ventures. Because risk could be spread to more shareholders, the pool of venture capital should expand. However, I am again concerned that if this special tax treatment is not targeted to those high-risk firms most in need, the loss in revenue might outweigh the economic benefit.

The final section of the bill should provide small business with some relief from Federal regulation. It authorizes all Federal agencies to consider the size of a company when issuing regulations so that the regulatory burden on small business may be reduced. I have always maintained that the heavy hand of Federal regulation often stifles creativity, innovation, and risk taking. All of these are essential to the success and growth of the small business sector and it is my belief that this regulatory flexibility approach is worth pursuing.

Small business innovation effects all our lives. These firms have been responsible for half of all major industrial invention and innovation since World War II. Small businesses importance to our economy and their effectiveness as innovators is further demonstrated by the facts that these firms produce 24 times as many major innovations per research dollar as did large firms and they are the major new producers in our economy. It is also important to recognize that in order to bolster our overseas trade and improve our balance of payments we must continue to be innovative. New high technology products appear to have a great potential for export and their development should be encouraged.

Considering the importance of encouraging innovation among the private sector of our economy and small businesses great contribution to that task, I am pleased to be a sponsor of the Small Business Innovation Act of 1979.●

● Mr. HATCH. Mr. President, I read recently that following the historic events of Kittyhawk in 1903, the Wright brothers turned to Washington for the financial commitment they needed to pursue their dream of aeronautical research. They did not come here with a crackpot idea, or wild drawings of an obscure concept, but with proof-positive that man could fly. What they met with was a turn of the century bureaucratic runaround that could rival any of the horror stories one hears today. According to this article, the history of manned flight was delayed for 5 years while Wilbur and Orville battled for a small slice of the Federal R. & D. pie. It is of no consolation to me that this bureaucratic tradition has been maintained. Our small, innovative entrepreneurs of today are on the losing end of the same evasive tactics of an endless bureaucratic tangle. While billions are being doled out each year in R. & D. funds, small business is getting less and less in terms of real dollars.

According to hearings held in the Senate Select Committee on Small Business, on which I serve, within the last 2 years, out of the millions of dollars in R. & D. funds distributed by the Federal Government, less and proportionately less is being distributed to the most productive sector of the economy: Small business.

A 1977 study from the OMB concluded that in the last two decades small businesses accounted for one-half of the countries innovations.

The NSF estimated these same firms

produced four times as many innovations per R. & D. dollar as their larger counterparts. Lack of capital is now crippling these firms and, I might add, is crippling the image of the United States as the world's innovation leader. Inventive genius is worthless without the capital available to transform an idea into reality. Nearly all business leaders agree that venture capital investments in innovative projects with relatively high risk, and deferred profits are an endangered species. Large manufacturing concerns may be affected by this trend, but not nearly to the extent that small, high-technology, innovative firms have felt the same squeeze.

Mr. President, these small firms belong to that part of the sector which has been found to be responsible for the creation of 96 percent of the jobs in the private sector in the last decade; and those firms not so adversely affected by the R. & D. squeeze, the top Fortune 1,000, have accounted for only 4 percent of the job growth in the same period. To me, the inescapable conclusion is that R. & D. funds provided to the most dynamic sector of our economy—small, high-technology, innovative firms—is the most efficient way, perhaps the only way, to innovative leadership, increased employment, and economic growth.

Mr. President, the bill we have introduced today is drafted to help restore the balance to Federal R. & D. funding.

We propose to inject new life into the innovative drive of our small businessman.

We have designed this legislation to mandate Federal agencies to set-aside a specific percentage of their R. & D. prime contracts for small businesses. In addition, patent rights to inventions developed with Federal assistance will vest in the developer when certain provisions are met. Finally, the tax benefits combined with the foregoing elements lead me to congratulate those I am joining in cosponsorship for promoting a measure worthy of consideration by all Republicans.

Mr. President, I urge my colleagues from both sides to join us in promoting the private sector, especially that most efficient of all producers within the private sector: the small, high-technology, innovative firms.●

● Mr. HAYAKAWA. Mr. President, I am extremely pleased to join the chairman and colleagues on the Senate Select Committee on Small Business as an original cosponsor of the Small Business Innovation Act of 1979.

On August 2 of this year I attended an excellent hearing held by the committee to examine how the Federal Government is helping—or hindering—small, innovative companies. The focus of the hearing was a report issued by the Small Business Administration's Office of Advocacy entitled, "Small Business and Innovation." This is a report of an unusual consensus among three citizen study groups on a matter of serious concern, and I wish to take this opportunity to acknowledge the excellent work of the task force members and the service they have performed to small innovators and to us as well.

The task force study made it very clear that there is a need for additional Federal support and commitment to small innovators and creative individuals who dare to "think big." While large businesses certainly are equipped to carry on innovative activities and to finance research and development techniques, small enterprises are often more adventuresome and willing to take necessary risks, to move faster, and to use resources more efficiently.

I think it is necessary that we maintain a positive climate in our country that permits and encourages small innovators, and I believe that the bill we introduce today is at least a step in the right direction. After all, small inventors brought us the electric light, the telephone, helicopters, Land cameras, and other delightful products, and we should be willing to assist the small creative enterprises rather than act as a deterrent, which now seems to be the case.

One of the members of the citizen task force was Mr. George Lockwood, founder of Monterey Abalone Farms in Monterey, Calif.—one of the innovative firms in the infant aquaculture industry. Aquaculture is a word we will hear with increasing frequency in the future, hopefully. It is simply the growing of plants and animals in fresh, brackish or marine waters under controlled conditions. Or at least it sounds simple until we review the myriad of Government regulations, requirements, and policies that make it far more difficult than it should be.

In an address before the American Association for the Advancement of Science last year, Mr. Lockwood discussed the existing small business innovative climate in our country and the regulatory environment in which new industries must emerge and operate.

Some 42 Federal, State, regional, county, and municipal government agencies enter directly into his privately financed company's decisionmaking process. Between 50 and 70 percent of his time is spent dealing with government instead of applying his energies to his company as the chief scientist, chief engineer, financial officer, and general manager. This makes you wonder why anyone would even start a small business today.

The tremendous amount of government regulation has evolved because we expect a great deal from our government: Protect the environment, the quality of the food we eat, employee safety and welfare, navigable waterways, and on and on. In addition, we ask government to use our tax structure for the distribution of wealth and to encourage savings for retirement. Even when a company does not receive any Federal financial assistance or government business, it is vitally affected by the Federal policies and overregulation that are making it impossible for many to succeed.

Mr. President, I would like to share Mr. Lockwood's thoughts and ideas with my colleagues and ask unanimous consent that his address be printed in the RECORD.

The Small Business Innovation Act does not address all the problems of innovators, but it does call for increased application of Federal research and development funds to assure small business a fair portion; amendments to the Internal Revenue Code of 1954; improvements in patent rights provisions, and regulatory flexibility.

I shall conclude my remarks, Mr. President, by quoting from a very perceptive article in the September 1978 issue of Harper's magazine, written by George Guilder. In his article, entitled "Prometheus Bound," Mr. Guilder gives the strongest plug for small business I have ever read. He wrote that the real split in the world today is not between capitalists and workers, technocrats and humanists, government and business—it is a struggle between the existing configuration of industries and of the new industries that will some day replace them. It is the conflict between the risk-taking businessmen and the risk-taking governments, for that matter, as opposed to the risk avoiders. It is the fight between the past and the future. Big governments, he said, tend to be extremely conservative, whether they call themselves liberal or conservative, and tend to preserve the status quo. So do big corporations and so does a majority of big unions. But, he claims, the future, because of its unpredictability, lies in the hands of small businessmen and the innovators who will make some of the things we know today obsolete tomorrow.

There being no objection, the address was ordered to be printed in the RECORD, as follows:

SOME CAUSES AND CONSEQUENCES OF DECLINING INNOVATION

(By George S. Lockwood)

(". . . a status quo is a symptom of a society which has come to the end of its development." Alexander Solzhenitsyn [1])

When Bill Carey* asked that I participate in this morning's session he requested that I discuss the constraints to innovation that we have experienced as a small company pioneering a new technology. In fulfilling his request, I hope to define the serious consequences for our country of the failure of our government policy-makers to understand the critical role of the entrepreneurial function in the process of putting scientific knowledge to beneficial economic use. In addition, I will share with you my observation that we are a nation of people who have developed a great aversion to risk, who are asking government at all levels to respond with increasing regulation and greater involvement in our private activities.

Both of these factors—ignoring the critical entrepreneurial function in economic growth and our culture's growing aversion to risk—are resulting in serious constraints to innovation. Consequently, we are experiencing long-term economic stagnation. Much of the scientific knowledge we are developing is not being used, and there has emerged, in my mind, a serious question of why our government should continue to finance the development of science if government is simultaneously going to create major structural constraints preventing its useful application?

In describing to you how I have reached these conclusions, I would first like to tell you about: 1) my company, Monterey Abalone Farms; 2) the infant aquaculture indus-

Footnotes at end of article.

try; 3) the existing small business innovative climate in our country; and, 4) the historic and current need for the innovative process to properly function. In doing this, I will point out the apparent reasons for the economic stagnation our country is experiencing as well as what I believe to be the basic, underlying causes.

MONTEREY ABALONE FARMS

Monterey Abalone Farms was founded in 1972 to domesticate the abalone. Abalone is a large snail of commercial importance in the western U.S. and in the Far East, accounting for $200 million in world commerce annually. In Japan, abalone is served raw in thin slices as sushi. In other areas of the Orient, it is sliced and cooked in sauces with vegetables. In the U.S. we pound sliced abalone into thin steaks that are fried in egg batter, and the English, of course, boil it in a stew.

In the early 1970's, we saw significant changes occurring in the supply and demand for abalone. Due to rising standards of living, a strong demand had developed (and was continuing to develop) for this premium restaurant item in world markets. Simultaneous with this increase in demand was a substantial decline in the availability of abalone from natural resources. As a result, prices for abalone products were increasing, motivating us to explore the possibility of growing abalone under controlled conditions. I must emphasize that the principal incentive for us to pioneer abalone culture was to build a viable and profitable business. In economic terms, we undertook the "entrepreneurial function" to combine labor, capital and scientific knowledge to develop a profitable product for consumption.

In response to this economic opportunity we founded our company in 1972 to undertake the biological and economic research to determine the feasibility of such a venture and to develop a laboratory technology. Ten individuals jointly invested $250,000 of "seed" capital for this risky undertaking. None of us were particularly wealthy individuals, and this initial high-risk capitalization came from our personal flow of savings. During the next two years, we successfully developed a laboratory technology for spawning abalone, hatching their eggs, growing their larvae, producing their food, and growing the young animals into marketable adults.

In 1974, we began to scale-up our operations and increased our investment by an additional $1,000,000. As before, this investment was supplied by individuals willing to risk part of their personal savings on this promising yet unproven venture. Although the profit potential was attractive, professional sources of venture capital were not interested in such a long-term project. Our company was entirely privately financed by a small group of local people with confidence in me and in our product.

During the next three years, we experienced major problems in scaling-up our laboratory procedures. However, in 1977 we began limited production after further experimentation, frustration, and hard work. I must emphasize the word "limited"—the reason for this emphasis will be apparent later.

In developing this production technology, we directly utilized ten basic sciences and five disciplines in engineering. Included are molluscan reproductive physiology, marine bacteriology, marine protozoology, organic and inorganic seawater chemistry, phycology, pharmacology and toxicology, nutrition and genetics; and civil, mechanical, electrical, electronic, and chemical engineering. The fields of poultry nutrition, poultry medicine and poultry husbandry also made important contributions. Many of these areas of science are basic and their development has been supported by NSF, NIH, and the USDA for the purpose of increasing knowledge without specific economic justifications. In contrast, our technology has not utilized any of the applied development work so popular in marine sciences today. Such heavy applied development programs have been of no value to us.

Earlier I stated that our abalone culturing technology was in *limited* operation. To understand "limited", let me next describe the status of the aquaculture industry.

THE AQUACULTURE INDUSTRY

"Aquaculture" is a word that you will hear with increasing frequency in the future. It is simply the growing of plants and animals in fresh, brackish or marine waters under controlled conditions. Aquaculture is emerging as part of the natural evolutionary process to use science to produce goods in response to favorable market demand and production economics when they develop. I am convinced that if aquaculture could develop untrammeled, it would make substantial contributions to the elimination of the world food shortage with the production of large quantities of low cost food.

In the United States, several segments of the aquaculture industry have already developed. Almost all of our catfish, trout, and eels are produced in aquaculture, as are substantial quantities of oysters, clams and freshwater crayfish. I would estimate that aquaculture contributes at least $250 million to the U.S. economy annually.

In addition to this more mature section of the aquaculture industry that emerged prior to the early 1970's, a number of species are at the take-off stage and could be in large-scale production within the next five years. They include abalone, scallop, shrimp and salmon. A number of other species such as lobster, crab, conch and mussel also hold promise for large-scale production sometime in the future.

Because of the developing worldwide interest in aquaculture as a potential major food source, the U.S. Department of Commerce approximately eighteen months ago commissioned the National Academy of Sciences to study the prospects and constraints to aquaculture development in the U.S.[1] The private sector was urged to contribute to this study and our firm prepared a detailed report, entitled "An Analysis of Constraints and Stimulants to Aquaculture Development in the United States."[2] Our study reached the following conclusions:

1. Aquaculture's development is not being constrained by a lack of scientific knowledge. An adequate scientific base exists for the development of many species for high-intensity, large-scale culturing. This does not mean that all technical problems are solved, but a substantial scientific base has already been developed in the sciences of marine biology, oceanography, animal husbandry, etc., to form the foundation upon which production technologies for many species can be developed.

2. A major constraint to the development of aquaculture is massive and diverse government regulation and involvement in decision making. For instance, there are 42 government agencies at the federal, state, regional, county and municipal levels which regulate our new company in one way or another.

3. The principal constraint to the development of aquaculture in the United States is an array of federal policy decisions that are preventing the formation of risk-capital and blocking its flow into all forms of innovative small businesses.

Let me first describe to you the regulatory environment in which our new industry must emerge and operate.

GOVERNMENT INVOLVEMENT IN AQUACULTURE

Some 42 federal, state, regional, county and municipal government agencies enter directly into our company's decision-making process. At least 50 percent (and closer to 70 percent) of my time is spent dealing with government instead of applying this time as the chief scientist, chief engineer, chief financial officer and general manager of our company. A great deal more of my emotional and creative energy is spent with government than these figures reflect.

This tremendous amount of government regulation has evolved because we Americans expect a great deal from our government. For instance, we ask government to:

Protect our environment;
Protect the quality of food we eat;
Protect wildlife;
Protect employee safety and welfare;
Protect investors against security fraud;
Protect navigable waterways; and
Protect land uses (particularly coastal lands).

In addition, we ask government to use our tax structure for the distribution of wealth and to encourage savings for retirement. Each of these areas of government involvement directly impacts upon aquaculture.

It is my opinion that most of these areas of protection and public policies are justified in themselves. Most of us don't want to live in a contaminated environment, nor eat impure foods, nor see our wildlife disappear, nor be employed in unsafe places, nor to be the victims of security fraud, nor to see our navigable waterways destroyed by dangerous encroachments, nor to see our land (notably coastal lands) become over-developed. As a result of our desires, our government has responded with well intended legislation and has constructed efficient, well-managed agencies to fulfill our expectations.

However, when it is all added together this broad spectrum of government protection places an insurmountable burden on those of us attempting to pioneer new technologies, particularly those of us who must use small companies to do this pioneering.

I cannot possibly discuss all 42 agencies at this time. Let me relate a few examples of how the quest for protection has impacted upon my company:

"Government activities that cause uncertainty

"Because of our desire to eat pure food, the Food and Drug Administration was created to administer laws and regulations for growing or producing food. Rules for such production are changing almost daily, and the technology for detecting minute parts per trillion of some contaminating compounds from municipal and industrial wastes is evolving very rapidly. As a result, all sorts of microscopic levels of contamination are being discovered in a wide range of foods. It is my belief that a substantial portion of the east-coast shellfish industry will be prevented from selling its products in the next decade as a result of small levels of contaminants concentrated in the tissues of these animals.

"Such uncertainty over future regulations compounds the risks of pioneering new technologies such as ours, particularly where large investments in crops must be carried out over several years."

"Rules designed to apply to others

"In the area of environmental protection, it is now illegal for fish to go potty in the water. All levels of government, from municipal to federal, have regulations affecting discharges of water from "point sources." The question of which precise regulation applies is still confusing, and aquaculture operations probably will be treated the same as sewage treatment plants. Enormous amounts of time and creative energy are going to be necessary for our industry to achieve reasonable regulations under which we can survive.

"This type of regulation requires time, capital and creative energy to assure that satisfactory modifications are made to existing

Footnotes at end of article.

rules and laws that have been designed to apply to others."

The initial rulemaking process

"In the area of employee protection, the involvement of OSHA in the affairs of business is notorious. The Assistant Chief of the California OSHA program recently stated that there are more than 28,000 rules of his agency that are enforced upon California businesses. Having been a victim of an ill-founded OSHA inspection, and having to have spent upwards of 1,000 hours of my time litigating appeals and variances (OSHA was overruled in 70% of their citations) in order to save valuable start-up capital, I can personally testify to the oppressiveness of this particular agency.

"In addition to rules applied to all businesses, OSHA now has a new area of regulation that will have a substantial impact on the future of our industry. This new area is diving.

"Approximately two years ago, federal OSHA became concerned about the safety of men diving to depths as great as 1,000 feet with elaborate equipment and breathing gas mixtures in the Gulf of Mexico from off-shore oil drilling ships and platforms. As a result, OSHA held a public hearing in New Orleans and established an elaborate array of diving standards that would apply to any employer whose employees dive under water. In our operations, we rely upon shallow water SCUBA diving for scientific research observations, the collection of breedstock, and maintaining plastic pipelines that run into the ocean. In no case do we dive deeper than 40 feet. Without this diving capability we could never have started our business, nor could we continue to operate, nor could we continue to advance our technology.

"In all respects our type of diving is substantially different from off-shore oil drilling diving for which the OSHA standards are designed. Nevertheless, they apply to us. Or, should I say they did apply to us until the California aquaculture industry and research diving community obtained a one-year exemption to prove that our operations were different. At this time, this group, under the direction of California OSHA, is preparing "reasonable" standards. The time involved in this matter has put a significant strain on my company.

"This is just one example of how the energy of creative people in innovative new technologies can be drained by the regulatory rule-making process—yet our survival is dependent upon being directly involved in such rule-making when we are aware that it is occurring."

"Absolute prohibitions

"Another significant area of regulation concerns our California Coastal Zone. Several years ago, California voters decided to prevent our coastlines from being developed on a wall-to-wall, Miami Beach basis. As a result, our state government is requiring all 68 zoning jurisdictions within the coastal zone to develop precise plans for all lands within their jurisdiction. Because aquaculture must have access to clean water, our California Aquaculture Association asked all 68 zoning jurisdictions to allow aquaculture access to areas of clean water in the ocean. They responded by assuring us that they were considering aquaculture's needs by making our use allowable within areas zoned "industrial." We then informed them that the water quality in most industrial areas of our state was incompatible with growing of fish and shellfish (particularly in view of changing FDA standards relative to concentrations of contaminants in seafood), and we therefore requested access to rural areas where water quality would be substantially superior. The zoning jurisdiction then responded "the oil industry is requesting the same favorable treatment—how are you different?"

"Again, the burden of proof was placed upon the shoulders of our struggling industry. There is no way that we can appear before 68 zoning jurisdictions to plead our case. In this situation of land use regulation, I am convinced that our new industry, with its new technology, will be precluded from the quality of water we need in order to grow our animals successfully. Because of the overbearing nature of this situation, I consider this type of government involvement to be an absolute constraint."

I could go on and on relating similar situations with most of the 42 agencies. In some cases I believe it is the intention of our lawmakers to protect us from legitimate problems and address real social needs. In other cases it is to fulfill the wants and desires of the voters that may not represent real problems or needs. In responding to these real needs or voter wants, our government has put together good and efficient organizations with well-meaning people to administer these laws and policies. These good, well-meaning people in their efficient organizations then become our adversaries. When in doubt, thir choice is to err on the safe side, that is, to protect (no matter what the consequences) whatever the regulators are charged to protect. In almost all cases there is no consideration of the costs of regulation upon the entity being regulated; indeed, the costs to you are rarely important to them. As a result, many of these government programs ar truly oppressive, and I am not using the word "oppressive" carelessly or emotionally. Our society is paying an enormous price for these programs in terms of stymied creativity and initiative, particularly as they pertain to small innovative businesses.

I hope that my comments about these examples are not perceived as being from "just another complaining businessman." Nor is the issue I am raising one of equity or fairness to the little guy. The problem is much more far reaching, and it has profound ramifications affecting our nation's economic health.

Not only is there the direct cost of compliance with this regulatory octopus that innovators must absorb into their initial capitalizations, but there are large hidden costs requiring the innovator's direct participation that are significantly blocking his creative processes.

In reviewing the status of aquaculture and our attempt to emerge as a new industry, several conclusions can be drawn that may apply to new technologies yet to be developed:

1. Uncoordinated, widespread and intense government regulation and involvement in the aquaculture industry is a major constraint. It is unrealistic to expect 50–70% of an innovator's time to be spent on government relations. The alternative of "going underground" is an invitation to disaster, yet some firms in our new industry are deliberately ignoring government and maintaining the lowest possible profile, hoping not to get caught.

2. Although our situation may sound extreme due to the "high regulatory profile" possessed by aquaculture, I believe our experiences probably indicate the governmental environment in which many, if not most, new technologies must develop and operate in the future. Aquaculture is simply the forerunner of new technologies being pioneered in the new regulatory environment.

3. The make-up of our future economy will consist to a large extent of only a few new industries that are able to emerge because they have a low government regulatory profile.

4. The only innovators who will succeed in putting science into profitable production are ones who have the skills to map and navigate successfully the government regulatory maze. This will probably preclude many potential innovators who know their fields of science and who could cope with normal business problems, but do not have the knowledge, skills and patience to deal with such heavy and diverse government involvement.

5. Free entry is a basic principle of economic growth. Our present regulatory environment is constraining "free entry" in aquaculture, as well as in other needed new technologies.

If we are to achieve economic benefits from the profitable utilization of science, someone must put it to work. That someone must be free to create, yet the plethora of well intended involvements of government in business affairs—particularly the affairs of innovative small businesses—is blocking the creative proces. This blockage has virtually halted small business innovation in America.

Let us next look at how federal policies are precluding the availability of capital for innovative small businesses.

INVESTMENT CAPITAL FOR INNOVATION

Most small business innovators require outside sources of capital to launch their businesses. Initial "seed" capital requirements are greater today than ever before due to inflation and the high costs of complying with government involvement. Unfortunately, however, the availability of risk-capital of all kinds—seed, start-up, and expansion—has all but disappeared since 1970 due to an array of federal policy decisions.

In my opinion there is no greater constraint to technological innovation in America than this recently developed lack of investment capital for small innovative businesses.

This decline can be readily seen from the following table [4] that shows the capital acquired by firms with less than $5 million in net worth from public offerings since 1969.

	No. of Offerings	Total Amount (Millions)
Year:		
1969	548	$1,457.7
1970	209	383.7
1971	224	551.5
1972	418	918.2
1973	69	137.5
1974	8	13.1
1975	4	16.2

The catastrophic disappearance in capital available to small businesses is clearly apparent, yet during the same period money raised for all corporations in the public securities market increased from $28 billion in 1972 to over $41 billion in 1975, or almost 50 percent.

This disastrous trend is also true for other sources of small business financing, including professionally managed venture capital pools and high-risk investments by individuals.

Let us look at some of the reasons for this decline in small business financing.

Savings are now flowing into large pension funds

The principal source of investment capital in the U.S. is the stream of savings flowing from the American public. Savings is defined as the difference between Personal Disposable Income and what we consume or spend. As these savings accumulate, millions of Americans in the past have had to decide how to invest them. Some have gone into savings accounts, some into homes and other real estate, some into marketable securities of local and federal governments and large corporations, and, until recently, a small but significant amount has gone into new small ventures to pioneer new technologies.

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This later portion of the flow of savings into seed and start-up capital has been the principal source of financing small innovative businesses in the past, and it has been critical and essential to technological innovation and economic growth in our country. Unfortunately, this flow of capital has now ceased.

This cessation of the flow of individual savings into innovative small businesses is the result of federal policies initiated in the late 1960's and early 1970's to encourage our populace to save for retirement security. At that time Congress enacted tax incentives (through IRA and Keogh plans) for individuals to place their savings into large, centralized professionally managed pension funds. Congress then passed ERISA legislation in 1973 to protect these savings and required such funds to be "prudently" invested in mature securities.

Before the enactment of IRA, Keogh and ERISA, hundreds of thousands of individual savers such as doctors, lawyers, farmers, small businessmen, etc. in the towns and cities throughout America had a broad range of investment opportunities available at their discretion, including, in some cases, participation in worthy small innovative ventures in their local communities. Since IRA and Keogh, tax incentives encourage these individuals to send their savings to a few large pension funds located in major financial centers that then "prudently" invest these savings in stocks and bonds of mature, secure, well established companies or into government financial instruments. The investment decision-making has shifted from many local savers to a few centralized fund managers. These fund managers are not only unable by law, but are disinterested in investing in small innovative businesses scattered around the country that are pioneering new technologies.

The evil in the IRA, Keogh and ERISA package is twofold:

1. It has diverted the flow of savings that previously went into high-risk innovative investments into markets for mature, secure investments, and

2. It has shifted investment decision-making from hundreds of thousands of people on the local scene to a few centralized "professionals."

The net result is that Congress has inadvertently eliminated seed and start-up capital investments in innovative small businesses in response to society's demand for greater retirement security.

The centralization of investment decision-making

In the case of my company, I can say with absolute certainty that the local aspect of our first "seed" capital and of our second "start-up" capital acquisitions was of paramount importance. Investors at each stage knew me well and knew our product opportunities well. In fact, some of them were essential driving forces in getting me to undertake this venture and to continue it at times of frustration and failure. I am sure that this is the situation in thousands of other cases of successful start-up ventures when deciding whether or not to begin or to continue pioneering new fields.

Conversely, the professional managers of "venture" capital pools have been of no help to us. Although our potential economic returns were attractive to them, our project was either too risky or had time period to first profitability excessively long for their sophisticated investment criteria. Without the local investment decision, we would have never started.

This shift in small business investment decision making from local investors who are patient and possess a greater depth of human understanding and who invest because they have faith in the entrepreneur and his project, to professional, sophisticated financial managers is, in my opinion, another substantial deterrent to seed capital investment in innovative ventures. The professionals do not take risks to initiate many worthy ventures, nor do they have the psychological make-up and patience to nuture the entrepreneur and his small business through the inevitable hard times.

This shift in seed capital and start-up investment decisionmaking is another factor contributing to the decline in small business financing. It, too, has resulted from our society's demands of government for greater security for our retirement investments.

Our desire to prevent security fraud

Over the years our governments at the state and federal levels have moved with increasing intensity to protect investors from security fraud. As a result we have a very active group of lawyers at the Securities and Exchange Commission, and in various state commissions, policing investment offerings, both public and private. The net effect of this protection is that a company such as mine desiring to raise upwards of $500,000 in new capital from public markets is faced with an outlay before the offering of $200,000 in legal, accounting and printing costs to obtain the necessary S.E.C. registration.

Our security regulators have done such a good job of protecting us from security fraud that they have completely slammed the door to public financing for many honest and worthy innovative businesses.

And there are other reasons

Although capital gains taxation is a controversial subject in Washington these days, there is no doubt in my mind that the increase in capital gains taxation that has occurred since 1969 has greatly diminished investor interest in small high-risk ventures such as ours.

Our unduly complex tax laws are a major determinant of the flow of savings into investments, and our present tax structure substantially hinders investment in high-risk, small innovative businesses.

All of this adds up to a major disaster to all forms of innovative new businesses. Again, well-meaning government policies have had major, unpredicted, secondary effects. These secondary effects have virtually eliminated investment capital from innovation and are a major factor in the inability of our economy to utilize the discoveries of science to provide economic growth.

The main thrust of my presentation so far has concerned the consequences of governmental actions on small innovative businesses. It might be helpful then, to take a look at the importance of the individual innovator and his small business.

PAST CONTRIBUTIONS BY INDIVIDUAL INNOVATORS

In our American economy much of the application of science to accomplish technological innovation occurs in large corporations. Although research policies in American industry are changing towards low-risk research investments (a trend that I believe is adverse to the continued development of our country), large companies undoubtedly will continue to make major technological advancements. However, an examination of American business history from the late 1700's through 1970[5] clearly shows that a major, if not the major, source of technological advancement has resulted from the work of individual inventors and individual entrepreneurs working independently of our large industrial corporations. This is particularly true when radically new concepts have been introduced.

In our early history we had Eli Whitney in 1793 with his cotton gin and Robert Fulton with the steamboat in the 1840's. These two innovations had an enormous impact on young America. Then came the railroads, and next we had Morse, Bell and Marconi in the field of communications whose contributions greatly accelerated the growth of our economy. Similarly, the Wright Brothers, McCormack, Edison, Westinghouse, Ford and DeForest, using science and engineering, made introductions that laid the foundation for further economic advancements. This is obviously only a partial list. All of these innovators were small guys.

The same trend continues after World War II. We are all familiar with the success stories of Edwin Land at Polaroid and the Watsons at IBM. During the 1960's we saw the emergence of many companies such as Xerox, Digital Equipment Corporation and Hewlett-Packard, each beginning as individual small-guys with their small companies who were able to use science to innovate. In addition to these better known names, there were thousands of small, less known, high-technology companies spawned during the 50's and 60's and which have created real growth to our economy and have increased the quantity and quality of employment.

Since 1970, the process of formation for new high-technology companies has virtually ceased. Yet it is clear to me that we cannot rely solely upon big corporations to make all of our future advances. What about the mavericks? What about whole new industries? Or radical innovations necessary to shake existing industries into lower cost production and expanded markets?

To a large extent the pioneering of entirely new industries (in contrast to expanding existing technologies or making them more efficient) is largely up to individuals in new businesses. This need is more prevalent today than pre-1970, since there is a well established trend by large companies to apply their reduced research efforts to the improvement of existing products in existing markets where the risks are easily defined, and where the pay-off of investment is a shorter distance into the future. This phenomena of large corporation hesitancy to enter new fields clearly exists in aquaculture where, with few exceptions, large companies are unwilling to pioneer this new technology but are, instead, waiting for individuals and their small businesses to pioneer their technologies and establish profitability before the large companies acquire the small pioneers.

The role of small innovative businesses in stimulating economic growth also can be seen from two recent independent studies. The first, by The M.I.T. Development Foundation in 1975[6] shows compounded average annual growth from 1969 to 1974 for the following three groups of companies:

[In percent]

	Sales	Jobs
Mature companies	11.4	0.6
Innovative companies	13.2	4.3
Young high-technology companies	42.5	40.7

In this study, mature companies were Bethlehem Steel, DuPont, General Electric, General Foods, International Paper, and Procter & Gamble. Innovative companies were Polaroid, 3M, IBM, Xerox, and Texas Instruments. Young high-technology companies included Data General, National Semiconductor, Compugraphics, Digital Equipment, and Marion Laboratories.

The M.I.T. report states:

"It is worth noting that during the five-period the six mature companies with combined sales of $36 billion in 1974 experienced a net gain of only 25,000 jobs, whereas the five young, high-technology companies with combined sales of only $857 million had a net increase in employment of almost 35,000

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jobs. The five innovative companies with combined sales of $21 billion during the same period created 106,000 net jobs."

Similar conclusions emerged from a study of 269 electronic firms by the American Electronic Association. This past February, Dr. Edwin V. Zschau of the AEA presented the conclusions of that study to the Senate Select Committee on Small Business. The report showed the following growth of employment for new established firms as contrasted to more mature companies:

Years since founding/Stage of development	*Employment growth rates in 1976 (percent)*
20+/Mature	0.5
10–20/Teenage	17.4
5–10/Developing	27.4
1–5/Start-up	57.7

Dr. Zschau also reported that annual benefits to the economy realized in 1976 for each $100 of equity capital that had been invested in start-up companies founded between 1971 and 1975 were:

[Per year]

Foreign sales	$70
Personal income taxes	15
Federal corporate taxes	15
State and local taxes	5
Total taxes	35

This data shows that the benefits of investment in small innovative ventures are large (e.g., a new $35 per year flow in tax revenues for each $100 initial investment) and that this flow of benefits starts soon after the investment. These benefits are large and powerful.

The projections for my company, Monterey Abalone Farms, are similar. During the next five years we anticipate employment growth of 50 percent annually, new foreign exchange earnings in excess of $200 for every $100 invested, and a new annual tax flow in excess of $150 per year for each $100 of new investment.

The need for a climate of favorable small business innovation is clearly apparent from this review of the contributions that have been made by individual entrepreneurs in their small companies to the past and recent economic growth of our country. If we are to continue to enjoy the benefits of innovation, then individual entrepreneurs and their small companies must be able to carry a very large share of the burden of innovation. Therefore, the climate for the formation and nuturing of small innovative businesses is of critical importance. Those government policies that constrain the formation and nurturing of small businesses must be removed.

Let us next look at how these conclusions concerning the role of individual innovation relate to economic theory.

ECONOMIC THOUGHT ON INNOVATION

Economists have been telling us for centuries that technological innovation is essential t economic growth. As one examines the writings of the classic, neoclassic and present-day economists, there clearly emerges a predominance of thinking that technological innovation is the principal (or perhaps even sole) stimulus to economic growth. Some economists such as John Stuart Mill [7] in the early 1800's feared that economic growth would someday cease since there were "ultimate boundaries" to technological progress. He believed that everything that could be invented soon would be invented. Others, such as Karl Marx,[8] feared that continued technological development would be used to exploit the working masses by depressing real wages and increasing the margin between the wealth of the capitalists and the poverty of labor, thereby increasing the "misery" of labor. Marx also saw an important role to be played by technological innovation.

As we come into the twentieth century, we find such economists as John Maynard Keynes [9] in the 1930's being concerned, like Mill, that technological innovation would not continue to provide the stimulus that it had earlier. In the 1940's and 1950's we find the profound writings of the Harvard economists Joseph P. Schumpeter [10] and Sumner H. Slichter [11] articulating the need for vigorous technological innovation to prevent economic stagnation. Both Schumpeter and Slichter recognized the absolute essential nature of the entrepreneur as middle-man in the process of putting scientific knowledge to work to fill consumption needs. Schumpeter, much to his chagrin, predicted the destruction of capitalism and major economic stagnation as a result of the inhibition of the entrepreneurial process by such external forces as government involvement in private decisions and the imposition upon the entrepreneur of the accomplishment of a wide range of social goals. Schumpeter (in 1942) accurately predicted the present state of economic stagnation with chronic unemployment in America, and its causes. In my opinion, it will take widespread awareness and understanding of Schumpeter's theses by our political leadership before our nation will solve the problems of economic stagnation that we are now exepriencing.

Slichter disagreed with that part of Schumpeter's thesis that the stagnation of American business would occur because, amongst other things, Slichter believed that American management with its "energy, diligence, and perseverance" would continue to "make profit promising innovations and thus to discover investment opportunities." About entrepreneurs he said, "The tremendous absorption that many managers have in their jobs springs from the fact that they find their work exciting and challenging—*for them the job is fun rather than drudgery*" (Italic supplied).

Slichter wrote this in the late 1950's. In the context of my experiences 20 years later, I must respectfully disagree. The 30 percent of my time that I am able to spend creatively on abalone culturing is enjoyable and rewarding (although sometimes frustrating and demanding). It is indeed fun. And, it is the fun of pioneering with the realization of accomplishments that has been the driving force to keep me plodding ahead. But there is now 50 percent to 70 percent of my time that must be spent to ministering to the affairs of government.

Who wants to be an entrepreneur when he knows there are tens of thousands of regulations, many of which the violation is criminal? Take OSHA as an example. No one individual can precisely understand and memorize OSHA's code book of 28,000 regulations. As a result, you are always inadvertently in violation of something, no matter how careful you are! Because you are a small guy without a staff of expert safety engineers and you can't know the code book, you are a sitting duck for zealous OSHA cops—with criminal penalties and fines that can be applied if they feel like it. Add to the 28,000 OSHA regulations the many more enforced by EPA, FDA, IRS, SEC, ERISA, Coastal Zone, Fish and Game, Workmen's Compensation, Unemployment boards, Corps of Engineers, Planning Commissions, Affirmative Action, etc., etc., with their reports, applications, permits, licenses, standards, EIS's, variances, rule-makings, hearings, burdens of proof, appeals, etc., etc., and rapidly growing enforcement budgets at all levels of government to "make business comply." Is it fun to be on the receiving end of all of this?

In a small business it is the innovator who is the criminal who violates these laws and regulations, and only a few zealous entrepreneurs have "fun" working in such an environment where they are treated by government at best as adversaries, and often as criminals. Couple this with a seemingly continuous flow of litigation expenses against your governments to protect your trade secrets that they want to use in competition with you or to make public—"the public must know your technology." Or threats that if you go to the legislative branch of government to stop their encroachments upon your business they will "put you out of business." Or, "you had better support our legislation or we'll make it rough on you." Or, "If a judge orders my agency to stop—I'll stop—but not until then." What a great environment in which to create!

Slichter was correct when he said managers of innovation are motivated by the excitement of being creative. But, it is no longer fun, and maybe this explains why innovative entrepreneurs are now an endangered species. Where will our society get good people who are willing to undertake this important function if it is so unpleasant? Our capable business managers will stay with large companies instead—or speculate in real estate—or will seek secure employment as government regulators.

So we have the views of the past economists: technological innovation is essential for economic growth, and the enrepreneur-middleman is the essential link between science and consumption. But will the entrepreneur survive? Schumpeter says no—external social forces will kill him; Slichter says yes—it's fun to be an entrepreneur. From my position at this stage of the game it looks as though Schumpeter is correct.

WHAT DO OUR CONTEMPORARY ECONOMISTS THINK?

When reviewing contemporary economic thought, Samuelson in his very well read college textbook, "Economics," [12] clearly recognizes the critical role of technological innovation in providing economic growth. Unfortunately, however, Samuelson almost completely ignores the entrepreneurial function. Of 1,000 pages of text he has only three paragraphs describing the entrepreneur. This major omission is clearly reflected in contemporary economic thinking and I believe this omission is a major cause for the economic mess we find ourselves in today.

Present day economists are so concerned about monetary and fiscal matters as they relate to business cycles that they have overlooked the fact that these are only tools to help control economic growth. These economists and government policy makers are ignoring the process by which science is used to produce real economic growth.

During the 1930's, John Maynard Keynes contributed a needed theory of consumption to the body of economic knowledge. Unfortunately, in their pursuit of Keynes' theory, contemporary economists and government planners are placing much too great an emphasis upon consumption, short-term industrial productivity, short-term unemployment, inventory accumulation, expenditures for plant and equipment, consumer moods, and M1 and M2 growth. They are ignoring the principal contributor to long-term economic growth—the development of scientific knowledge and the use of it through technological advances for the creation of consumption by way of the entrepreneurial process. As a result, I believe our country is in a state of long-term depression, a depression in which massive unemployment is being prevented by pumping more and more money into our economy without real growth. The result is chronic inflation.

The evil of inflation is going to persist until their is sufficient real growth to offset labor's firm demands for 8 percent or more annual wage increases. There will be insufficient real growth in our economy to meet or exceed labor's demands until the entrepreneurial function is unburdened and

Footnotes at end of article.

risk capital is again available from local investors to small innovative businesses, so science can be used again to create those innovations necessary for real economic growth. If I may criticize our contemporary economists, they are preoccupied with the problem of keeping our present stock of men and machines fully employed by our large corporations—and they are not facing the longer cycle problem of real growth through innovation.

Our investment in science will produce minimal returns until the constraints to innovation are recognized and removed and the entrepreneur-middleman is again allowed to put science to work in the private sector on a more or less untrammeled basis. Until then, inflation, high unemployment, limited job opportunities for our youth, and currency erosion will continue to be the product of a stagnated economy in a stagnated society.

So much for economics.

WHAT DOES THIS MEAN?

The picture is not a good one. The question arises as to why such enormous constraints exist.

It seems to me that there are two basic causes underlying all of the symptoms of stagnation that I have been discussing:

1. Our current generation of economists and government policy makers are overlooking the absolute critical role of the entrepreneur, and

2. We are a society of people who have a great aversion to risk.

Can we expect no-risk policies to produce profits and growth? I personally do not believe growth is possible without a higher degree of risk than we are willing to take at this time.

At some point our leadership must ask if zero-risk and solving a broad range of voter desires is worth the cost of stopping economic growth. Are the burdens of absolutely pure foods, a pristine environment, "safe" work places, precise land zoning and protection of public viewsheds, the prevention of investment fraud, the encouragement of savings to flow into a few central large trust funds, the establishment of strict fiduciary responsibilities and standards for pension trustees, the comprehensive protection of wildlife, affirmative action, navigation protection in even the small creeks and miniscule estuaries, the distribution of wealth through a compext tax structure, etc., etc., really worth the cost? Each of these areas of social desire may be worthy in their own right, but together are they worth it if our economy and our whole society stagnates? And it must be realized that such stagnation remains a long time. It takes years to put science into profitable production and even longer for the real major innovations to have economic impact.

Some people believe that it is possible to pursue these wide-ranging areas of risk aversion and social concern and not inhibit the entrepreneurial process by modifying our governmental processes to "make it easier for the small guy." These people would somehow make law and rule-making and administration more sensitive to the blocking effects they are having on innovation while still hotly pursuing social and zero-risk objectives in each area of concern. I personally doubt if this can happen. Some degree of social risk-taking is going to be necessary.

The question continuously re-emerges: is our society willing to assume more risk and reduce our expectations of government, thereby relaxing the stranglehold on innovation in order to eliminate the stagnation we are now experiencing with high unemployment, high inflation, and the sinking value of our currency in foreign markets?

This trade-off problem in our priorities probably makes most of us uncomfortable, since we all expect a lot from government. However, I believe that this is a very real question that our nation and our political leadership must address actively and honestly. And soon.

CONCLUSIONS

I have covered a lot of ground in this presentation on the constraints to the use of science in the U.S. economy and the consequences. We have examined how basic scientific knowledge that was developed elsewhere for non-economic reasons provided the foundation for a new working technology at Monterey Abalone Farms. We have looked at how a diversity of government regulations being enforced with increasing intensity is preventing the emergence of a badly needed and economically viable aquaculture industry. And we have observed how well intended federal policy decisions in the early 1970's have almost entirely eliminated investment capital that is required for small business innovators.

We have discussed the important contributions that individual inventors and entrepreneurs and their small innovative businesses have made to our nation from the 1790's through the 1960's, including the impact of high-technology firms founded in the 1960's, on employment, tax revenues, and foreign exchange. We have seen the importance that past economic thinkers have placed upon scientific discovery and its application through the entrepreneurial process to produce economic growth. In contrast, we have seen how contemporary economists have become so occupied with designing solutions to immediate business-cycle problems that they are overlooking the critical importance of innovation and a healthy entrepreneurial environment in order to achieve continuous long-term growth.

It is clear to me that the ignorance of the critical entrepreneurial function by contemporary economists and our government policy-makers, coupled with our society's great aversion to risk in recent years, has led to a depression as serious as those in the past. This time our economy is stagnated due to a major slowdown of technological innovation and we are experiencing long-term inflation, high unemployment, unexciting job opportunities for our youth, and a declining currency in world markets. It will take courage by our political and intellectual leadership to unburden the entrepreneur and accept a greater degree of risk.

I am not alone in these conclusions. In early June Alexander Solzhenitsyn addressed the graduating class at Harvard University on the subject of "The West's Decline in Courage."[1] He said:

"A decline in courage may be the most striking feature which an outside observer notices in the West in our days."

"Should one point out that from ancient times a decline in courage has been considered to be the beginning of the end?"

"No, I could not recommend your society in its present state . . .".

It is my understanding of American history that we are a Christian society built by hardworking people of courage who were free to create and were willing to assume risks as the evolution of science produced new opportunities. The advancement of science has continued at a rapid rate, and there are still people who are willing to undertake the challenge of putting science to work to create economic benefits. Unfortunately, the burden of government involvement in our attempts to innovate has become so diverse and so intense that the innovator cannot do his job. The present climate is "discouraging"—in the strictest sense of the word—at a time when we need more courage.

As a result our stagnated economy and our stagnated culture are maintaining the status quo. To this Solzhenitsyn said, ". . . a status quo is a symptom of a society which has come to the end of its development."

In my mind, Solzhenitsyn is correct in his assessment of contemporary America; we are a society lacking courage that has stopped development. I believe, however, that he may be underestimating the ingenuity of Americans to solve our problems, once they are recognized, even the massive problems now blocking innovation and causing stagation. In my case, I am confident that my small company, Monterey Abalone Farms, will succeed (probably as a subsidiary of a larger corporation). And I am confident that American ingenuity will demand that government attend to the real needs of the creative process with appropriate risk taking. When this occurs, scientific discovery will again be the beginning point of the innovative processes and America will enjoy all of the benefits of real economic growth.

FOOTNOTES

* Mr. William D. Carey, Executive Officer, American Association for the Advancement of Science.

[1] Solzhenitsyn, Alexander, *The West's Decline in Courage*, address to the graduating class of Harvard University, June 1978

[2] National Academy of Sciences, *Aquaculture in the United States, Constraints and Opportunities*, (A report by the Committee on Aquaculture National Research Council, available from: Printing and Publishing Office, National Academy of Sciences, 2101 Constitution Avenue, Washington, D.C. 20418, Library of Congress Catalog Card No. 78-52270, 1978)

[3] Lockwood, George S., *An Analysis of Constraints and Stimulants to Aquaculture Development in the United States*, (Monterey Abalone Farms, 300 Cannery Row, Monterey California 93940, 1977)

[4] U.S. Small Business Administration, *Report of the SBA Task Force on Venture and Equity Capital for Small Business*, (available from: SBA 1441 L Street, NW., Washington, D.C. 20416, January 1977)

[5] An excellent study of American business history that, amongst other things discusses technological change is *The Visible Hand—the Managerial Revolution in American Business*, Alfred D. Chandler, Jr., (Belknap Press of Harvard University Press, Cambridge, Massachusetts, 02139, 1978)

[6] Flender, John O., and Morse, Richard S., *The Role of New Technical Enterprises in the U.S. Economy*, (M.I.T. Development Foundation, Inc., 501 Memorial Drive, Cambridge, Massachusetts, 02139, 1978).

[7] Mill, John Stuart, *Principles of Political Economy*, Book IV, Ch. VI, (Ashley ed., London, Longmans, 1909).

[8] Marx, Karl, *Capital*, (3 vols.: Chicago, Charles H. Kerr Co., 1926).

[9] Keynes, John Maynard, *The General Theory of Employment, Interest and Money* (New York, Harcourt, Brace and Co., 1936).

[10] Schumpeter, Joseph A., *Capitalism, Socialism and Democracy* (New York, Harper & Brothers, 1942).

[11] Slichter, Sumner H., *Economic Growth in the United States—Its History, Problems and Prospects* (Louisiana State University Press, 1961).

[12] Samuelson, Paul A., *Economics*, 10th Edition (McGraw-Hill Book Company, New York, 1976).●

● Mr. PRESSLER. Mr. President, I am pleased to introduce today, with Senator NELSON and others, the Small Business Innovation Act of 1979.

Throughout America's economic development, small businesses have contributed much toward the innovation of new products and ideas. Because of a number of reasons, small businesses, although they contribute a great deal, are not able to offer as much as they could under more responsive economic conditions.

The Small Business Innovation Act

of 1979 would increase the potential of small businesses to produce innovations. It would do so by allowing more businesses the means to start technology-based small businesses.

This legislation contains four titles. Title I deals with research and development contracts. Each Federal department or agency would target a 1-percent increase in research and development procurement set-asides of prime contracts, beginning in 1980 and continuing until small business receives a prime contract dollar volume equal to at least 20 percent of each department's total research and development budget. Under title 1, each Federal department or agency having a research and development budget exceeding $100 million would set up a small business competitive solicitation program. This program has been modeled after the present National Science Foundation program, which has been highly successful.

Title II of the Small Business Innovation Act of 1979 deals with patents and inventions. Small businesses would be allowed to retain, under certain provisions, the patent rights on inventions of their own made under federally sponsored research. Such a provision should greatly enhance a small business willingness to participate in federally sponsored research projects.

Title III of this legislation amends the Internal Revenue Code. It would allow income realized on the sale of securities of a small business to be deferred if reinvested in another small business within an 18-month period. It also changes the tax code to encourage revenue to be spent on research and development. A small business which spends an average of 3 percent of its gross revenues on research and development in each of 3 taxable years or 6 percent in any one of 3 taxable years would be given several options. The business could carry a loss forward for 10 years instead of the present 7 years. It could include as business expense in one years tax return the specialized equipment and instrumentation for research and development, and it could include over a minimum 10-year period the facilities used for research and development purposes. The business could also establish a cash reserve for future research and development expenditures. Title III would also allow subchapter S corporations to have 100 shareholders, including qualified venture capital corporations.

Title IV would allow all Federal agencies to consider the size of a firm when issuing regulations. This could greatly alleviate much of the present regulatory burden that our Nation's small businessmen are facing.

Mr. President, this legislation will allow us a mechanism to discuss needed reform in the area of small business and innovation. Although it may not be in final form, it will provide the format to hold hearings and to determine our role in increasing small businesses involvement in the innovation process. I ask that my colleagues give their favorable consideration to cosponsorship of this legislation.●

-- End of Section D --