out its responsibilities under the Protocol prevented further action on that bill. Passage of this bill today brings to a close a long, arduous process in which all of the parties mentioned above have finally reached agreement.

The historic Senate Rollings Bill I introduced is supported by all the parties engaged in this somewhat lengthy, but ultimately successful, consensus-building process. The Commerce Committee held a hearing on S. 1645 in June and ordered the bill to be favorably reported. During committee consideration of the bill, members agreed to work with Senator STEVENS on a floor amendment addressing polar research and policy. That amendment offered today to S. 1645 requires the National Science Foundation to report to Congress on the use and amounts of funding provided for Federal polar research programs. There is no opposition to this amendment.

Mr. President, S. 1645 builds on the existing regulatory framework provided in the Antarctic Conservation Act to implement the Protocol and to balance two important goals. The first goal is to conserve and protect the Antarctic environment and resources. The second is to minimize interference with scientific research. S. 1645 amends the Antarctic Conservation Act to make existing provisions governing U.S. research activities consistent with the requirements of the Protocol. As under current law, the Director of the National Scientific Foundation (NSF), would remain the lead agency in managing the Antarctic science program and in issuing regulations and research permits. In addition, the bill calls for comprehensive assessment and monitoring of the effects of both governance and aging of the Antarctic science program under current law, the Director of the Antarctic environment and resources.

As one of the founders of the Antarctic Treaty System, the United States has an obligation to enact strong implementing legislation, and is long overdue in completing ratification of the Protocol.

In closing, Mr. President, I would like to thank Senator HOLLINGS for all of his assistance in getting agreement on this legislation. The House passed similar legislation, H.R. 3060, by a vote of 352-4 in June. I urge my colleagues’ support for final passage of the Antarctic Treaty Act of 1996.

HENRY A. WALLACE

Mr. HARKIN. Mr. President, I would like to take this opportunity to bring to the attention of the Senate a notable speech recently given by one of my fellow Iowans, Senator John C. Culver. The subject of Senator Culver’s speech is that of another prominent Iowan, Henry A. Wallace. Both these men embody the wisdom and insight of the residents of the great State of Iowa.

Senator Culver’s distinguished speech, given March 14 at the Carnegie Institute on the occasion of the inaugural of the Henry A. Wallace Annual Lecture. Sponsored by a research center named after Henry A. Wallace, the annual lecture will address agricultural science, technology, and public policy. Senator Culver’s speech, entitled “Science, Agriculture, and the Antarctic: Wallace on Agriculture and Human Progress,” held listeners spellbound as he described the life and times of a pragmatic farmer from Iowa.

As many of you know, Henry A. Wallace served our country in many ways: as a farmer, editor, scientist, Secretary of Agriculture, Secretary of Commerce, and Vice-President. As a farmer, Wallace realized the importance of environmental stewardship. As he once proclaimed, “The soil is the mother of man and if we forget her, life eventually weakens.” While Henry A. Wallace made many contributions to this Nation for which we thank him, it is perhaps Mother Nature who thanks him the most.

I ask that the text of Senator Culver’s speech appear in the RECORD.

SEEDS AND SCIENCE: HENRY A. WALLACE ON AGRICULTURE AND HUMAN PROGRESS—GUEST LECTURE: SENATOR JOHN C. CULVER

Some years ago, while battling to rescue American agriculture from its greatest crisis, Secretary of Agriculture Henry Agard Wallace was invited to be the featured guest at a swanky party in New York City. It was not the sort of thing Wallace enjoyed. A quiet, cerebral man, Wallace often found such social functions uncomfortable. He wasn’t good at flattery or small talk, had no interest in gossip and disdained off-color humor. Gathered around him that evening was a group of writers, planners, technicians and other members of the New York intelligentsia eager to take his measure. Wallace was still something of a mystery to them, as he was to many of the American people. He was the youngest member of President Roosevelt’s Cabinet. The son and grandson of prominent Iowan Republican, his father had served in the Harding and Coolidge cabinets—Wallace was still a registered Republican himself. He was, by background, an editor and corn breeder; he had never sought public office though he was still a registered Republican himself. He was, by background, an editor and corn breeder; he had never sought public office.

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Perhaps most intriguing to the people in the room was the breadth of Wallace’s intellectual interests. Wallace was not only a geneticist and journalist, he was one of the nation’s leading agriculture economists, and as a writer he was the author of the leading text on corn growing. His interests ranged from diet to religion, from weather to monetary policy, from conserva-

security to Native American folklore. Some-
ears produced the highest yields. Conventional wisdom or not, Helen’s personal friendship with the Wallace family notwithstanding, the scientific experiment showed the approach had nothing to do with his success. As Wallace himself put it succinctly: “What’s looks to a hog?”

Henry Wallace’s first lesson in agricultural experimentation came from his mother. Mary, a woman endowed with strong religious convictions and a great love of plants. May Wallace and her son homesteaded a quaking aspen, to his great delight. “It happened that in that particular outcome, the flowers were not as pretty as either parent, but I was unusual simply because they had been crossed.” His mother also frequently said, “Henry, always remember, you are a Wallace and a gentleman.”

From his father and grandfather he inherited his first and last names, a tradition of progressive thinking and an intense belief in the value of “a distinctive and satisfying rural civilization” that offered “nothing less than the comforts and the cultural elements of the best city life blended with the individualism of the country that the country gives.” His father and grandfather had founded the family’s influential farm journal, and son Henry adopted their philosophy in six words that appeared on the cover of every issue: “Good farming, clear thinking, right living.”

Another influence on young Henry, as he was called in the family, occurred when he was a very young boy. Wallace had moved with his family to Ames, Iowa, where his father completed his degree at Iowa State and taught for a few years as a professor of dairying. There the shy boy was befriended by one of his father’s students—man by that name of George Washington Carver, who had been born in slavery. Together this unlikely duo—one who became the nation’s greatest secretary of agriculture, and the other who gained international fame as a botanist and chemist—tramped through the woods and fields around Ames exploring nature in intimate detail. Six decades later, it was said, Henry Wallace was still able to impress agrostologists with the minute knowledge of grasses he learned at Carver’s feet. His lifelong influence was later demonstrated by a national radio address he made while Secretary of Agriculture entitled “The Strength and Quietness of Grass.”

He once said, who introduced him to the “mysteries of botany and plant fertilization” and who demonstrated that “superior ability is not the exclusive possession of any one group or class. It may arise anywhere.” Wallace noted, “provided men are given the right opportunities.” He also said that he learned Carver an approach and science: “Carver’s search for new truth.”

Wallace later observed, “both as botanist and chemist, was a three-pronged approach involving my problem, and his Makers.” He earnestly believed that God was in every plant and rock and tree and in every human being, and that he was obligated not only to be intensely interested but to call on the God in whom he so deeply believed and felt as a creative force all around him. “There is, of course, no scientific way of proving or discrediting right or wrong,” Wallace noted. “But we can safely say,” he added, “that if a corn breeder has a real love for his plants and stays close to them in the field, his next long run, may be his scientific triumph, the source of which will never be revealed in any statistical array of tables and cold figures.”

As an example, in Des Moines, there was always available to Wallace a small plot of land on which to experiment and ample encouragement from his family to let his curiosity range free—provided, of course, that he had milked the cows, fed the chickens and completed his other routine chores. As a student, he was always interested in the experimental farms operated on the county’s “poor farm” and learned first hand that progeny from one ear of open-pollinated corn could be distinguished from that which was gained from another ear of corn of the same variety.

Having proved that ability to yield is more important than appearance, he was receptive to the concept of hybrid corn. He carefully followed scientific reports and experiments relating to its development while graduating first in the agricultural class of 1919, at Iowa State College.

Throughout the 1920s, Wallace worked intensely on his own breeding projects and to promote the development of hybrid corn. In the early years of that decade, he had been influential in founding the Iowa Corn Yield Contest, which he saw not only as a scientifically valid replacement of the “corn shows,” but as a means to demonstrate to farmers the superiority of hybrid corn.

Wallace knew even then that a revolution—his word—was coming to the Corn Belt. It was a revolution which he predicted, and, in 1933, six years after he started his own little company to develop and market hybrid seed, only one percent of the corn planted in the midwest was hybridized. Ten years later, more than three-fourths of corn grown in the Corn Belt came from hybrids. Today, of course, virtually all commercial corn comes from hybrids. Yields grew from less than 25 bushels an acre in 1931 to 110 or more bushels today. The corn revolution stimulated an agricultural revolution throughout the world. Wallace transformed American agriculture from an art to an applied science.

Wallace viewed this revolution not in the raw statistics of yields-per-acre, certainly not in bottom-line sales and profits, but in an intimately personal way. “Every living thing, whether it be plant, animal or human being, has an individuality of its own,” he wrote at the height of his corn breeding work. “Some are pleasing, some repulsive, but all are interesting to whosoever tries to understand them. For fifteen years, I have tried to understand corn plants, until now the individuality of corn plants is almost as interesting to me as the personality of animals or human beings.”

It has been said that Henry Wallace was the only genius to have served as Secretary of Agriculture. The period 1933 to 1940 was the golden age in the Department’s history and the creation of much of the intellectual dynamism of the New Deal. Agricultural progress and the creation of much of the intellectual dynamism of the New Deal. Agricultural progress was high on the New Dealers’ agenda. “The Green Revolution,” it was named, was an effort to provide a solution to the oppressive conditions of undernourishment and disease, especially in the poor countries of Latin America. Agricultural progress was high on the New Dealers’ agenda. Wallace was deeply involved in every aspect of this effort.

Wallace was sent to Mexico by President Roosevelt to inspect conditions there. He was determined to bring a solution to the problem of hunger. He was also responsible for the establishment of the Institute of Tropical Agriculture in Costa Rica and took an active part in the plans which led to the creation of the Food and Agricultural Organization of the United Nations.

A fellow Iowan, Norman Borlaug, who received the Nobel Prize for his work with the “Green Revolution,” once remarked that the award should have gone to Henry Wallace, whose leadership and inspiration was the moving force in these efforts.

Wallace was the first vice president in American history to be given formal executive branch responsibilities as head of the Board of Economic Warfare. This agency was charged with the critical task of obtaining and ensuring the availability of vital raw resources from Latin America and elsewhere after the United States entered World War II.

Wallace, in implementing the procurement contracts with countries from whom materials were obtained, required the commitment that they would in turn provide improved food. His work with Latin American farmers and workers preserved his objective was two-fold: healthy workers would best provide the supplies.
needed, and, in Wallace's view, such economic and social developments within the society would help advance democracy, ensure better post-war trading opportunities and benefit the U.S. This approach was vigorously opposed by conservatives within the administration and the U.S. Congress, and the practice was therefore discontinued.

Wallace typically, like his forebears, was concerned not only with the problems of his own generation but those of future generations. Painfully mindful of the errors in U.S. policy, which he felt lost the peace following World War I, Wallace, as early as 1934, predicted a military victory. The voice of the social gospel, only, the weight of this country is on the side of the U.S. policy which is allowed to be conducted.

On September 21, 1945, in his last Cabinet meeting as Secretary of War, Republican presidential candidate, Henry Stimson, proposed that information about atomic energy (not how to make the bomb) should be shared with other members of the United Nations, including the Soviet Union. Allaying his concerns, the Russians would view atomic energy as another weapon in the Anglo-American arsenal that must—and would—be matched. In a follow-up letter to President Truman, joined those U.S. atomic scientists who warned that, in attempting to maintain secrecy about these scientific developments, were indulging in “the erroneous hope of being safe behind a scientific Maginot Line.”

Wallace was also acutely aware that another bomb would bring to the growing global discrepancy between rich and poor—and that dramatic population growth, accompanied by even greater human misery and suffering, would lead to even more probable than the bomb itself.

For the last 17 years of his life, Wallace was retired on his New York farm, out of public life and politics, continuing the work he loved most—his experiments with gladiolus, strawberries, corn and chickens, as well as his efforts to increase agricultural productivity and improve the nutrition of the people in the less developed world with a special emphasis on Central and Latin America.

In 1963, in a commencement address at the Pan American School of Agriculture in Honduras, Wallace told the young graduates that when they were out of college, they should work at least one-third of the time with their hands and preferably in contact with soil. He urged them to invest “their personal interest wisely,” and the “depth of that interest will draw other people to you. Some of them good, some bad. Eventually some of you will come to understand human values and the threats of jobs which it all. He went on to say that “you are scientists who have learned to use your hands in a practical way. In so doing you will be immensely useful to humanity in the most fundamental way. You will not belong to the right or the left or the center, but to the earth and those who work the earth long enough to tax it may be preserved and improved century after century.”

What, then, are we to make of this shy revolutionary, this complex genius with such an obvious way of improving the lot of his fellow human beings. But there was another component to his vision. This was the hope that hybrid seeds would bring about a “distinctive rural civilization” of his family’s dreams. He asked: “Perhaps hybrid seed, and science in general, provided an answer.”

It may be charged—certainly it was in his own mind—that such a weapon was un-American. But Wallace was not intimidated by such language. “Our utopias,” he wrote, “are the
blueprints of our future civilization, and as such, airy structures though they are, they really play a bigger part in the progress of man than our more material structures of brick and mortar. The habit of building castles shows to a degree whether our race is made up of dull-witted bipeds or whether it is made up of men who want to enjoy the full savagery of their nature as long as they feel themselves working with the forces of nature to remake the world nearer to their heart's desire. It is worth reflecting upon this comment, for it encompasses Wallace's answer to both those who would say science must be allowed to work its will regardless of the consequences of its own successes. He would rather forego knowledge than cope with change.

To conclude, he said this:

"The cause of liberty and the cause of true science must always be one and the same.

For science cannot flourish except in an atmosphere of freedom, and freedom cannot survive unless there is an honest facing of facts. Democracy—and that term includes free science—must apply itself to meeting the material need of men for work, for food, for health, for security, and to meeting their spiritual need for dignity, for knowledge, for self-expression, for adventure and for reverence. And it must succeed."

In other words, the ends of science must always be mankind. Scientists, no less than the rest of us, must take every day their responsibilities; themselves; What is worthwhile?

To the anti-scientists, Wallace said this in 1936:

"I have no patience with those who claim that the present surplus of farm products means that we should stop our efforts at improved efficiency. What we need is not less science in farming, but more science in economics. Science has no doubt made the surplus possible, but science is not responsible for our failure to distribute the fruits of labor equitably." In other words, the answer to society's problems lies not in blocking progress but in guiding it to serve mankind's ends.

And to everyone he offered this warning:

"The attacks upon science stem from many sources. It is necessary for science to defend itself, first, against such attacks, and second, against the consequences of its own successes. What I mean is this: That science has magnificently enabled mankind to conquer many of the problems that were once insurmountable enough to go around; but that science, having created abundance, has now to help men live with abundance. Having conquered seemingly unconquerable physical obstacles, science has now to help mankind conquer social and economic obstacles. Unleash mankind can conquer these new obstacles. The lives of classes of science will seem worse than futile. The future of civilization, as well as of science, is involved."

Wallace reserved "scientific understanding is our joy. Economic and political understanding is our duty." His concept of scientific research was a broad one and included the lifting of the scientific sciences to the same level as the natural sciences. In turn, he challenged these scientists to have a greater conscience concerning the implications of their work. Applied research would properly involve social planning, which would enable man to have more leisure time and thus better enjoy non-material things, such as literature, music, art, sport for sport's sake, and the idle curiosity of the scientist himself.

The New Republic, which he served briefly as editor, said that from politics, once described his concept of political democracy as "... that of a science which would blend political freedom with the full use of resources, both of manpower and of technologies, for everyone's welfare."

"It is intriguing to speculate about what Wallace might have said here today, about the state of agriculture in this country and around the world, about the movement from plant breeding and agriculture, about the role of science and the march of human progress. Probably his comments would surprise all of us, as they so often surprised him in his lifetime. His was a provocative and remarkably original mind, unfazed by popular opinion and conventional wisdom. The absence of 'corn shows' testifies to the first."

First, on a very contemporary note, we can assume Wallace would be appalled and disgusted by the attack now being made on the central role of agriculture—about 15 to 20 percent of the labor force—those related to agriculture. The efforts made to preserve land—to remove marginal land from production and protect the remainder from erosion and abuse—were among his proudest accomplishments. "People in cities may forget the soil for as long as a hundred years, but mother nature's memory is longer. They may not then forget indefinitely," he wrote. "The soil is the mother of man and if we forget her, life everywhere will suffer loss."

Second, Wallace would admonish us to use our abundance more "virtuously and wisely." In the long run, Wallace believed, a healthy agriculture would create the economic underpinnings of the politics of scarcity. In his own time, Wallace saw the devastating consequences of scarcity run amuck; one-third of a nation ill-nourished, ill-clad, and ill-housed. Today, however, we might imagine that Wallace would see too much money, made in unproductive ways, in the hands of too few people, too quickly spent, many methods of securing and satisfying employment, and far, far too many people living wasted lives in the poverty and degradation of our major cities. He would deplore the national priorities which call for huge defense budgets while reducing investments in education, environment, and job training. He would be greatly troubled by the lack of concern for the "general welfare," the widespread violence in our country, and the lack of civility and loss of community in our national life. He would urge a greater commitment and economic planning to address these issues.

While he would welcome the liberalization of international trade, he would decry the "sheer waste" and "waste of World resources on arms. He would advocate a stronger U.N. military force and greater foreign assistance through more efficient and reformed multilateral lending institutions. Third, we might guess that Wallace would look upon the sustainable agriculture move-ment. Wallace, as long as his failing breath lasted, corresponded with geneticists, plant breeders and others around the world before going out to the field in a mechanized wheelchair to work with his research plots. His last letter was to a long-time friend and corn breeder.

"Your 3306 [a hybrid seed corn] has me all excited. So glad you have 2,000 acres of it. . . . I was feeling rather blue when I got up this morning, thinking the end of the road was not far off. But when I got to thinking about 3306, I felt I just had to live to see how it would adapt. Do you think it would adapt well to the programs in the Argentine program, and the South Georgia program. Yes, this is the most exciting letter I have ever received from you..."

"I was in a New York State plant small, work hard, seek the truth, glorify God, and have sympathy for the plant."

ORDER OF BUSINESS

Mr. INHOFE addressed the Chair.