knowledge of their physicochemical properties. Many have attributed her success in crystallizing proteins to her "magic touch." Some even suggested to her that her secret lay in some mysterious seeding effect of the ash falling from the cigarette which never left her mouth when she was working. She enjoyed these jibes, but she felt very strongly that protein purification should be divorced from the mystery which is usually associated with it. She felt that it should be based, rather, on the application of "horse sense," an attribute which she admired in others and with which she herself was endowed to a remarkable degree.

Arda Green lived a full life outside of the laboratory. With the same vigor, enthusiasm, and thoroughness with which she attacked her laboratory problems, she devoted herself at home to cooking, dressmaking, music, and entertaining. It was she who always saw to it that no unattached members of the laboratory staff ever went unfed on Thanksgiving Day. Her genuine concern for others and her deep devotion to her family always showed itself not just in words but in practical, helpful gestures. Even during the crippling illness which marred the last year of her life she continued to devote herself to doing things for her family and friends, almost to the day of her death, on 22 January 1958.

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News of Science

Final Form of Congressional Action on Federal Aid to Education

Pursuing a course of action formally initiated by the President last January, the House of Representatives and the Senate have passed legislation which gives federal aid to the educational effort of the country. The two houses, working in a preadjournment flurry of activity, accepted separately two differing measures. These were reconciled in a conference meeting of the relevant House and Senate committees, and the final form of the legislation has now been elaborated.

Earlier House Action

On 8 August the House of Representatives, after lengthy and occasionally raucous debate, passed HR 13247, the National Defense Education Act, but not before the scholarship provision, one of the major elements of the bill, was eliminated. No funds, however, were subtracted from the bill. Rather, on a motion offered by Representative Walter H. Judd, (R-Minn.), those funds originally alloted for the scholarship provision were shifted to increase substantially the student loan fund provided for under title 3 of the bill. The effect, in short, was this: while federal expenditure for aid to education was to be at the same level as was called for by the original provisions, the money was to go out to students in the form of a loan, to be repaid after graduation, rather than in the form of a grant of money. This form, loan with repayment after graduation, is one currently in use by many colleges and universities.

Title 3 of the original bill—loans to students in institutes of higher education—read in part as follows: "For the purpose of enabling the Commissioner [of Education] to stimulate and assist in the establishment at institutes of higher education of funds for the making of low interest loans to students in need thereof to pursue their courses of study in such institutions, there are hereby authorized to be appropriated $40 million for the fiscal year ending 30 June 1959, $60 million for each of the three succeeding fiscal years, . . ." As passed by the House, title 3 called for an additional $20 million to augment each of the original appropriations, for a total basic loan fund of $300 million.

Earlier Senate Action

The Senate, ending debate on its form of the education bill at 12:05 A.M. on the morning of 14 August, passed a bill which retained, on a diminished scale, the scholarship program. By its approval of an amendment offered by Senator Cooper of Kentucky, the Senate reduced the cost of the program from $17.5 million to $5 million, by reducing the grants to individual students from $1000 a year to $250 a year. The 4-year program would have benefited about 23,000 students a year.

Reconciliation

On 21 August a compromise between the House and Senate measures was worked out in conference. This compromise constitutes the final form of federal aid to education legislation. It calls for a 4-year, $887,400,000 program with no scholarship provision. Aid to individual students would come from a loan fund of $295 million over a 4-year period. The fund is to be administered by the institution of higher learning at which the student studies, rather than by a state board as the Senate bill had stipulated.

In addition to the loan fund, the compromise bill calls for $300 million, to be matched by the states, for the purpose of helping schools, public and private, to purchase equipment for the teaching of scientific subjects.

The bill also authorizes funds for the following: institutes for teachers to learn educational counseling; centers for training foreign-language teachers; fellowships, including allowances for dependents of recipients; guidance, counseling, and testing for precollege students by the states; centers for teaching little-known modern languages; research and experimentation on better educational use of television, radio, and audiovisual aids; vocational education in skilled trades necessary for defense; and improvement of state educational statistics.

Both Senator Hill and Representative Elliot, the sponsors of the bills in the two houses, expressed some degree of satisfaction with the result of the compromise. But Senator Hill and Senator Smith of New Jersey deplored the loss of the scholarship provision and the corollary defeat of the attempt to give national recognition to intellectual achievement by means of it.

Merit or Need

Earlier forms of this legislation had reflected a variety of attitudes toward the question of the proper basis for awarding aid to the individual student.

Should need or merit be the deciding criterion? Bills that reflected the Administration view of the matter declared that financial necessity should determine the selection of recipients of aid, whereas the bills introduced by Senator Hill and Representative Elliot stressed the honorary element of the award by which the government recognized those students whose work showed high achievement at the high-school level.

The tenor of the earlier Hill-Elliot bill and its attitude toward the merit basis for award can be seen in the paragraph stating the purpose of the bill: "to strengthen the national defense, advance the cause of peace and assure the intellectual preeminence of the United States especially in science and technology. . . ." In addition to granting scholarships on a merit basis, the earlier Hill-Elliot bill called for Congressional citations to the top 5 percent of high-school graduates. None of these provisions with the general aim of increasing the prestige of intellectual activity succeeded in getting through the welter of Congressional debate. The need-or-merit problem was resolved in favor of need in two steps. First, it was proposed that the successful scholarship applicant would receive $500 a year regardless of need and would be eligible for an additional amount up to $500 a year on the basis of demonstrated need. This was the provision of Representative Elliot's bill, HR 13247. In the second step, merit as the basis for award was eliminated when the provision for scholarships was given up, and federal aid, through the states, to individuals was to be made available on the grounds of need through the loan fund. Associated with this provision was the understanding that applicants would be fully qualified on a minimal merit basis. The dominance of the need school of thought over the merit or honor school can be seen in another way in the absence in the final form of the bill of language dealing with "intellectual preeminence," "outstanding scholastic achievement," and honorary citations.

Trend of Action

Viewed generally, and over the period of time since last January, the trend of legislative action has been away from an active federal policy, by which the Government, through the states, seeks out, commends, and awards young people who have demonstrated superior intellectual ability, and toward a more passive policy by which the Government simply makes available the machinery and the funds for those students who are qualified and who do need financial aid. Rather than the Government going to the student, the student, under the compromise bill, *may* go to the Government.

East-West Nuclear Suspension

An East-West scientific conference on the suspension of nuclear tests that has been taking place in Geneva for 7 weeks closed on 21 August with the announcement that a "technically feasible" system for policing a world-wide nuclear test ban had been worked out. The participants in the discussions were scientists from the United States, Canada, Great Britain, France, the U.S.S.R., Poland, Czechoslovakia, and Romania. The group completed a 40-page confidential report, giving details of the recommended control system, that has been forwarded to the respective governments and will be made public later. Meanwhile, the conference members released a communique that said in part:

"In the course of the work of the conference, there was an exchange of opinions on the question of the various methods of detecting nuclear explosions.

"The conference came to the conclusion that the methods of detecting nuclear explosions available at the present time, viz. the method of collecting samples of radioactive debris, the method of recording seismic, acoustic and hydroacoustic waves, and the radio signal method, together with the use of on-site inspection of unidentified events which might be suspected of being nuclear explosions, make it possible, within certain specific limits, to detect and identify nuclear explosions, and it recommends the use of these methods in a control system.

"The conference noted that the combined use of the various methods considerably facilitates detection and identification of nuclear explosions.

"The conference of experts noted that the effectiveness of the methods considered will increase in course of time with improvement of measuring techniques and with study of the characteristics of natural phenomena which cause interference when explosions are detected.

"The conference has adopted an agreed conclusion regarding the technical equipment of the control system necessary for the detection and identification of nuclear explosions.

"The conference of experts reached the conclusion that it is technically feasible to set up, with certain capabilities and limitations, a workable and effective control system for the detection of violations of a possible agreement on the world-wide cessation of nuclear weapons tests.

"It was established in this connection that a network of control posts which were equipped with all the necessary apparatus appropriate to the various methods of detection of nuclear explosions should be disposed on continents and on islands, as well as on a few ships in oceans.

"The experts came to the conclusions that the control system should be under the direction of an international control organ which would ensure the coordination of the activities of the control system and the functioning of the system in such a way that it would satisfy the necessary technical requirements.

"On the 21st of August, 1958, the conference of experts adopted a final report for consideration by Governments. The report will be made public at a time to be determined by Governments."

The leader of the Western participants was United States delegate James B. Fisk, a member of President Eisenhower's Scientific Advisory Committee. In a closing statement he said:

"We on the Western side are gratified that the task set for this conference . . . has been successfully accomplished. . . .

"As scientists we have sought here to establish the facts pertinent to our subject, and to draw from them sound and logical conclusions regarding a system of control. . . .

"I speak for all of those on the Western side when I express our satisfaction at the friendly and cooperative working relationships which we have enjoyed with our colleagues on the other side of the table. . . ."

Evgeny Fyodorov, a leader in the U.S.S.R. satellite program, was spokesman for the Communist countries. His final remarks included the following:

"What is the basic conclusion which can be drawn following the completion of our lengthy task? The conclusion is very simple and very clear.

"A nuclear explosion, including an explosion of small magnitude, can be detected, and the establishment of an effective control system which would make it possible to have an inspection and a checking of the maintenance of an agreement on the universal cessation of nuclear weapons tests is a quite feasible undertaking and one which would not be particularly complicated.

"In certain instances the task of detecting and identifying nuclear explosions of small yields is relatively simple; in others, specific difficulties are involved.

"However, no matter where a possible violator attempted to conceal his atomic explosion–under the water, on the earth or in the cosmic space—100,000 kilometers [62,500 miles] from the earth —he will nowhere be guaranteed from exposure.

"The means by which these problems are to be resolved is indicated in our proposals which we have adopted. As technical experts, we have not discussed factors of a moral or social character."