D. Lysenko, the geneticist who came to dominate Soviet biology under Stalin and who managed to hang on through the Khrushchev era, has been ousted as director of the Institute of Genetics of the Academy of Sciences. The ouster reportedly took place 27 January at a meeting of the Academy's department of biological sciences. According to the New York *Times*, the Institute, which Lysenko had headed since 1940, is to be reorganized as the Institute of General Genetics, and additional laboratories for genetics are to be set up in other institutes of the Academy. A new journal of genetics is to be published, and a new professional society of geneticists is to be established. Pending the reorganization, Khila F. Kushner, identified as an animal geneticist, will serve as acting director of the Institute.

According to a statement by M. V. Keldysh, president of the Academy of Sciences, guidelines for coordinating applied and basic work in biology will soon be planned at a conference of the Academy of Sciences, the Academy of Medicine, and the Ministries of Agriculture, Higher Education, and Public Health. Absent from the list of participants was the Academy of Agriculture. Lysenko and his disciples have dominated the Academy of Agriculture since 1938, and have used it to propagate their theory that heredity is governed by environment rather than by the transmission of genetic material.

Under Khrushchev, Lysenko never received the political support that enabled him to dominate Soviet biology in the Stalin era, but a sort of scientific coexistence developed, and he retained considerable influence. Almost immediately following Khrushchev's forced retirement last October, the Soviet press, which had once been a vehicle for Lysenko's views, turned on him and carried attacks from other scientists. Later, it was announced that Soviet biology texts would be rewritten to eliminate Lysenko's imprint.

The public obituary to the Lysenko affair was delivered by Keldysh at the Academy's annual meeting last week. A summary, published in *Pravda*, stated that "the exclusive position held by Academician Lysenko must not continue. His theories must be submitted to free discussion and normal verification. If we create in biology the same normal scientific atmosphere that exists in other fields, we will exclude any possibility of repeating the bad situation we witnessed in the past."—D.S.G.

School Aid Bill: Attention to Controversial Issues Overshadows Discussion of Educational R&D

As if to discomfit its critics, Congress has abandoned its leisurely early-session ways of other years and is behaving as though it were Columbus Day of an election year rather than Lincoln's Birthday of a first session.

This unaccustomed activity is evident both in the committee room and on the floor and includes work on science, health, and education measures which often in the past have been given deferred status on the congressional agenda.

The Senate has passed a measure to amend the Water Pollution Control Act in order to bolster, in various ways, federal assistance to the states in enforcing the law, and has completed hearings on two routine Public Health Service authorization bills. Hearings on an extension of the national saline-water conversion program were scheduled for this week, and also 2 days of hearings on the President's proposal for a national commission on heart disease, stroke, and cancer.

In the House, the Ways and Means Committee has been meeting in executive session on medicare, and the Commerce Committee has held hearings on dangerous drug legislation (*Science*, 25 Sept. 1964). And these are only examples.

This galvanic change in congressional habits is being widely attributed to President Johnson's invoking his November mandate while "reasoning together" with congressional leaders, and to his promptness in dispatching to Capitol Hill a sheaf of politically negotiable measures. It should be noted that the barbs hurled by critics of Congress—particularly 2 years ago—drew blood, and that many rank-and-file members have been disgruntled in recent years over what appeared to be dawdling and needless delay.

The most striking example of acceleration in the 1965-model Congress is provided by the case of the President's education program. Hearings began on 22 January on the Elementary and Secondary Education Act, before the House general education subcommittee, chaired by Representative Carl Perkins (D–Ky.), and a week later, before the counterpart subcommittee in the Senate, headed by Oregon Senator Wayne Morse. Hearings in the House on the President's proposals for higher education commenced on 1 February before Oregon Congresswoman Edith Green's education subcommittee.

In 10 days of hearings the Perkins subcommittee compiled a very bulky record by meeting afternoons as well as mornings and, on a few occasions, into the night, a rather unusual performance so early in the session. The subcommittee, in the middle of last week, went into closed session to "mark up" the bill—that is, revise it in the light of the testimony—and last Friday it completed work on the measure.

This handling of the school bill drew protests from Republican members of the subcommittee—at one point Representative Charles Goodell (R–N.Y.) objected that the hearings were being conducted in "unholy haste." And the three Republican members of the subcommittee failed to appear at executive sessions in what appeared to be a boycott.

Perkins, in fact, was more hospitable than many chairmen about scheduling those who wished to testify, and there were no complaints that he was cutting off discussion (one witness hostile to the bill was in the chair for 3 hours). But the hearings were conducted under conditions which did resemble a marathon.

A Diversion

Education and Labor Committee chairman Adam Clayton Powell (D–N.Y.) is said to have intended to bring out the bill with a minimum of delay, and observers say one major reason for the dispatch is that the administration wants action on the bill before the disputes endemic to school-aid legislation break out seriously.

Full committee sessions on the bill were scheduled to begin on Monday, but Powell canceled them, apparently for reasons which had little to do with the legislation. Powell and some other House committee chairmen became involved in a skirmish over control of committee budgets by the Rules Committee. Special restrictions were put on Powell last year, particularly on control of investigation and travel funds, and he made common cause with some other committee chairmen to oppose the Rules Committee, which this year seemed to be seeking to impose similar restraints. This and the Lincoln's Birthday exodus of Republicans interrupted the headlong pace and, in the hiatus, criticism of the school bill in the same key as in other years has been mounting.

As testimony unfolded in the House

it was clear that the bill, with its carefully calculated "reconciliation" features, had not completely quieted old differences on the church-state issue and the matter of federal control. What was highly significant, however, was that the measure won the restrained approval of such key educational interest groups as the National Education Association and the National Catholic Welfare Council, which form a sort of vital center in education politics. Opposition from one or more of these groups in the past has stymied federal aid legislation. Equally pertinent is the fact that legislators who in the past have prominently opposed school-aid proposals appear now to support, or at any rate accept, the new bill.

The least controversial section of the $1.25 billion package proved to be the main one, which would provide $1 billion in federal funds for support of special programs for children of low-income families (*Science*, 22 Jan.). Some criticism centered on the allocation formula, which would depend essentially on decennial census figures on low-income families and would grow progressively less accurate, and some groups expressed misgivings about how funds could be fairly distributed to benefit the disadvantaged—from both public and private schools—exclusively.

More criticism was directed at Title II of the bill, which provides that $100 million in federal funds be used to make available library materials and textbooks to all school children in a state. This section has gained the support of partisans of Catholic and other private schools and, as might be expected, has drawn fire from those who might be termed "secularists," who view as unconstitutional the use of federal funds in any way which would work to the educational benefit of private schools, particularly denominational ones. (It should be noted that only in Title I are the provisions drawn to benefit disadvantaged children exclusively.)

It is the next two titles of the bill which embody the programs counted on by the administration to originate and develop essential new ideas and transmit these ideas to the schools.

Title III would provide $100 million for "supplementary educational centers" open to children in both public and private schools within a community. These centers, according to Commissioner of Education Francis Keppel, would have three main purposes: (i) to supplement educational programs and facilities already available in a local community; (ii) to stimulate progress toward achievement of higher quality education by providing *better* services than are currently available; (iii) to insure that flexibility, innovation, and experimentation become an integral part of the educational system.

Objection to the center concept was voiced by Representative Goodell, ranking minority member on the subcommittee, who sees the centers as "potentially, a federal school system." Edgar Fuller, executive secretary of the Council of Chief State School Officers, speaking for the Council, which has a natural concern for "states rights" in education, expressed the fear that the centers would constitute "parallel systems" of education and provide a possible direct link between a local system operating one of the centers and the federal government, and thus open the way for federal control.

Title IV would expand the work being conducted under the Cooperative Research Act, adding some $45 million this year to federal funds being spent in universities and other nonprofit institutions for research and demonstration projects in education. The new funds would be used in part to create new regional research centers.

Key to Quality

It is these latter two sections of the bill which hold the key to the improvement of quality in education in American schools, if improvement is to come about through linking of the existing school structure and sound educational research.

In discussing the proposal for regional centers, Keppel, in his statement before the Perkins subcommittee, warned that, as the demands on American education grow, "there is a danger that quantity will overcome quality."

"This can be avoided," he continued, "only by effecting necessary innovations in the educational system. These innovations must be based on the results of sound research rather than on fashion, fad and fancy. We know that we are going to have to shed obsolete educational practices, restructure outmoded facilities, create new and responsive learning environments, develop new curricula, train teachers and researchers to guide and continue the process of improvement, and make the results of research and development readily available to the schools through a program of dissemination which will reduce the time lag between research and its application, a lag which has often been 30 years or more.

"Meeting these needs requires that we spend considerably more money for research and development in education than we have so far. A total of $16 million is being spent in fiscal year 1965 on cooperative research. Only $72 million, less than two-fifths of 1 percent of our total educational outlay, is now spent on all educational research and development. This is a very small answer to a very great need.

"By contrast we spend $8 billion annually for research and development on our Nation's defenses, and many progressive private industries invest as much as 10 percent of their total annual expenditures for research and development.

"Education, in its size, investment, and population, is now the Nation's number one enterprise (more than 50 million Americans are engaged in one way or another in education). Its total annual expenditure is now about $34 billion. Yet of every $1000 of Federal money spent on all research and development in 1964, only $3.50 went to education. Clearly this is not enough."

The administration, clearly, is relying on Titles III and IV to provide the yeast of quality in its new elementary and secondary education bill.

But, as Keppel and other witnesses emphasized, the lag between fruitful research and its application remains a very long one.

In general, the discussion of need for the new program, on the one hand, and of constitutional issues and the threat of federal control, on the other, overshadowed any extensive examination of the problems of translating new ideas into practice in the schools.

The exception to this was a morning panel on Saturday, 28 January, involving four men concerned with frontier research in education. Three of them are connected in one way or another with Educational Services Inc. (ESI), which administers the Physical Sciences Curriculum Study projects of the Physical Science Study Committee (PSSC), and one was from the Carnegie Corporation, which, in recent years, has sponsored considerable research on the learning process and on experimental education programs.

The panel was organized by Representative John Brademas (D–Ind.), ranking majority member of the Perkins subcommittee, for the purpose of talking about innovation in education. It

was headed by James R. Killian, chairman of the board of M.I.T. and former science adviser to President Eisenhower. He has served for some time on the ESI board.

Killian said it is "obsolescence that I think is the core of our problem in dealing with innovation," and he suggested that ESI could be regarded as the "real prototype of the laboratory that is proposed in this bill . . ." (in Title IV).

The key to the success of ESI's projects, Killian said, was its close relations with both universities and school systems. "Most importantly," he said, "from inception, ESI has served as a vehicle for confederating scholars and teachers from a number of institutions, both universities and precollege, who are willing to work cooperatively in an interdisciplinary pooling of talents."

Carnegie Corporation staff member Arthur Singer also referred to the model of PSSC–ESI and other curriculum reform efforts in biology, chemistry, and mathematics achieved by the alliance of university scholar and school teacher when he said, "The most successful innovations are those which are accompanied by the most elaborate help to teachers as they begin to use new materials or new methods of teaching."

Keppel, in his statement, indicated the desire to enlist the services of able researchers from a variety of institutions beyond the regular public education ambit when he said, "Under Title IV, authority would also be granted to employ the competence of research organizations and professional associations."

It should be recognized, however, that there is a real reluctance on the part of some federal legislators to accept the kind of development envisioned in the administration bill. At the root of this reluctance is the issue of federal control, based on the fear that federal support of research could result in "centralized curriculum" planning being imposed on the schools.

A colloquy between Representative Alphonzo Bell (R–Calif.) and Dr. David Page, one of the leaders in mathematics programs at ESI, illustrates some aspects of this controversy.

Bell offered the opinion that if federal funds were made available with only the requirement that they be used for educational purposes, "the States and local governments . . ., if they had the wherewithal, would know better how to develop a curriculum and how to use it than having the curriculum set up by a commissioner."

In response, Page said he "would like to say a few words, perhaps a few harsh words. Most of the exciting and worthwhile curriculum developments in the last 10 years have been accomplished through the pooling of the talents of professional physicists and people of the scholarly disciplines. It is not obvious that the people in whose hands the money would be placed could get in touch with such people."

Bell then observed, "In my state it is certainly true that the people who represent the school boards are usually elected by the local people in the school areas. Are you saying, in effect, that these public servants and the people who elect them do not know more about their individual problems than the people in Washington?"

To which Page replied, "They know more about their local individual problems, but they may not know enough about physics and mathematics and so on, to solve these problems."

There are, of course, severe limits on what federal legislators can do to foster the relationship between those who perform first-rate educational research and those who operate the schools. At least until very recently, the volume of outstanding research has been meager and the pace of innovation in the schools very slow. A bill of the kind proposed would no doubt encourage innovation in the schools simply through the emphasis on research and the provision of funds. But in light of the limited research manpower now available and of the experience of successful research projects outside the regular school structure, the encouragement only of "do-it-yourself" research projects by school districts and state departments would vitiate the effects of the program.

In the case of the key supplementary educational centers, however, an amendment written in executive session by the House subcommittee seems to offer a viable compromise by placing control of the centers in the hands of regular school authorities but leaving the way open for participation by researchers from outside.

As this was written, it was impossible to gauge how hot the fires of opposition would grow. The future of the bill still seemed to depend on maintaining a consensus among the major educational groups. The legislators who support the measure are involved in the delicate task of finding ways to respond to objections raised on the grounds of the church-state issue and federal control and, at the same time, achieving the purposes of the bill. (In both House and Senate there seems to be an expectation that the bill, if it passes, will probably make a trip to the courts, a destination long prophesied for school-aid bills.)

The new school bill inevitably raises constitutional, political, and educational problems, and the difficulty with it is that changes which may help with one set of problems may hinder with the others.—JOHN WALSH

Announcements

The **University of Rochester** has announced the first major revision of its Medical School curriculum since its opening in 1925. Rochester's revised curriculum will offer: (i) a tutorial program, to bring students into continuing close association with a senior faculty member in small-group teaching situations; (ii) a program of elective courses, enabling the student to "explore areas of medicine that excite his interest"; (iii) a new type of combined M.D.-Ph.D. program for the student who wishes training in depth both as a physician and as a medical scientist; and (iv) increased emphasis on interdepartmental teaching through new courses designed to present an interdisciplinary view of basic medical concepts. In addition, the medical school will expand its "year out" program, enabling students to spend a year in independent work. Further information on the revisions and programs is available from Donald G. Anderson, Dean of the School of Medicine, University of Rochester, Rochester, New York.

The University of Michigan has announced plans for the establishment of a **Center for Human Growth and Development**. It will coordinate work now being carried on in the schools and colleges of education, literature, science and the arts, medicine, public health, social work, and dentistry. The Center will focus on selected aspects of development through childhood, adolescence, middle age, and old age. Further information on the Center is available from Robert E. Moyers, who will be the Center's director. He is professor of dentistry at the University of Michigan, Ann Arbor.