group called The Particles, and a dance team called The Two Neutrinos has worked out a step to it. I might add that I was most pleased the other day when a teacher told me that he had asked a student if he had read Newton's *Principia*, and the student replied, "No, but I've seen the movie." It was one of our educational films.

Q. Are there other activities?

A. Oh yes. We are working on breakthroughs in techniques for teaching rapid reading, and we are pleased to report that we have achieved speeds of 5000 words a minute.

Q. Really? With what degree of comprehension?

A. Well, that's a problem. Actually, we have been unable to achieve any comprehension at such speeds, but the imminence of a breakthrough in this area has attracted a gratifying amount of public attention.

Q. Dr. Swinger, as we go into the New Year what would you say lies ahead in the sciences?

A. We naturally have devoted serious attention to this question, and to obtain a fresh look we subcontracted a study to a group of Wall Street analysts. They report that the New Year can be expected to open on a moderate note, with selected advances in oceanography, molecular biology, and earth sciences. Though some softness will probably prevail in high-energy physics, sizable gains can be expected over the long term. Ground-based astronomy is showing new strength, but its potential is currently clouded by widespread interest in space. Chemistry is likely to come in for new gains, but on a highly selective basis. NIH futures will, in general, show only slight-to-moderate gains. NSF shows promise of rapidly advancing to new highs. NASA may have to retreat before heavy pressures, but the losses here are likely to be of a moderate nature. Fellowship and traineeship futures look particularly bright.

Q. Thank you, Dr. Swinger.

—D. S. GREENBERG

Education: Case for Federal Aid, Comprehensive Planning Discussed as Costs and Enrollment Rise

Trends in American education are usually closely linked to events which affect the society at large. The response to the launching of the first sputnik in 1957—emphasis on science, mathematics, and foreign languages in the schools and on all these and engineering in higher education—provides a clear example of the linkage.

In the years before sputnik, American public education had been struggling with the effects of the postwar baby boom. School authorities had been trying to build enough classrooms and to train, hire, and keep the teachers needed to do the job.

Since sputnik, the wheel has taken a new turn and another set of problems has come to the top. The results of school segregation, *de jure* in the South and *de facto* in the North, were finally being faced. And the recession of 1960–61 turned the spotlight on the technologically unemployed—the undereducated and unskilled, both young and old. For the schools, the new focus of concern became the "disadvantaged" child. It can fairly be said that that forlorn figure, the high-school dropout, played a starring role in the process which led to an extensive revision and expansion of vocational education programs in 1963 and the passage of the President's Poverty program.

Shifts in Attention

The shift in public attention from one set of problems to another does not mean that the earlier problems have been solved. The case is, rather, that the problems, like Hegel's dialectic, thesis-antithesis-synthesis, just keep rolling along. But another phase seems to be opening, and this might be called a search for an effective way to make national policy to deal with the problems, both quantitative and qualitative, which afflict American education.

In limited terms, this has meant a new consideration of federal aid, of how much and what kind there should be. This consideration is being forced by the pressures of enrollment in both the schools and the institutions of higher education, and by the growing difficulty the states and local school districts encounter in finding adequate revenues to support expansion and improvement. It is also being encouraged by the passage of an unprecedented number of important education bills in the last Congress.

In the two decades since the war, attempts to pass federal legislation to provide general aid to schools have resulted in several near misses. But objections on the grounds of states rights (segregation), the threat of federal control, and, particularly, the church-state issue have always blocked the door to general aid.

One example of this new serious look at federal aid is provided by the most recent report of the Educational Policies Commission, an advisory committee appointed by the National Education Association and the American Association of School Administrators, the grand army of organized education in the United States and the subgroup which traditionally has provided its marshals. The Educational Policies Commission, which includes both professional educators and distinguished laymen among its members, does not speak officially for either organization and has often advocated policies at variance with those of its sponsors. But its reports have often anticipated later developments and usually reflect topical concerns.

In general, education organizations have favored federal aid in the form of general support funds to be administered locally for locally determined purposes, rather than "categorical" aid limited to specific uses (for example, the teaching of science, math, and foreign languages under the National Defense Education Act).

This year the Educational Policies Commission, in its report "Educational Responsibilities of the Federal Government," says that passage of general aid legislation is unlikely and advises educators to "consider what alternatives are available."

According to the commission, "The most obvious alternative is to improve the dispensing of specific aids. This is not ideal educational policy, but democracy advances through willingness to adapt to present realities, without prejudice to the long-range pursuit of ideals. Moreover, the achievement of specific aids has proved politically feasible. In view of the failure of the Congress to establish general nationwide federal aid to education, and in view of the actual existence of a number of categorical aids, we recommend that educational leadership devote immediate and detailed attention to the improvement and spread of categorical aids, in order to obtain, to the extent possible, the values previously sought through general aid."

Another straw in the wind is a publication titled "Is Education the Business of the Federal Government," called a preliminary study for the Governors' Conference and presented last June at the Governors' meeting in Cleveland. The report carried no recommendations and required no action. It simply provided background on past proposals for federal aid programs, described

programs in being, and identified major issues involved in congressional consideration of federal aid proposals. What is notable in the pamphlet is its matter-of-fact tone and lack of states-rights chauvinism. It would be unwise to infer too much from the report, but the fact that it was commissioned and its open-minded tone probably indicate something about the governors' attitudes. The report, incidentally, was prepared under the direction of North Carolina Governor Terry Sanford, who, in the guessing game that goes on nonstop in Washington, has been mentioned as a possible future Secretary of Health, Education, and Welfare.

Last month a broader discussion of educational policy making came from one of the most prominent critics of American education, James Bryant Conant. Because of his reputation as scientist, university president, and government adviser and administrator, Conant has gained status in the public mind as a kind of honorary inspector general of American education.

In November Conant published a short book, *Shaping Educational Policy* (McGraw-Hill), which is both a by-product and a culmination of other books he has written as a result of a study of American schools begun in the late 1950's under auspices of the Carnegie Corporation.

It is difficult to say how much Conant followed the trends and how much he influenced them, but he has published a series of books since 1959 in which the emphasis has corresponded with the peaks of public interest in educational questions. Viewed in succession, Conant's books are interesting not only for their descriptions and their analyses of defects and strengths but also because they reflect a change in Conant's own viewpoint.

In his first report, *The American High School Today*, he concentrated on the comprehensive high school. He was disturbed by the wastage of talent he found, and criticized the weakness of the preparation in science and mathematics of students capable of college study and the inadequacy of programs for those who would go to work after high school. But he generally accepted the status quo and recommended changes in school organization and curriculum which would raise more high schools to the level of the best.

With his next book, *Education in the Junior High School*, Conant evinced a growing interest in the sociological context of education, and in his later *Slums and Suburbs* he contrasted the inequalities between suburban and inner-city schools.

Conant from the start has been a frank partisan of tax-supported, locally controlled public schools as the buttress of a democratic society. He had in his earlier reports been sympathetic toward professional educators and very restrained in his criticism of them. However, in *The Education of American Teachers*, which preceded the latest report, Conant took dead aim at the education establishment—the hierarchy of teachers, administrators, professional organization staff, and professors of education. His fire was directed mainly at the system of teacher training and certification which is the basis of the existing vertical monopoly in public education. Conant's previous good relations with the establishment gave his attack greater impact.

A New Target

In his latest book Conant raises his sights. His target is the vast problem of making effective policy for the whole education system, including higher education. He has not given up his belief in local control of schools, but notes that in a society as highly mobile as our own, at a time when differences in curriculum and quality of programs seem to be increasing, a highly decentralized system has serious drawbacks. He questions the ability of any local school authority, or of the educational establishment, which he regards as seriously inbred, to set educational policy single-handed.

This is a short book in which Conant devotes more space to diagnosis than to suggestions for a cure, but he does put forward several proposals.

He attacks the regional accrediting associations, which he thinks have been a force for mediocrity, and urges that states actually assume the responsibility over education for which they have the authority. This, says Conant, would require strengthening of state departments of education. These stronger state agencies, Conant notes, would be better able, for one thing, to meet the problems of slum and segregated schools.

Conant is not unaware that many, perhaps most, state departments of education are dominated either by elected officials with political fish to fry or by the education establishment in the state. To indicate how this vulnerability may be overcome, Conant uses the New York State Board of Regents as an example of how state authority can be exercised through a staff of able professionals working under a board which is independent from, yet maintains good relations with, the legislature.

As a model for state planning for higher education, Conant turns to California and its master plan. Conant, incidentally, is not impressed with California's public school system or New York's efforts in public higher education and suggests that each state could learn from the other's example.

Although Conant has less to say about higher education than about the schools, he deplores the contests for funds among public institutions of higher education, which are fought out in many legislatures. He calls for comprehensive planning and urges that legislatures cease looking at the public schools and state higher education institutions as separate and distinct problems.

Conant goes beyond the advocacy of improvements in state planning and financing for education. He argues that education presents a national problem which requires nationwide planning. He does not, however, say that any form of nationalization of education would be possible or desirable. Rather, he advocates what amounts to a voluntary system based on existing institutions and legal forms, such as the interstate compact.

The suggestion that has received most attention is his idea that Congress should appoint an Interstate Commission for Planning a Nationwide Educational Policy. Under this commission, "working parties" would make recommendations which individual states could accept or reject.

Conant indicates the magnitude and difficulty of the task when he says, "There is a vast complex of interconnected questions to be answered before one can make a start at developing a rational *nationwide* educational policy. In raising and answering the questions, university faculties, administrators, state and federal officials must be concerned. In the last analysis in many instances vital decisions must be made by the duly elected legislative bodies. Therefore in the early stages of the inquiry representatives of the lay public must play an active part, for what is needed is something far removed from institutional bargaining. What is needed is a national inquiry

initiated by the elected representatives of the people in fifty states."

Perhaps the major point in Conant's argument is that laymen be brought actively into the planning process. What Conant is saying, to paraphrase Clemenceau on war and the generals, is that education is too important to be left to the educators.

A precedent for what Conant recommends can be found in the participation of university scientists, mathematicians, and other scholars in the curriculum reform movement after many years of noninvolvement.

But Conant is calling for changes which are no less than revolutionary, and, while change is continuous in American education, revolution is very rare. Chief obstacles to his program are these: first, he advocates the breakup of the alliances between legislatures and education establishments which both sides in many states find convenient and comfortable; second, this new brand of policy making is likeliest to offend the people who will have to carry out the new policies.

Whatever the long-range effect of Conant's book as a revolutionary manifesto (and his influence is considerable), *Shaping Educational Policy* is, in the short run, an excellent handbook for interested citizens to use for background on the problems which will face the new Congress and the many state legislatures which meet after the first of the year.—JOHN WALSH

Johnson Cabinet: Drug Executive, Former Counsel to OSRD and ONR, Will Be Secretary of Commerce

On 15 December, President Johnson announced the appointment of John T. Connor, president of Merck & Co., Inc., a major U.S. ethical drug firm, to succeed Luther Hodges as Secretary of Commerce.

Connor, who describes himself as a "liberal businessman," attracted attention late last year when he played a leading role in the formation of the National Independent Committee for Johnson-Humphrey, a bipartisan association of top business executives who supported the Democratic ticket. The largely Republican drug industry, haunted by the ghost of Democratic Kefauver, was amazed by this action, particularly because Merck was one of the companies used as an example by the Kefauver investigators in 1959–60. But though Connor suffered several unpleasant moments as Kefauver probed into the prices and the advertising claims of some of his company's products, he was one of the few industry executives who ultimately announced themselves in favor of government regulation.

If industry's reaction to Connor's role in the campaign was incredulous, it was also restrained. The same cannot be said for various physicians throughout the country who regarded his efforts to elect a Democrat as so perfidious that, for a while, they made sporadic attempts to organize a boycott of Merck products.

Pharmaceutical reaction to Connor's appointment is one of jubilation. As Secretary of Commerce, Connor will have jurisdiction over one major area of interest to the drug houses, the Patent Office, and over certain other activities, such as overseas sales. Commerce has no authority over the licensing of drugs for domestic sale, over evaluation of drug safety and efficacy, or over drug advertising. All these activities are regulated by the Food and Drug Administration in the Department of Health, Education, and Welfare.

Apart from his links with the pharmaceutical industry, Connor, a lawyer with a B.A. from Syracuse and a law degree from Harvard, has also been associated with several government scientific enterprises. During World War II he was general counsel to the Office of Scientific Research and Development (OSRD), the agency which led the government into its still-growing involvement with science, and became closely associated with OSRD chief Vannevar Bush. After the war he became counsel to the Office of Naval Research and later was special assistant to Navy Secretary James Forrestal. In 1947 Connor joined Merck as general attorney, holding several executive offices until he became president in 1955. Partly at Connor's urging, Vannevar Bush also became associated with the firm, first as a director (in 1949), then, from 1957 until his retirement in 1962, as Chairman of the Board. It is felt in Washington that Connor's long connections with scientific activities will make him a sympathetic and knowledgeable administrator of the many scientific enterprises of the Department of Commerce. These include the Weather Bureau, the Coast and Geodetic Survey, the National Bureau of Standards, the Bureau of the Census, and the Patent Office.

—ELINOR LANGER

Announcements

The University of Saskatchewan has officially opened its new **Linear Accelerator Laboratory**. The Laboratory contains a linear electron accelerator with 140 Mev maximum unloaded energy, and a mean current of 200 microamperes at 100 Mev. L. Katz is the Laboratory's director.

The Carnegie Institute of Technology, Pittsburgh, has announced the establishment of a **Center for the Study of Information Processing**, financed by a contract of over $3 million from the Advanced Research Projects Agency of the Department of Defense. The Institute is directed by Alan Perlis.

The **American Council on Education**, Washington, D.C., has announced the establishment of a training program for college administrators. Financed by a 5-year $4,750,000 grant from the Ford Foundation, the program will provide "on the job" and related educational experiences to prospective administrators. ACE plans to request presidents of colleges and universities to nominate prospects for the program; participants will receive stipends equal to their current salary, and travel and moving allowances for their families. The project will be directed by Lanier Cox, on leave from his position as vice-chancellor of the University of Texas. (ACE, 1785 Massachusetts Avenue, NW, Washington, D.C. 20036)

Meeting Notes

The **American Mathematical Society**'s annual meeting will be held 26–30 January, in Denver. The Society will meet in conjunction with the Mathematical Association of America (28–30 January), the Association for Symbolic Logic (27 January), and a regional meeting of the National Council for Teachers of Mathematics (30 January). Areas to be covered include differential geometry, differential topology, function algebras, ordinary differential equations, and rings of operators and group representations. D. H. Lehmer, professor at the University of California, Berkeley, will deliver the 38th Josiah Willard Gibbs Lecture on 26 January. (AMS, 190 Hope Street, Providence, Rhode Island 02906)