of criticism voiced by Kapitsa, Artsimovich, and their peers has a significance beyond Soviet reality. Scientists in all modern societies are confronted with the moral and intellectual challenge engendered by the momentous expansion, industrialization, and "collectivization" of science, its rapidly increasing penetration into every phase of social and personal life, and its growing dependence on outside subsidies and overseers.

The search of Soviet scientists for a critical reassessment of the broader cultural effects of modern science and the ongoing technological revolution is still sporadic and lacks an open, direct, and fundamental confrontation with the key problems. So far the boldest steps have been made by individual members of the Academy of Sciences of the U.S.S.R., the men with distinguished careers in science.

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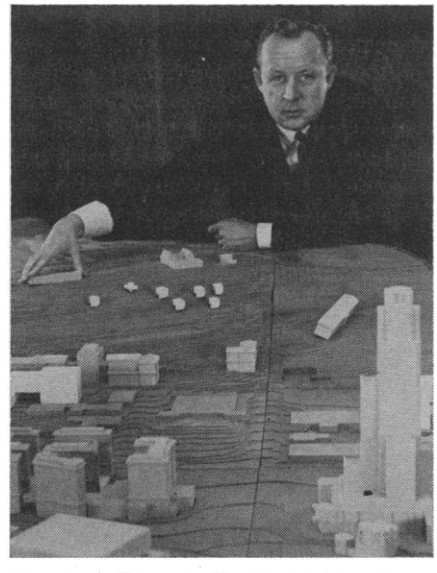
NEWS AND COMMENT

Edward Harold Litchfield: An Administrative Career Cut Short

Edward Harold Litchfield, 53, chancellor of the University of Pittsburgh for a decade, was found dead on Saturday, 9 March, after the private plane in which he and his family were riding crashed into the fog-shrouded waters of Lake Michigan near Chicago. (Also on the plane were his wife Mary, 41; his two youngest children, Ted, 10, and DeForest, 5; his mother, Ethel Litchfield, 80; and the pilot, Jim Looker. Dr. Litchfield's body was found soon after the crash; the others were not found immediately. Dr. Litchfield also had three older children, who were not passengers on the aircraft.)

The story of Edward Litchfield, a hard-driving administrator, was one of those rare lives about which a significant novel or biography could and should be written. In many ways an outstanding "success story," Litchfield's career tells much about American university education and about big business. Edward Litchfield lived on a grander scale than most educators; if his failures were more publicly known, it should at least be remembered that he also attempted more than most men.

The son of a Detroit postal clerk, Litchfield received his Ph.D. in political science from the University of Michigan in 1940, 4 years after being awarded a bachelor's degree from that institution. After World War II, Litchfield became director of civil administration for General Lucius D. Clay's government of occupied Germany. In 1950, he became professor of public administration at Cornell; during his years at Ithaca, he served a 3-year stint as the first Executive Secretary of the American Political Science Association and founded the *Administrative Science Quarterly*. As Dean of Cornell's Graduate School of Business and Public Administration from 1953 to 1955, Litchfield further solidified his many associations with industry which were to give an unusual character to his role as an educator. Litchfield served on the board of several corporations. At the time of his death, his main business responsibility was the chairmanship of the S.C.M. (Smith-Corona Marchant) Corporation, which he had held for the last 12 years. He is reported to have greatly increased S.C.M.'s profits.



The late Edward H. Litchfield with a model of the University of Pittsburgh where he served as chancellor from 1955 to 1965. Litchfield's body was found last Saturday, 9 March, after his private plane crashed into Lake Michigan near Chicago.

In 1954, at the age of 41, Litchfield was asked to assume the chancellorship of the University of Pittsburgh. At that time, Pittsburgh, primarily a "street car" college for commuters, was distinguished mainly by its football teams and by its central skyscraper building —the Cathedral of Learning. Pitt's trustees and other leaders of the powerful Pittsburgh business community wanted to turn Pitt into one of America's great universities. This was a difficult assignment, especially in view of the fact that Pitt was basically a private university with a small endowment and little access to public funds.

Litchfield was a man with the requisite personal audacity to accept that kind of challenge. During his administration, Pittsburgh acquired many outstanding faculty members and improved its physical facilities. One example of this progress was that the

university built up one of the best philosophy departments in the nation during Litchfield's chancellorship.

But Litchfield was not able to pull the university up by its bootstraps without making enemies. Faculty members who were told to move elsewhere or who were refused promotion or pay increase because of more rigorous academic standards were naturally hostile to him. Pittsburgh academic institutions and many nonacademic Pittsburghers were suspicious of the upstart Pitt, especially when Litchfield announced grand projects and when Pitt acquired new chunks of valuable urban land, including Forbes Field, home of the Pittsburgh Pirates.

Litchfield might well have been able to pull off his whole breathtaking ambition, if he had been able to obtain the necessary money. In later years, Litchfield talked as if the trustees had promised to raise $125 million for the university. Money on that scale was never forthcoming.* One principal difficulty was that an important Litchfield backer, Pitt Board Chairman Alan M. Scaife, died only 3 years after Litchfield became chancellor. Litchfield was eventually forced to resort to the kind of large borrowing which characterizes American business in order to fulfill his commitment to build a great university. But this kind of borrowing is much more accepted in industry than in university life. By 1965, the University of Pittsburgh was almost $20 million in the red and lacked the cash on hand to pay current bills and salaries. Because of this financial crisis, some of the trustees erupted in anger against Litchfield. He resigned shortly after this dispute; the explanation given was that he had suffered a mild heart attack.

Litchfield Remained Silent

Because he had left Pittsburgh under cloudy circumstances, Litchfield's career as an academic administrator was finished; for the last few years of his life, he devoted himself to his business affairs and to the presidency of the Governmental Affairs Institute. There is no doubt that Litchfield's family, some of his associates, and perhaps even Litchfield himself sometimes wanted to tell his side of the Pittsburgh dispute. But Litchfield never spoke out publicly. As he explained to this reporter, "A

*These matters were discussed by D. S. Greenberg in a three-part series entitled "Pittsburgh: The Rocky Road to Academic Excellence" which appeared in *Science* on 4, 11, and 18 February 1966.

NEWS IN BRIEF

● **LBJ'S CONSERVATION MESSAGE**: In the conservation message to Congress, delivered on 8 March, President Johnson emphasized the need to control pollution of the nation's air and water. He urged passage of the Oil Pollution and Hazardous Substances Control Act of 1968, which makes it unlawful to discharge oil within 12 miles from shore and imposes upon the oil polluter the responsibility and costs for cleaning up oil spills. As in his other messages, the President gave special attention to proposals which did not commit his Administration to new spending. One such idea in the conservation message was the President's espousal of "an historic and unprecedented adventure—an International Decade of Ocean Exploration for the 1970's."

● **SEA GRANT AWARDS**: NSF has awarded the first grants under the National Sea Grant College and Program Act of 1966. Institutional support grants totaling nearly $1.3 million were awarded to Oregon State University, the University of Rhode Island, and the University of Washington. Institutional support grants are designed to aid universities in developing broadly based programs for increasing the use of marine resources. Six grants for individual sea grant projects have also been awarded. The University of Miami and Florida Atlantic University received the largest of those grants.

● **AIR POLLUTION SUIT**: The Justice Department has filed its first suit in connection with the Clean Air Act of 1963. A civil suit, filed by the department on 7 March against the Bishop Processing Company of Bishop, Md., seeks an injunction ordering the animal rendering firm to stop discharging foul-smelling pollutants. The department filed the suit at the request of the Department of Health, Education, and Welfare—after an interstate conference and a public hearing failed to persuade the company to comply with the Clean Air Act.

● **MEDICAL EDUCATION**: To meet expanding American medical manpower needs, medical schools should expand their "collective enrollments to a level that permits all qualified applicants to be admitted," the American Medical Association Board of Trustees and the Executive Council of the Association of American Medical Colleges declared in a joint statement issued 5 March. The groups also urged medical schools to consider revising their curriculums to shorten the duration and costs of medical education.

● **PHILADELPHIA MERGER**: The Franklin Institute and the Jefferson Medical College, both in Philadelphia, affiliated 27 February in an effort to provide a broader base for scientific research and for graduate and undergraduate education. The laboratories, personnel, instruments, and equipment of both institutions will be pooled. Degrees awarded under the joint program, which will be in medicine, physical sciences, and paramedicine, will be granted by the Jefferson Medical College. Each institution will maintain its own management, although each institution will be represented on the board of the other. The *Journal of the Franklin Institute*, published since 1826, will be used by both institutions for publication of articles on science, academic matters, and biomedical engineering data.

● **WATCHING THE CIGARETTE COMMERCIALS**: A new organization, called Action on Smoking and Health (ASH), has been established to defend the Federal Communication Commission's ruling applying the "fairness doctrine" to cigarette advertising and to file complaints against broadcasters who fail to comply with the ruling. Under the ruling, stations which carry cigarette commercials are supposed to present antismoking messages. Broadcasters seek, however, to overturn the ruling in the courts. The founder of ASH is John F. Banzhaf, III, the young New York attorney whose complaint led to the FCC ruling.

● **"MONKEY LAW" REVIEW**: The Supreme Court has agreed to consider the constitutionality of one of the last state laws which forbids the teaching of evolution. The Court indicated on 4 March that it will review an Arkansas law that makes it a crime "to teach the theory that mankind ascended or descended from a lower order of animals." Mississippi is the only other state that forbids the teaching of the Darwinian concept of evolution.

man doesn't devote that many years of his life to building an institution and then criticize after he leaves."

When this writer served as a faculty member at the University of Pittsburgh, he first came to know Chancellor Litchfield, who then seemed like the aloof head of a big corporation, a businessman in the scholarly community, an academic empire builder. As the writer learned more in subsequent years, this early judgment seemed a much too simple view of a highly complex person.

People who knew Litchfield discussed him a great deal; he was the kind of man whose personality attracted deliberation about his motivations and worth. Through the years, one learned of facts that did not fit into a simple characterization of the man—that Litchfield had taken a leave of absence as a student at Michigan so that he could pursue his love for Byzantine history, or that he was greatly respected in his position in Germany, partly because of his unusual concern for those who worked for him. During 1965, his most precarious time at Pittsburgh, Litchfield did not hesitate to take a controversial stand by backing some Pitt students involved in civil rights demonstrations in Alabama. And, as the facts of Litchfield's treatment as chancellor at Pittsburgh became more clear, it was apparent that he had a case in his defense that should have been more widely appreciated.

Like other men, Litchfield had his faults, but many of these faults were shared by the systems which he served. Litchfield made grand statements about the future of the University of Pittsburgh, but those who, perhaps unthinkingly, commissioned him to bring "instant excellence" to the university must share in the blame that the visions were never fully realized. At times, Litchfield's University of Pittsburgh may have resembled a hustling corporation, but in that respect it was no different from many other American universities which are "on the make." What should be remembered about Litchfield's career as an academic administrator is that the University of Pittsburgh did improve markedly while he was chancellor and that he deserves much of the credit for that forward movement. He was too courageous a man to have rejected the commission to build Pittsburgh into one of the nation's great universities.

Edward Litchfield was a proud and ambitious man. When this reporter talked to him a few months ago, Dr. Litchfield could not keep the hurt out of his voice when he said, "It will take me 10 years to put myself into the position of leadership in the American business community that I formerly had in the academic community." Those who knew him regret greatly that he did not have those years.—BRYCE NELSON

Dainton Report: British Youth Swings—Away from Science

London. "Brain drain" and "technology gap" have a catchier ring, but "the swing away from science" is causing similar disquiet in Britain. Now a new report with the noncommittal title "Enquiry into the Flow of Candidates in Science and Technology into Higher Education"* documents a dwindling esteem for careers in science among the young.

Named informally after its chairman, F. S. Dainton, a Fellow of the Royal Society and vice-chancellor of the University of Nottingham, the Dainton Committee offers the general analysis that the places in science and technology created so hopefully in higher education in Britain will not be filled satisfactorily unless reforms in lower echelons of British education make science more attractive.

The swing has been dramatized by demographic trends: the numbers in the age group which feeds the university have taken a downturn. But even in terms of percentages the proportion of students in the secondary school "science stream," which prepares them for entrance into the university, has dropped decisively. From 42 percent of the total in 1962, the proportion declined to 31 percent in 1967. If projections prove accurate, the fraction in the "science stream" will be down to a quarter of the total in 1971.

Effects of the swing are already apparent at the university level. Admission to science and technology faculties, expressed as a proportion of the total, declined from 45.9 percent in 1962 to 40.6 percent in 1967. On the other hand, demand for places in the arts and especially in the social sciences has been soaring. Admission to social science faculties, expressed as a percentage of total admissions, virtually doubled between 1962 (11.9 percent) and 1967, and it is widely argued that the competition for places is now keener in the social sciences than in any other field. At the same time, there is muttering that some science faculties are hard put to find qualified candidates.

If there is a common denominator to the Dainton committee's recommendations it is despecialization. The relatively intense specialization which sets British secondary education apart from its continental and American equivalents is probably most readily explained in terms of university education. In British universities the first degree is customarily taken in 3 years, and the graduate's level of attainment in his field is usually higher than that of his American counterpart's. This means that a science student must concentrate solely on science and mathematics in the final 2 years of secondary school in order to meet entrance requirements and to cope with university work in his field. Actually, if he is to do well in the final two "sixth-form" years of school, which are the launching pad for the university, the student must begin specializing earlier, usually at the age of 13.

The key recommendation of the committee is that "there should be a broad span of studies in the sixth form of schools, and irreversible decisions for or against science, engineering and technology should be postponed as late as possible."

*Cmnd. 3541, Her Majesty's Stationery Office, London.