tional structure which will serve to eliminate the paradoxes and meet the needs discussed above.

Conclusion

It has been said that "we are members of a society in transition and the university has been the source for many of those forces which are behind transition." We can be confident that academic science will provide the federal government with the scientific advice it needs; with cogent and timely suggestions on the assessment, evaluation, and direction of new technology; and with comprehensive structures for achieving these ends.

I believe that academic science will provide the public with the balance of intelligent and objective attitudes so needed in this time of great change. A dangerous polarity is occurring in this country, with both extremes, of left and right, forsaking and distrusting the American center. I hope you in "academia" use all the influence you possess to promote reason as a balance for the emotion in current political discussion and to help us in government solve the social problems which are the ultimate source of the unrest.

Dallas: Larger Education Role Proposed for Research Center

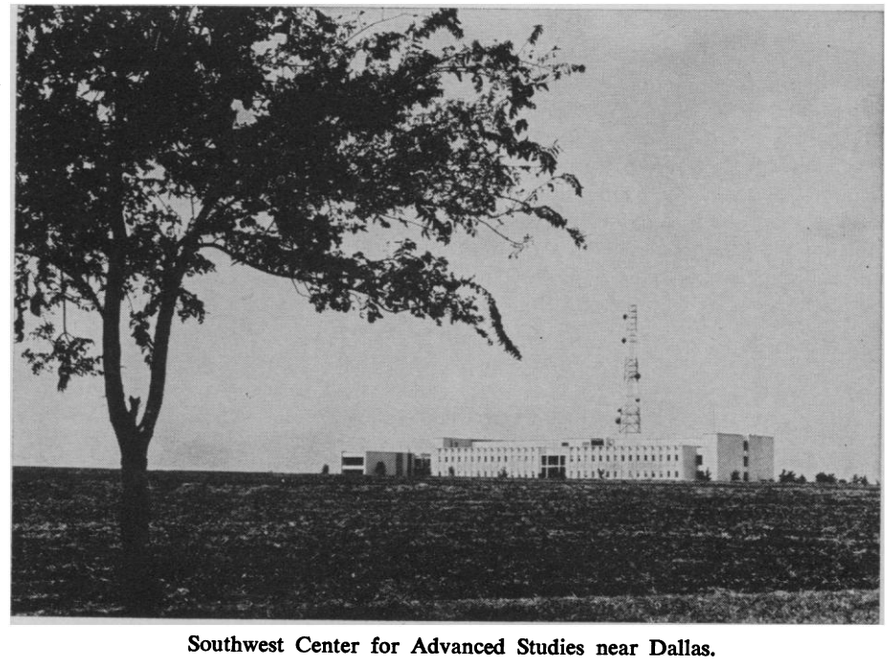
Dallas. The Southwest Center for Advanced Studies (SCAS) was established near here in 1962 under the leadership of Lloyd V. Berkner, distinguished physicist, member of the National Academy of Sciences, and one of the astute entrepreneurs of American science. Berkner, who died in 1967, had visions of SCAS stimulating graduate research activities in a region better known for abundant natural resources than for intellectual glitter. Though prospering from oil, gas, cattle, and farm products and, increasingly, from the growth of advanced-technology industry, the Southwest was, and is, forced to look to other regions for the bulk of its most highly trained technical manpower. SCAS, Berkner hoped, would develop close ties with universities of the region and, through joint programs with these institutions, greatly increase the Southwest's production of Ph.D.'s in the sciences.

Progress toward this goal has been discouragingly slow despite generous support of SCAS by the business community of Dallas. While SCAS has achieved some success as a contract research institution, its accomplishments in graduate education have been modest. In part, this has been because institutions in the area often have lacked the resources to undertake major programs with SCAS; and, in part, it seems to have been because SCAS, a new and somewhat alien force, has aroused among some local educators jealousy, resentment, and fear that a strong competitor for students, money, and influence was pushing its way on the scene.

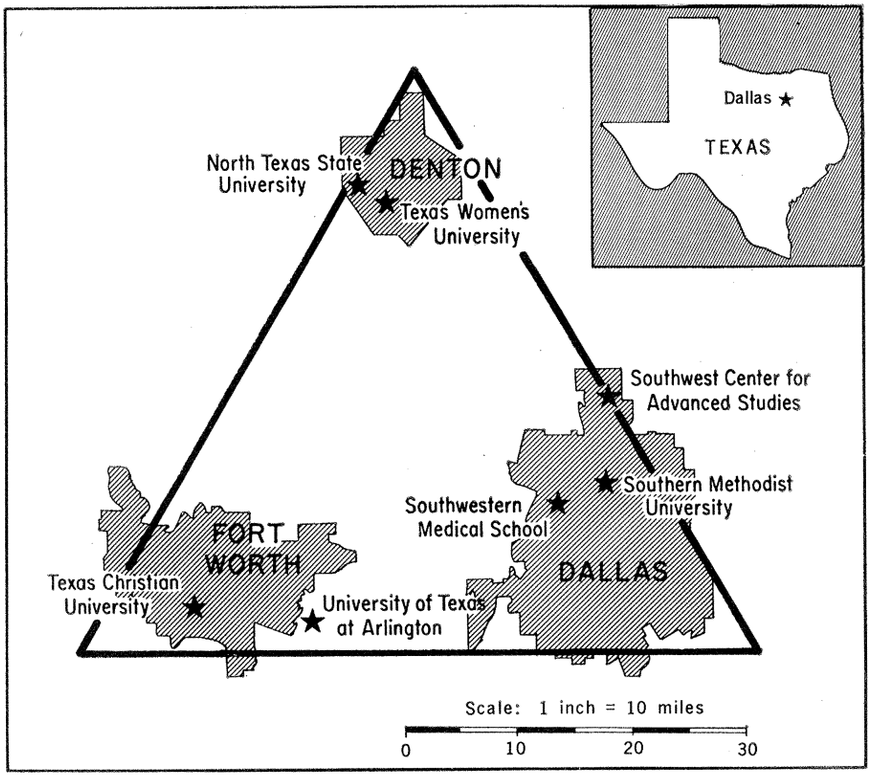
The center's growth—in buildings, staff, and volume of research and teaching—has fallen far short of original projections. Even physically, the center, with its research and teaching facilities housed in a single building on a 1200-acre site just north of Dallas, looks lonely and unfulfilled.

For the past year or so SCAS has been, in the words of one of its division heads, a "static institution," a condition which can by no means be altogether attributed to the tight federal research budget. In fact, to many of the SCAS scientists as well as to the Dallas business leaders who have been behind the center it has become increasingly clear that SCAS may soon enter a decline unless it is taken over by the state and given a larger role in graduate education.

It now appears that just such a salvation may come to pass. On 3 December, the Texas Coordinating Board for higher education, by unanimous vote, recommended that the state legislature approve a proposal by SCAS and the University of Texas Board of Regents for the center to become part of the University of Texas system. Even though a part of the university system, the center would be free (subject to the Coordinating Board's approval) to



Southwest Center for Advanced Studies near Dallas.



develop joint doctoral programs with all public and private universities within the state.

Surprisingly, as recently as the late 1950's, the Dallas-Ft. Worth metropolitan area, despite its wealth, aggressive civic and business leadership, and burgeoning industry, had no institution, public or private, offering Ph.D. programs in science or engineering. In Dallas there was Southern Methodist University and the University of Dallas (a new Catholic institution of very limited enrollment), but they were still some years away from starting Ph.D. programs in these technical fields. The same was true of Texas Christian University in Ft. Worth, and both T.C.U. and S.M.U. were perhaps better known for bruising football teams than for the quality of their academic programs.

There was also, outside Ft. Worth, an unprepossessing state institution, then known as Arlington State College but later (in 1965) to be redesignated the University of Texas at Arlington. Some 30 miles north of Dallas, but still part of the metropolitan area's higher education resources, were two former state teachers colleges, North Texas State University and Texas Woman's University. At the time, neither of these institutions, located at Denton, offered a Ph.D. in any scientific field, though both were ambitious to do so.

By 1958 Dallas business leaders decided to mount a major effort to overcome this educational deficiency. A prime mover was Erik Jonsson, president of the Dallas Chamber of Commerce and board chairman of Texas Instruments Incorporated (a scientifically oriented company which today employs some 275 Ph.D.'s), who felt that the Southwest urgently needed to catch up with the nation's rapidly advancing science and technology. Accordingly, Jonsson and other leaders of the Dallas chamber decided to bring in a gifted scientist and organizer to help them somehow provide graduate education of the highest quality.

The person selected was Lloyd Berkner, whom Jonsson knew well as a member of Texas Instruments' board of directors and who at the time was president of Associated Universities, the consortium of nine universities which runs Brookhaven National Laboratory for the Atomic Energy Commission. With characteristic energy and enthusiasm, Berkner took up the challenge at Dallas and set about establishing an institution which he hoped would have as much impact on universities in the Southwest as Brookhaven had had on those in its area.

In May 1960 Berkner presented his proposal to the Dallas leaders, who agreed to establish the new institution. Though it would confer no degrees, the new center would emphasize postdoctoral education and research training for Ph.D. candidates from other institutions. And SCAS itself would be organized like a university, with high standards of faculty selection.

Implementation of the Berkner plan began promptly because Jonsson and two of his business associates, Cecil H. Green and Eugene McDermott, contributed generously, donating Texas Instruments stock which is today reported to be worth some $15 million. (Stock is sold periodically, as necessary to meet deficits and loan payments.) Initially, SCAS occupied temporary quarters at S.M.U., pending construction of its own facility.

As the first president of SCAS, Berkner, with his prestige and very considerable talents of persuasion, recruited an able group of researchers. Among them were such scientists as Francis S. Johnson, who gave up a position as director of space physics research at the Lockheed Missiles and Space Company to become head of SCAS's atmospheric and space sciences division, and Anton L. Hales, who left South Africa, where he was director of the Bernard Price Institute, to head the center's geosciences division.

"Lloyd made you feel that this was a great and daring thing to do," Hales recalls. Without Berkner and his salesmanship, SCAS no doubt would have been less successful in its recruiting, for Dallas had little reputation as a center of research and learning.

In retrospect, it is clear that the original goals set for SCAS were overambitious. The first 5-year growth plan called for a campus of several buildings, a faculty and staff of 1000, and total expenditures of $60 million for the 5-year period (two-thirds of this to be in sponsored research funds; one-third in funds from private donors). As matters turned out, in the first 6 years some $7.5 million (exclusive of the gift by Jonsson, Green, and McDermott) was raised privately, most of it from individuals and firms in the Dallas area, and $19.3 million was received in sponsored research funds. As for the faculty and staff, today it numbers about 350, including 46 regular faculty members.

The value of its research contracts and projects is now just under $6 million a year (of which about $5 million is sponsored), and, according to a 1967 survey, SCAS now stands fourth among institutions of the Southwest in volume of research (if pure

medical research is excluded). Major research programs at the center include, among others, cosmic ray investigations sponsored by the National Aeronautics and Space Administration; studies of the earth's upper mantle, supported mainly by the National Science Foundation; and studies in molecular genetics, sponsored by the National Institutes of Health.

The center has had little success in increasing its volume of sponsored research over the past year. Furthermore, what with current cutbacks in federal research budgets, prospects for gains in the immediate future are poor. In a few fields, such as computer sciences and materials research, SCAS has never been able to attract subtantial and continuing support, and plans for major research programs in these areas have not materialized.

Moreover, in its first 6 years the center has not had even the educational impact that its financial and faculty resources would have allowed. Only six students have fulfilled research requirements for the Ph.D. at SCAS, and there are only 20 predoctoral students (plus 28 postdoctoral research associates) at the center now. Measured by the goals Berkner set, this clearly is a disappointing record, although SCAS collaborates with other private institutions in north Texas in a closed-circuit educational television network and, as in its programs in space sciences and geosciences conducted jointly with S.M.U., contributes in other ways to graduate education (a number of adjunct professorships at various area institutions are held by SCAS people).

The faculty and staff are not growing in number, and, while there has been no exodus, some people have left. In the present circumstances, if key faculty people such as Francis Johnson or Anton Hales were to leave, SCAS would face a serious problem, for there is now no Berkner, with unrivaled connections in the scientific community, to recruit replacements. The current president of SCAS is Gifford K. Johnson, whose background has been in industrial management.

SCAS has failed to flourish as a center of graduate research (until 1967 SCAS was called the Graduate Research Center of the Southwest) for a variety of reasons. First of all, Lloyd Berkner, for all his talents, apparently did not always show the degree of diplomacy the situation required. For instance, he would speak of his center's "working from the top down" to improve higher education in the region, with scarcely a bow to the leadership of the local institutions and the progress already being made, such as it was.

The center was set up with a large board of trustees which included a few officials from local universities, but, as some educators in the area noted apprehensively, its major policy-making body was a small executive committee made up principally of Berkner and SCAS's three wealthy founders, Jonsson, Green, and McDermott (Jonsson, who is now mayor of Dallas, has been this body's perennial chairman). Moreover, the two institutions at Denton—North Texas State and Texas Woman's University—were not represented on the board of trustees at all, even though there were trustees from such distant institutions as Tulane, the University of Arkansas, and even Stanford and the Rockefeller Institute. "Our relationship with SCAS has been unfortunate from the beginning," observes James L. Rogers, vice president for academic affairs at North Texas State.

Furthermore, though the center had

Nixon Speaks about Scientists

In his 3 December press conference in which his appointment of Caltech president Lee A. DuBridge as science adviser was announced, president-elect Nixon made some interesting comments about the alienation of the scientific community from the nation's political leaders, about the possibility of changing the role of the Presidential science adviser, and about the central position of the National Science Foundation. Nixon's comments on these matters are printed below:

QUESTION: Do you think that there has been an alienation between the scientists, by many of the scientific community, from the politicians or from the political leaders of this country?

MR. NIXON: Yes, I would think so. I think there is a tendency, being quite candid, for people in the scientific community and people in the intellectual community generally, if I may use that in its broadest terms, to take a rather dim view of the political operator.

I think we would like to bridge that gap. One of the reasons that I was so pleased to have Dr. DuBridge take this assignment is that I think he will be able to reassure the scientific community that our interest in them is not simply what they can produce, but also in how they can counsel us and how they can advise us. He is going to bring to the White House from time to time—this is one of the projects we discussed in our conversations—leaders of thought in the scientific community not only from the United States but from abroad. They will come to the White House to give me and my associates in the Government a chance to have a dialogue.

We might not become scientifically sophisticated—it was not one of my better subjects when I was in school, I will admit—but on the other hand, we have to have an understanding of this. I am looking forward with a great deal of anticipation to Dr. DuBridge setting up such seminars as he can.

QUESTION: Mr. Nixon, organizationally will Dr. DuBridge have the four jobs that go with the Science Adviser—the present Special Assistant to the President, Chairman of the President's Science Advisory Committee, and so on?

MR. NIXON: We haven't made a determination on whether or not the four jobs will be with Dr. DuBridge. We will make that decision at a later time and, of course, as Dr. DuBridge has already indicated, the National Science Foundation is the major Government effort. I understand that an appointment as the head of that Foundation will be the responsibility of the President in the next Administration.

Let me just say that Dr. DuBridge will be my adviser in determining how these various positions should be filled and in determining whether or not they should be filled by one man or whether we should split the job.

disclaimed any intention of conferring degrees itself, its charter allowed it the option of doing so. This gave rise to suspicion about the center's ultimate ambitions and no doubt made some university professors in the area less than eager to lend themselves and their students to Berkner's grand design.

Even so, according to a SCAS spokesman, the center's slow progress in the field of graduate education has been due primarily to the fact that institutions in the area simply have not had the financial resources to join with it in large Ph.D. programs. S.M.U. and T.C.U., for example, have rather modest endowments, even though they are the most prominent private institutions in an area abounding with millionaires. In fact, some people at these institutions have regarded SCAS as an unwelcome competitor for the favors of Jonsson and others willing to bestow large sums of money on higher education.

Now, however, SCAS stands at a new juncture. If the University of Texas does take over the center, as the state Coordinating Board has recommended, this will make SCAS somewhat less dependent on private philanthropy and will ease its financial worries. Furthermore, the Coordinating Board has indicated that it will take into account the resources at SCAS before approving new Ph.D. programs at other state institutions in the area, such as the University of Texas at Arlington (U.T.A.), which at the moment offers no degree beyond the masters. This should mean that in fields where SCAS is strong, such as space science and molecular biology, joint Ph.D. programs between it and other public institutions will develop as a matter of course. And, if the state should begin subsidizing private institutions, which seems not unlikely, the Coordinating Board may be in a strong position to encourage these institutions to enter into joint programs with SCAS where appropriate.

SCAS does, it appears, have a fair chance of being taken into the University of Texas system, for, after some travail, Dallas and Ft. Worth business and political leaders, as well as SCAS and the Texas regents, have agreed to recommend that this be done. However, Dallas and Ft. Worth have a history of rivalry, and agreements between them over regional facilities tend to be precarious. The proposal to bring SCAS into the university system was part of a package which, among other things, called for development of U.T.A. to proceed without predetermined limits as to size and graduate programs. But the Coordinating Board is insisting upon such limits, and this, especially, raises the possibility at least that the Dallas–Ft. Worth agreement on SCAS might come undone.

For their part, the Texas regents and the SCAS leadership see SCAS as the "base upon which to build a great new academic institution to be known as the University of Texas at Dallas." The Coordinating Board looks with no favor on this idea, but the regents and the Dallas leaders will be trying hard next year to sell it to the legislature.

Thus, with luck, SCAS may be on the way to becoming, in one form or another, what Berkner had envisaged—a major graduate research center of the Southwest.—LUTHER J. CARTER

Narcotics and Drug Abuse: The Federal Response

No clearer sign of the changing parameters of the "drug problem" in the United States can be found than the consolidation last spring of the two federal agencies primarily responsible for the enforcement of federal laws on narcotics and dangerous drugs, the Bureau of Narcotics in the Treasury Department and the Bureau of Drug Abuse Control (BDAC) in the Department of Health, Education, and Welfare. The Bureau of Narcotics enforced laws covering hard narcotics, such as heroin and cocaine, and marihuana. BDAC had authority over psychotoxic drugs such as the barbiturates and amphetamines and most hallucinogenics, including LSD. The terms of the merger put the new agency, the Bureau of Narcotics and Dangerous Drugs, in the Department of Justice.

The main official argument for unification was that agents of one agency, in making seizures, increasingly turned up drugs over which they had no jurisdiction. But a contributing motive seems to have been that illegal use of marihuana was becoming a runaway problem with which the Bureau of Narcotics, which had no research authority, was poorly equipped to deal.

Until recently, use of marihuana, like that of hard narcotics, had been mainly confined to large cities, particularly to ghetto minority groups. The narcotics trade was profitably monopolized by organized crime. The Bureau of Narcotics concentrated on efforts to control the flow of narcotics by cracking down on the traffickers. The bureau's philosophy of deterrence was based on heavy prison sentences. Critics of the bureau argued that legislation made too little distinction between sellers, who were often career criminals, and users, who were typically the urban poor.

With the expanded use of barbiturates and amphetamines and the discovery of marihuana and other hallucinogenic drugs by the middle class, the enforcement problem diffused. All over the country, local law enforcement agencies with campuses and white-collar enclaves in their territories are finding themselves with drug problems. And the stereotypes of drug users and "pushers" have changed. When the LSD users are the sons and daughters of the middle-class and the pusher turns out to be a bright chemistry major, the result, almost inevitably, is a double standard in crime and punishment.

Over the years, the Bureau of Narcotics and its approach to narcotics had strong support in Congress, compounded of admiration for the narcotics agent's daring undercover exploits and agreement with the bureau's punitive approach to the drug problem.

In this decade, however, Congress has taken note of the growing complexities of the drug scene in the United States and has begun to make adjustments. In 1965, after ignoring the issue for a number of years, Congress passed the Drug Abuse Control Amendments (*Science*, 27 August 1965) urged on it by Senator Thomas Dodd (D–Conn.), which greatly extended federal controls on the manufacture, distribution, and sales of "soft" drugs such as barbiturates and amphetamines and of the